



# The relationship between employees' continuing education and performance in Tehran's teaching hospitals

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## ABSTRACT

**Introduction:** Continuing education and training of employees significantly affect a hospital's performance and efficiency, and learning organizations usually exhibit higher efficiency. Hence, the objective of this study was to evaluate the correlation between the hospital employees' continuing education and performance indicators in the teaching hospitals affiliated to Tehran's Azad University.

**Method:** A cross-sectional study was conducted in the teaching hospitals affiliated to Tehran's Azad University in 2014. The subjects consisted of 70 professional hospital employees, including physicians, nurses, midwives and other personnel who had attended continuing education courses. A data collection form was used to collect the data. The data were analyzed with SPSSW-20 software. Pearson correlation coefficient was used at a significance level of 0.05.

**Results:** The number of continuing education courses held for physicians and nurses was equal (five courses), while fewer courses were held for the remaining personnel. There were significant associations between the employees' continuing education and bed occupancy rate ( $p=0.009$ ) and bed turnover interval ( $p=0.01$ ). There was no significant association between the employees' continuing education and hospital death rate ( $p=0.19$ ).

**Conclusion:** Training employees ultimately affects their performance in the hospital. Hence, a deeper insight into the significance of hospital training is needed for decision-making policy-makers and for hospitals' executive managers to efficiently use the limited therapeutic resources and eventually achieve optimum effectiveness.

**Keywords:** Continuing education of personnel, Performance, Teaching hospital

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## Introduction

Human resources and knowledge management have now emerged as important and competitive organizational resources, and human resource managers who are aware of this significance are able to create a competitive advantage for the organization. This change of position has led to a greater focus on the value of human resources and in expanding its strategic roles (1). Learning is vitally important in today's world and training is the basis of learning. Training employees and nurturing their talents is among an organization's most important tasks; an important responsibility of managers is to help individuals advance and improve their occupational capabilities (2). In fact, improving human resources has a very long and rich history and includes all activities performed to promote the level of knowledge and qualification and to create skills and awareness for better delivery of clinical services (3). Moreover, human resources are among the

most important organizational resources of healthcare organizations. Training human resources is one of the main activities of human resource management. Training and continuing education of healthcare organizations' professional resources are inevitable if that organization is to progress and develop (4). Nowadays, continual professional promotion in medical sciences is pursued, similar to other occupations, and is a topic of interest for those employed in the allied sciences. In 1990, a law on the medical community's continuing education was passed by the parliament to promote their knowledge and occupational skills and improve health service delivery in the country. Currently, only the disciplines of the medical community are required to attend continuing education (CE) courses (5).

CE leads to professional development and increases the health sector personnel's clinical skills and qualifications. The training procedures delivered during academic years is not sufficient in meeting the patients' demands;

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employees must receive CE to promote their skills and performance. Otherwise, the working environment will turn into a destructive environment for them (6).

One of the centers that has gained particular attention and has been given priority among the health sector's development plans is the hospital. Through provision of specialized medical treatments, hospitals play a significant role in restoring health and achieving patient satisfaction (7). Hence, CE is a method applied to enhance human resources. Furthermore, the employees' efficacy also increases and the implementation of quality assurance programs becomes possible; this plays a major role in hospital performance and efficiency (8). In a study entitled "The characteristics of continuing professional education systems in the health professions in Canada", Curran et al. concluded that CE was a compulsory professional need in Canada's health system (9). In a study conducted in 2013 on family physicians' CE, Fortuna et al. observed that teamwork could significantly affect the family physicians' CE. Collaboration between the medical education team and family physicians could improve the physicians and other professional groups' knowledge (10).

Indicators are data that can be used for decision-makings about customer management, quality of patient care, reimbursement systems, etc. Different statistical indicators can measure the efficiency of healthcare institutes, and can be applied as an accurate strategy to remove the barriers of healthcare services development. Hospital indicators represent the hospital's performance in different areas. Therefore, it is of prime importance to pay full attention to these indicators. They must be periodically examined and compared, and their status must be clarified in different provinces and regions and in different public, private and social security organizations (11). Hospital indicators are, therefore, the most important factors indicating a hospital's performance, and should be regularly and periodically evaluated (12). These indicators include bed occupancy rate (BOR), bed turnover rate (BTR), rate of admission per (active and fixed) bed, hospital death rate (HDR), and bed turnover interval (BTI) (13).

In light of the significance of the employees' CE particularly in hospitals and in improving hospital performance, the aim of the study was to determine the correlation between the employees' CE and hospital performance in the teaching hospitals affiliated with Tehran's Azad University.

## Methods

A cross-sectional study was conducted in the teaching hospitals affiliated to Tehran's Azad University in 2014. The subjects included all professional employees including physicians, nurses, midwives and others working in the teaching hospitals of Azad University in Tehran, namely A, B and C Hospitals. All the hospitals were studied. They were chosen because they held regular CE courses (for doctors, nurses and administrative staff), had the same number of beds, and offered similar types of services. Hospital A has 100 inpatient beds and has cardiology, CCU, obstetrics and gynecology, surgery and

dermatology wards. Hospital B has 240 beds and performs general and specialized surgeries. Hospital C has 220 beds, and has CCU, internal medicine, orthopedics, urology, gynecology, ear, nose and throat, ophthalmology, infectious diseases and dermatology wards.

A data collection form was used to collect the data. Notes were taken during data collection. The data collection form included all the components under the study in this research. The components included demographic data (sex, gender, age and years of professional experience) and data related to hospital performance indicators (BOR, active/fixed bed ratio, BTR, rate of admission per bed, average length of stay (ALS) and HDR). The hospital personnel's files were reviewed to calculate the numbers of hours of CE courses they had attended during 2013. Simultaneously, the hospital performance indicators were acquired through the Statistics Section of the hospitals. All data were registered in the data collection form. The data were then analyzed using SPSSW-20 software, and descriptive tests (mean & standard deviation) were used to describe the data. The Kolmogorov-Smirnov test was applied to test the normality of the sample. Spearman's rho was used to calculate the correlation between the employees' CE & ALS, and Pearson's correlation was used to calculate the correlation between the other variables.

## Results

All employees who had attended CE courses participated in the study; their demographic data are presented in Table 1.

Based on our results, the average numbers of CE courses taken by the physicians was  $4.5 \pm 2.4$ , and the average numbers of CE hours attended by them was  $10.08 \pm 4.88$  hours. The average numbers of CE courses taken by the nurses was  $4.48 \pm 2.53$ , and the average numbers of CE hours attended by them was  $10.37 \pm 5.55$  hours. Moreover, the average numbers of CE courses taken by other personnel was  $4.03 \pm 2.59$ , and the average numbers of CE hours attended by them was  $9.23 \pm 5.76$  hours. Also, hospital performance indicators were examined, the results of which are presented in Table 2.

Regarding the impact of employees' CE courses on performance indicators in the hospitals under the study, except the hospital death rate, all the other indicators were influenced by the CE courses. Spearman's correlation results for the active/fixed bed ratio and ALS indicators and Pearson's correlation coefficient for the remaining indicators are shown in Table 3.

## Discussion

Based on our results, Hospital C was in a better condition than the other two hospitals in terms of hospital performance indicators. This can be attributed to the better bed occupancy rate and shorter length of stay, as shorter length of stay eventually leads to increased efficiency and lower hospital costs. Moreover, there was a significant association between the employees' CE and the bed turnover interval ( $p=0.01$ ).

**Table 1.** Demographic data of the employees under the study

Groups under study			Physicians	Nurses	Other personnel
Demographic variable					
Gender	Male	N (%)	17 (65.4)	12(66.7)	16(51.6)
	Female	N (%)	9 (34.6)	6 (33.3)	15 (48.4)
Age	20 – 30	N (%)	11 (42.3)	4 (22.2)	13 (41.9)
	31 – 40	N (%)	12 (46.2)	9 (50)	14 (45.2)
	40<	N (%)	3 (11.5)	5 (27.8)	4 (12.9)
Years of professional experience	<10	N (%)	11 (42.3)	12 (46.2)	3 (11.5)
	11 –20	N (%)	4 (22.2)	9 (50)	5 (27.8)
	20<	N (%)	13 (41.9)	14 (45.2)	4(41.3)

**Table 2.** Performance indicators in the hospitals under the study

Hospitals under study	Hospital A	Hospital B	Hospital C
Performance indicators			
Bed occupancy rate	0.32±0.084	0.54±0.055	0.59±0.078
Active/fixed bed ratio	0.39±0.015	0.87±0.014	0.89±0.024
Bed turnover rate	15.92±0.99	21.25±2.96	23.75±3.14
Rate of admission per bed	4.65±0.16	6.42±0.33	7.48±0.39
Average length of stay	3.89±0.076	3.78±0.12	3.67±0.24
Hospital death rate	0.007±0.006	0.008±0.0006	0.009±0.0006

**Table 3.** Correlation between CE and the hospitals' performance indicators

Variables	Spearman's correlation coefficient	P value
Employees' continuing education & average length of stay	-0.39	0.01
Variables	Pearson's correlation coefficient	P value
Employees' continuing education & bed occupancy rate	0.49	0.009
Employees' continuing education & bed turnover rate	0.39	0.01
Employees' continuing education & rate of admission per bed	0.35	0.03
Employees' continuing education & hospital death rate	0.22	0.19

A study examining the association between job promotion and performance indicators of hospitals affiliated to Kerman University of Medical Sciences showed a significant association between adherence to health principles and bed turnover interval (14). A significant relationship was found between the employees' CE and rate of admission per bed, as well ( $p=0.03$ ). This may be explained by the training courses offered to employees and particularly physicians on appropriate hospital admissions, which eventually prevents unnecessary admissions to the hospital. Overlooking these principles will not only unnecessarily occupy the hospital beds, but also raise costs and even endanger the patients' lives.

The employees' CE was significantly related to the ALS ( $p=0.01$ ). Appropriate training of the personnel can reduce the waiting time for treatment and prevent the patient's unnecessary stay in the hospital. Studies have shown that in spite of spending human and financial resources on CE courses, they can increase the nurses' capabilities and improve their performance (15).

Bed occupancy rate was also significantly associated with the employees' CE. According to Nekoei-Moghadam et al. (2009), job promotion was significantly related to BOR (14).

The only indicator that was not significantly associated with the employees' CE courses was the hospital death rate. Naturally, training the hospital personnel, and in particular the healthcare team must contribute to reduction in death rate, but this was not so in our study. The reasons behind this lack of significance warrants further studies in future.

Overall, our results indicate that training employees can improve the performance and ultimately affect the hospital's performance. The impact on indicators such as average length of stay, bed occupancy rate, bed turnover rate, and rate of admission per bed has been proven.

### Conclusion

Training employees can improve their performance and ultimately affect hospital performance. Hence, a deeper insight into the significance of hospital training

is needed for decision-making, policy-makers and hospitals' executive managers to efficiently use the limited therapeutic resources and eventually achieve optimal effectiveness.

### Competing interests

The authors declare that they have no competing interests.

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### References

1. Guidelines for drinking-water quality: recommendations. World Health Organization; 2004.
2. Berg GV, Hedelin B, Sarvimaki A. A holistic approach to the promotion of older hospital patients' health. *Int Nurs Rev*. 2005;52(1):73-80.
3. Gillies DA. *Nursing management: A systems approach*. WB Saunders Co; 1994.
4. Tomblin Murphy G, MacKenzie A, Alder R, Langley J, Hickey M, Cook A. Pilot-testing an applied competency-based approach to health human resources planning. *Health policy and planning*. 2013;28(7):739-49.
5. Bijan M. Survey participant's continuing education programs of Guilan University of Medical Sciences about the quality of the programs implemented. *Journal of Medical Training of Gilan University*. 2001;2:1-7.
6. Brestovacki B, Milutinovic D. Continuing education of paediatric nurses in Vojvodina, Serbia. *Nurse education today*. 2011;31(5):461-5.
7. Arab M, Tajvar M, Akbari F. Relationship between leadership styles and hospital performance indicators. *J Qazvin Univ Med Sci*. 2007;4(1):70-5.
8. Phillips JM. Strategies for active learning in online continuing education. *Journal of continuing education in nursing*. 2005;36(2):77-83.
9. Curran V, Kirby F, Fleet L. The characteristics of continuing professional education systems in the health professions in Canada. *Canadian Journal of University Continuing Education*. 2013;32(1).
10. Fortuna CM, Matumoto S, Pereira MJ, Camargo-Borges C, Kawata LS, Mishima SM. Continuing education in the family health strategy: rethinking educational groups. *Revista latino-americana de enfermagem*. 2013;21(4):990-7.
11. Kane RL, Maciejewski M, Finch M. The relationship of patient satisfaction with care and clinical outcomes. *Medical care*. 1997;35(7):714-30.
12. Nasiripur A. [relationship between branding and performance indicator in ghaem hospital in mashhad]. *Modirite salamat magazine*. 2007;13(41):15-20.
13. Hoy WK, Woolfolk AE. Teachers' sense of efficacy and the organizational health of schools. *The elementary school journal*. 1993;355-72.
14. Nekouei MM, Arabpour H, Majidi A, Molaei H. The relationship between a job promotion plan and performance indicators of hospitals affiliated to Kerman University of Medical Sciences.
15. Hughes P. Evaluating the impact of continual professional education (ENB 941). *Nurse education today*. 1990;10(6):428-36.