ORIGINAL ARTICLE

Evaluation of Continuous Educational Programs as Viewed by the Employees of the Great Naft Hospital

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Abstract

Background: Continuous educational programs are one of the essential ways to promote human resources; inconsistency of the courses with individual and organizational needs may lead to organizational dissatisfaction, job performance reduction, and time and capital waste. The study aimed to evaluate the attitudes of the employees about in-service continuous educational programs; they participated in the above-mentioned programs in the continuous educational units from 2006 to 2017 in Ahwaz city, Iran.

Methods: In this cross-sectional study, all the treatment and administrative employees in the hospital participated in the educational plans. Out of 548 employees, 225 were selected using the ratio-random sampling method in the late 2017. The study instrument was a validated questionnaire with 66 items and 5 scales of adaptation, efficient management, individual development, growth of attitudes, employees' knowledge and skills, and managers' support for implementing operational programs; its validity was measured using Cronbach's Alpha (α=0.93). The collected data were analysed in SPSS V.23 using descriptive statistics, mean scores, SD, χ^2 test, ANOVA, and t-test.

Results: Based on the study findings, the participants maintained that management of continuing education courses was useful and beneficial, and there was a statistically significant difference between the main variables and the total score ($P<0.001$). The Eta square showed that literacy ($\eta^2=0.224$, $R^2=0.462$) and gender ($\eta^2=0.205$, $R^2=0.345$) had less efficiency, and occupation ($\eta^2=0.581$, $R^2=0.219$) significantly affected continuous education programs ($P<0.01$).

Conclusion: It is suggested that cognitive dimension and occupation should be considered in implementing continuous education programs. Additionally, educational content should be updated since education considerably affects the employees' individual and professional growth.

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Introduction

Given their important and essential responsibilities for improvement of health issues as well as their unique status, medical centers and organizations involved in the promotion of health in the society should make attempts to educate the employees; therefore, the education unit should hold specialized and general short- and long-term

educational programs. Generally, the evaluation of the employees' attitudes about the importance of in-service education should be part of the responsibilities of each organization. There was no need to measure goals, design and implement activities, examine the immediate and long-term effects of activities, and the possibility of providing optimal services. The inappropriateness of the courses for the individual and organizational needs, and the employees' interests will cause dissatisfaction and negative repercussions on the employees' motivations and actions, and will result in wasting of time and costs. To provide effective educational courses, health centers must always perform an analysis of their activities and practices.

Regarding continuous education of the employees in health care organizations and services, many local and foreign studies have been conducted, highlighting some of the results of this research. Recent studies have shown that in-service education has effective impacts on reduction of manpower and material loss, increase in the employees' accountability, priority of continuous short-term courses the relevant organization, and increase in applied as well as technical and professional skills.[1-3] Some studies also examined the content of the continuous educational courses and found that the inappropriateness of the course contents and the way the in-service education program was implemented were the obstacles in the efficiency of to courses, the ability to analyze and solve the problems, , increase in the technical knowledge, enhancement of the power of problem analysis, and employee satisfaction.[4-8]

A number of studies have focused on the effectiveness of continuous education programs and found that these courses provided the basis for the growth of specialized knowledge, increased skills in utilizing tools, increased productivity, reduced costs, increased spirit of effective learners' variability (flexibility), and the learners' individual development.[9-13]

Regarding the consistency and review of the contents of continuous education courses, some studies indicated that continuous needs analysis of continuous education programs with a scientific approach to program design, suitability of the education for the employees' professional needs, establishment and strengthening of virtual educational courses and e-learning were necessary to be considered in classical classrooms and workshop. Furthermore, paying attention to the learners' professional status, enhancing the employees' sympathetic skills, and considering the quality of education in accordance with the ISO (International Organization for Standardization) standards[14-22] were the other important factors to be regarded. The success and effectiveness of continuous education courses in other studies indicated that the level of the course, duration and type of the course, quality of the education center, attention to learners' professional limitations, and their job challenges should be addressed by the organizers of continuous education courses.[15-26]

Considering the importance of measuring the attitudes and priorities of continuous education and evaluation of the content of educational materials, this study aimed to examine the employees' viewpoints as to the continuous educational courses held in Great Naft Hospital from 2006 to 2016.

Materials and Methods

The participants of this cross-sectional study included all employees of the medical and administrative sectors with formal and contractual employment status in Great Naft Hospital, Ahwaz city, Iran in late 2017; it was conducted during the period of continuous in-service education of the hospital employees from 2006 to 2016 in large oil companies. According to the statistics provided by the Office of Labor, the statistical population of the survey consisted of 548 people by the end of 2016. To determine the sample size, we used Krejcie and Morgan's table (1970).[27] In cases where there was no community variance or required percentage, you can use this table to estimate the sample size. This table shows the maximum number of samples. Therefore, considering the size of the statistical population in this study (N=548), according to Krejcie and Morgan's table, the sample size was determined 225 individuals. By ratio-random sampling, the percentage share of each of the important variables in the statistical population was calculated and determined in the sample size. The required information was collected through a questionnaire.

The questionnaire was distributed in collaboration with the hospital education department and sent to all employees. After repeated follow-up, 100% of the questionnaires were collected. In this research, the standardized questionnaire developed by Homayounnia (2005) was used to evaluate the effectiveness of continuously designed courses[11] and had 5 different sub-scales as follows:

1. The appropriateness of the courses to the goals of the organization and the requirements of the employees and managers' job and skills with 8 items (the total score was from 8 to 40).

2. The management of educational courses with 14 items (total score from 14 to 70).

3. The effect of the course on the individual growth of the employees and their empowerment with 10 items (total score from 10 to 50).

4. The effect of the course on attitude, skill and knowledge of employees and managers with 27 items (total score from 27 to 135).

5. Organizational support for education operations with 7 items (total score 7 to 35).

The 66-item questionnaire was scored with a five-point Likert scale ranging from "too much" (score 5) to "very low" (score 1) options. The minimum score was 66, and the maximum 330, with a score of 330 meaning the maximum belief in the effectiveness of the continuous education course from the employees' perspective. A specialist taught in 5 sessions of face-to-face and continuous courses held from the first half of December to the end of March, 2015; and at the end of each session, he distributed the questionnaires and completely supervision the sessions. The data were collected, coded and analyzed in the statistical software. Completed questionnaires were fully returned. First, the reliability of the instrument was calculated, using Cronbach's alpha coefficient. The reliability of the whole questionnaire was 0.93, and for five-point subscales, it was 0.82, 0.86, 0.82, 0.91 and 0.80, respectively. In addition, it was shown that the reliability coefficients of the entire questionnaire and its sub-scales were acceptable. The assumption of normal distribution of data using Kolmogorov-Smirnov and Shapiro-Wilk tests indicated that the distribution of data was normal at a significant level ($P \geq 0.02$). Similarly, we analyzed the data using ANOVA and compared the means using the Leven test; the zero equality and homogeneity of the variance of the samples were confirmed, and the feasibility of analyzing the variance between the main variables and the total score of the questionnaire (P=0.587) was tested. The data were analyzed through t SPSS software V. 23 (SPSS-IBM© Inc. Armonk, NY, United States) using descriptive statistics, mean scores, standard deviation, chi-square test, ANOVA, and comparison of the means to answer the study questions.

Results

All the distributed questionnaires (100%) were completed and returned to the researcher. Approximately 88% of the male employees and 12% of the women responded the questions. The mean and standard deviation of the test scores in the dimension of occupational needs and organizational goals were 22.55±4.06, and in the continuous education courses management, they were 40.18±9.23. In addition, the mean and standard deviation of the test scores in the dimension of individual growth and empowerment were 30.55±8.80; and as to attitude, skill and knowledge of the employees, they were 81.32±14.37. Furthermore, the mean and standard deviation of the test scores in the dimension of the support of the organization's directors were 19.02±5.97, and in the total course evaluation, they were 254.64±19.04.

The comparison of the subgroups and the significant difference between the employees in the main indicators, namely, the effectiveness of continuous education courses at the mean level and standard deviation showed their significant difference in the total score of the test in each subscale (Table 1).

After confirming the normal distribution of data and the Leven test, one-way analysis of variance test was used to compare the differences among demographic subscales and the total score of the questionnaire "Evaluation of the effectiveness of continuous education courses". Each of the four main variables in addition to the intergroup difference had the same effect on the dependent variable (level of assessment and effectiveness of the continuing educational courses of the hospital employee). Moreover, gender (t-test, $P \leq 0.002$) and the level of employees' literacy (coefficient of Eta=0.224) had a lower coefficient of influence, but the occupational

Table 1: Comparison of the subgroups and their significant difference in the total index

Index	Sub-index	%	Mean±SD**	Chi-Square test*	
				Chi-Square	P value
Gender	Male	88.2	284.79±8.56	1.301	0.002
	Female	11.8	255.22±5.83		
Literacy	Undergraduate and lower	15.87	301.50±8.89	2.102	0.000
	Bachelor	33.57	274.89±2.84		
	Master's degree and higher	50.54	256.67±2.55		
Occupation	Nursing management	2.6	284.50±0.707	8.002	0.002
	Para clinical line	6.6	245.80±8.04		
	Heads of the departments, doctors and education	90.8	301.84±2.09		
	Administrative and financial affairs	5.3	312.25±3.86		
	Medical records, documents, R&D	26.3	324.33±7.49		
Subscale of the Questionnaires***	Section 1: Fit the needs of the job and organization goals	22.55±4.06		2.001	0.000
	Section 2: Management of continuous educational Courses	40.18±9.23		1.002	0.000
	Section 3: Personal growth and empowerment	30.55±8.80		1.005	0.000
	Section 4: Attitudes, skills and employee knowledge	81.32±14.37		1.003	0.001
	Section 5: Supporting organizational leaders	19.02±5.97		1.001	0.000

* Comparison was at the mean level of total test scores. ** Mean scores and standard deviations in the subscale rows for the total score of the test and each subscale. ** Significant tests for gender differences using independent sample t-test less than 0.05

Table 2: Results of the analysis of variance test for the main variables in the total index of the questionnaire

Effective variable	Variance resources	Sum of squares	DF	Mean of squares	F	P	Squared coefficient R	Squared coefficient Eta	Confidence interval		n
									Upper limit	Lower limit	
Gender	Intra-group	1061.896	1	1061.896	2.012	0.001	0.345	0.205	274.04	114.37	225
	Inter-group	32114.630	102	433.981							
	total	33176.526	103								
Literacy	Intra-group	472.303	2	236.152	0.325	0.002	0.462	0.224	301.71	247.13	225
	Inter-group	32704.223	114	448.003							
	total	33176.526	116								
Occupation	Intra-group	1607.980	2	803.990	1.245	0.003	0.219	0.581	264.07	215.99	225
	Inter-group	31568.546	121	432.446							
	total	33176.526	123								

field with the coefficient of Eta=0.581 affected the dependent variable. Considering the significant confirmation of the intra-group differentiation of the main variables, the level of literacy and occupational status of the hospital employees, Bonferroni or Dan denomination test (because the sample size was not equal in the subgroups) was used to determine the distinct subsets or groups. There was no significant difference in the literacy rate of the pairs (P≥0.000), meaning that the level of the subjects' literacy cannot be an effective and separable component to predict the level of the effectiveness of educational courses (Mean Difference=0.74, P=0.120, CI=114.37, 274.04). However, in the results of the analysis of variance table, this difference was significant. In the occupation variables, the differences in the pairs were significant, showing that occupational classification of employees can be an effective and separable component to predict the effectiveness of educational courses, so that administrative and medical records occupations (Mean Difference=9.7, P=0.000, CI=215.99, 264.07) were much more similar compared to other disciplines and were considered effective in most continuous education courses. In the results of the analysis of variance, the difference was significant. As to the independent variable of gender and the impossibility of performing follow-up tests, according to the results of Tables 1 and 2, as well as confirmation of the assumption of the equality of variance of the samples, the male and female subgroups were tested using mean comparison tests; it was indicated that men in general believed that most continuous education courses were effective (Male=247.79±8.56, Female=255.22±5.83, P<0.001). This high distinction can be attributed, to a certain extent, to the large difference in the sample size of female and male employees (Table 2).

Regarding the question "Do you attend educational courses to improve your attitudes, skills and career knowledge?", most employees believed that the course had a moderate efficacy (P≤0.003). In response to the sixth question, and in accordance with the result of Table 2, there was a different view among employees from different careers about the effectiveness of continuous educational courses (P≤0.003). In categorizing important factors (course management, management support and fit with goals and needs), the results of the courses indicated that all factors were significant in the effectiveness of the courses (P≤0.001).

Discussion

The appropriateness of the courses to the organization's goals and employees' needs, beneficial effects of the courses, impact of the courses on employees' individual development, effect of the period on the attitude growth, employees' knowledge and skills, and managers' support were evaluated using Cronbach's alpha. In general, the statistical analysis of the results showed that the management of continuous education courses was on average useful, and a significant difference was found between the main variables of the survey and the total score of the questionnaire. The results of the coefficient of influence indicated that literacy (η^2=0.224, R^2=0.462) and gender (η^2=0.205, R^2=0.345) had a low effect, and occupation (η^2=0.581, R^2=0.219) had a highly significant effect on the effectiveness of continuous education programs (R^2=0.581, R^2=0.219).

In addition, in response to the seventh and main questions of the study, it clearway found that the importance of the appropriateness of the courses to the nature of the job was consistent with the results obtained by Homayoun Nia[11] and Mousavi[13] (P≤0.001). The necessity of the scientific management of courses was in line with the results of the studes conducted by Mousavi and Homayoun Nia.[11, 13] Their underdevelopment was similar to the findings of other studies[11, 14] (P≤0.001), and similar to other studies,[5, 11, 13] the importance of supporting learning from continuous education courses was an important concern for learners in the healthcare system.

Each question of the study was examined separately, yielding the following results compared to other similar studies: in response to the majority of learners, the relevance of the courses to the importance of the work was important; this result was consistent

with the studies by Homayoun Nia[11] and Mousavi[13] in which the average course management was 18.40 and its standard deviation was 23.9. Less than half of the learners believed that these categories of courses provided a basis for their individual growth, which was similar to those of other studies.[11, 14]

Certainly, participation in educational courses was significant in improving attitudes, skills and knowledge of the employees, which was in line with the findings of other studies.[5, 15] Moreover, the importance of categorizing important factors (course management, support of managers and fit with goals and needs) was revealed in the effectiveness of courses, in line with other studies.[5, 11, 16] In this study, considering limitations such as lack of cooperation of some participants and the limited number of instrumental questions regarding the target group, its limitation to Great Naft Hospital, we limited the survey to the viewpoints of those who participated in the courses, rather than the organizers themselves and other hospital employees.Special attention should be paid to adult learning psychology in designing courses.[28, 29]

Conclusion

Regarding the findings of this study, it was better to consider the desirable design of continuous education programs, decentralized planning, and the needs of each unit. Employees' job categories and their individual growth are also suggested to be taken into account. The employees' education system was significantly related to other human resources management systems (including rights, promotion, reward system, disassembly system, etc.). Education of human resources as a pivotal element of development should be strongly considered. To use the knowledge and skills learned in educational courses, we need to provide appropriate facilities and support by managers. The importance of evaluation in employees' educational system should be clarified, and the ongoing assessment of the educational process is suggested to be considered. According to the results, it is recommended that the designers of continuous educational courses should be aware of the different levels of cognitive domains, particularly cognitive levels, and the content of continuous education courses should be in accordance with the learners' job.

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Authors' Contributions

JO & EM contributed to the design, performed the interviews and extraction of data. SZ & LM wrote the draft and developed the introduction and discussion sections. AA interpreted the methods and results, and approved the final manuscript. All the authors reviewed the paper and confirmed it.

Ethical Considerations

Ethical factors such as plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancy were totally observed by the authors. All the procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration, and its later amendments, including informed consent and confidentiality of all personal information.

Patient Consent

The patients' written and verbal consent was obtained before their participation in the study.

Provenance and Peer Review

Not commissioned; externally peer reviewed.

Disclaimer

The ideas expressed are those of the authors and do not necessarily reflect Shiraz University of Medical Sciences and Great Naft Hospital, Iran.

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