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The Effectiveness Assessment of Health Care Provider's Additional Professional Training

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Abstract. The article is devoted to the practical effectiveness assessing the health personnel training in the medical colleges system of the Defense Ministry and the Health Ministry. The theoretical and methodological basis of the study is D. Kirkpatrick's model. The article analyzes the number of medical personnel dynamics of the Military Medical Hospital, who has undergone professional training during the last three years. At the first level of the analysis, the trainee's survey results about training satisfaction are summarized, at the second stage, the results of acquired competency personnel testing are studied. At the third stage, managers were interviewed about changes in the labor behavior of subordinates after their training. Finally, at the fourth level of effectiveness evaluation, changes in performance were studied. The result of the study showed that education in the medical College of the Health Ministry is much more productive at all levels of effectiveness evaluation. The article also includes recommendations to improve the effectiveness of training nursing personnel.

1. Introduction

According to the most important population health indicators, Russia is inferior to many countries; therefore, it is necessary to improve the health care system for the successful socio-economic development of the country strategy's implementation.

The quality of medical services is largely determined by the quality of health personnel education [1; 2] and entails an increase in the requirements for its competence and professionalism. International Declaration of the World Health Association (1989) notes that "the quality of health care cannot be higher than the level of received education". Thereby, it is the medical personnel training effectiveness that is the foundation for effective solution of social and economic problems.

There can be noted some tendencies in the military healthcare that the share of employed medical personnel will gradually decrease with the constant growth of the medical services volume. Therefore, the modern economic situation encourages military medical organizations towards continuous training their personnel in order to be ready for improvement, the innovative methods introduction of treatment, diagnosis, and care about patients. To improve the quality of the health personnel training system, it is necessary to evaluate the effectiveness of the education that has already been implemented [3; 4]. The purpose of this article is to analyze the effectiveness of health personnel professional training in "354 Military Clinical Hospital" of the Russian Defense Ministry.



2. Theoretical basis and methodology of research

The study of the health personnel training effectiveness was conducted on the basis of the Four Levels™ Evaluation Model proposed by Donald Kirkpatrick [5].

In his articles D. Kirkpatrick formulated indicators for all levels of evaluation (table. 1). Despite the criticism existence [6], in the 1970-ies all the levels began to be widely used by organizations as an integrated assessment model of professional training and they were adopted subsequently as professional education valuation standard [7, p. 48-54]. More often the assessment is made on the first two levels [8] and is used in various spheres of the economy [9; 10; 11]. Sometimes they are supplemented with a training cost assessment [12].

Table 1. Levels of training effectiveness according to D. Kirkpatrick's model in regard to health personnel professional training.

№	Effectiveness level	Score	Evaluation tools
1	Satisfaction with training	Trainee' reactions to training	Questionnaires and interviews about satisfaction with training
2	New knowledge Level	Acquired knowledge, skills and abilities that contribute to the effective work	Trainee' testing; managers and colleagues' questioning and interviewing ; control tasks
3	Labour behavior	Labour behavior changes; ability to implement the acquired competencies in the practice Changes in the company's performance. Quality indicators:	Monitoring; managers' questioning and interviewing; periodic certification
4	Labor efficiency	- patient satisfaction increased; - staff turnover reduction; - improving the organization image. Quantitative indicators: - growth of services; - increase in profitability.	Patient surveys; a study on the image; supervision by managers; statistical reporting data.

Compiled by the authors on the basis of [7] to assess the health staff training effectiveness.

D. Kirkpatrick's training cycles and resources for each stage of the training cycle contributed to further research in the sphere of training performance evaluation [13; 14].

3. Study results

The federal state "354 Military Clinical Hospital" of the Russian Defense Ministry, as an organization of military health care, is a specialized multidisciplinary medical and preventive care establishment.

The mission of "354 Military Clinical Hospital" is to strengthen the health of the Russian Defense Ministry servicemen by providing high- qualitative medical care and conducting preventive measures.

"354 Military Clinical Hospital" includes at the moment: an advisory-diagnostic polyclinic, a dental clinic, a special purpose medical detachment and three branches. The total number of personnel is 1658, where 479 are doctors.

A continuous professional medical and pharmaceutical personnel training is organized in the "354 Military Clinical Hospital" at the present time in the system of postgraduate and additional professional education [15].

In accordance to the current legislation, medical and pharmaceutical profession study are trained no less than ones in 5 years time in medical schools and colleges at the faculties of advanced training and professional retraining followed by obtaining a specialist certificate.

In accordance to the Russian Defense Minister's order, special university was established in 2015 for training specialists with higher and secondary medical and pharmaceutical education. It was named federal state budgetary military educational institution of higher education «Military Medical Academy named after S.M.Kirov» of the Defense Ministry of Russian Federation (Military Medical Academy).

Medical specialists of the Russian Armed Forces are trained in the following directions: public health organization, therapy, surgery and others. The staff of the branch of Military Medical Academy includes 7 departments and a medical college with 11 territorial courses for retraining and upgrading qualification of secondary medical (pharmaceutical) personnel.

The courses for training specialists of "354 Military Clinical Hospital" with secondary medical and pharmaceutical education are organized in the medical college as the branch of Military Medical Academy since September 2015.

Because of Military Medical Academy cannot yet ensure the Hospital with all necessary cycles of retraining and advanced training "354 Military Clinical Hospital" continues to cooperate with Ural State Medical University, Sverdlovsk Regional Medical College and Sverdlovsk Regional Pharmacological College for the hospital specialists' training on a budgetary basis and for conducting educational (practical) classes for students of educational institutions.

This type of cooperation with civilian medical schools is mutually beneficial for the hospital, universities, colleges and for listeners. The hospital has an opportunity to help interns during practice, and has the constant provision with qualified personnel trained specifically for required professions. The educational institutions have the possibility of organizing departments for conducting educational and practical classes at workplaces, and the possibility of students' employment after studies. The students get help during the graduate work preparation, they do not need to look for practice places, they acquire practical work skills and they have a employment guarantee.

The training plan is coordinated and approved in "354 Military Clinical Hospital" annually and applications are submitted to educational institutions for the required cycles of retraining and advanced training.

It is planned to train in 2018 all specialists of the hospital with expiring certificate validity period and specialists who need retraining, but at least 20% of the total number of healthcare and paramedical personnel. If it is necessary to train specialists in related professions, additional applications will be drawn up.

Retraining and advanced training duration takes from 18 to 500 hours. Training takes place in or out off the workplaces. As a rule, training practice is organized at the employee's workplace [16].

The number of specialists who has been trained at the advanced training courses during the study period is presented in Table 2.

Table 2 shows that the number of people with higher medical (pharmaceutical) education who has studied at courses is 51% less than those with secondary education, which is confirmed by the corresponding indicator.

The coefficient of professional specialists' with higher and secondary medical education development in the hospital in 2016 and 2014 was 0.23, and in 2015 - 0.24.

The data of the table show that each specialist increases his qualification at least once every 5 years and additionally develops adjacent specialties, if necessary. The number of trainees is more than 20% annually. So, there were trained more than 25.1% specialists in 2016 with secondary medical education and 20.1% - with higher education.

To assess the effectiveness of additional education nursing staff was interviewed in the hospital just after the end of the training about satisfaction with their training [17]. The specialist's opinions are examined about training in medical schools of the Defense Ministry and the Health Ministry.

151 specialists were interviewed in 2016. As a result the following answers were obtained: in the medical college as the branch of Military Medical Academy 9% of respondents gave unsatisfactory evaluation, 68% - satisfactory and only 23% - a high positive rating (Figure 1).

Table 2. The number of healthcare personnel of "354 Military Clinical Hospital", who passed retraining and study at the advanced training courses during the academic period from 2015 to 2017.

Educational level	Educational institution	Number of staff, person			Changes in indicators, %		
		2015	2016	2017	2016/2015	2017/2016	2017/2015
Higher medical	Military Medical Academy	69	62	61	89,9	98,4	88,4
	Civic Education Institutions	7	12	27	171,4	225,0	385,7
	Trained in related specialties	-	-	8	-	-	-
	Trained in total	76	74	88	97,4	118,9	115,8
	Staff in total	374	369	440	98,7	119,2	117,6
Secondary medical	Military Medical Academy	153	134	-	87,6	0,0	0,0
	Civic Education Institutions	10	17	226	170,0	1329,4	2260,0
	Trained in related specialties	42	29	24	69,0	82,8	57,1
	Trained in total	163	151	23	92,6	15,2	14,1
	Staff in total	588	603	250	102,6	41,5	42,5

Compiled by the authors.

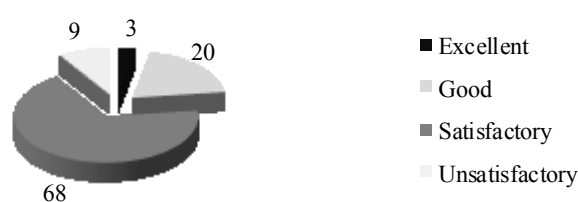


Figure 1. Evaluation of the additional professional education in Military Medical Academy, % Compiled by the authors.

Medical staff gave following answers in a survey about the quality of training in Military Medical Academy (one specialist might give a few answers):

– Positive responses: it is geographically convenient (14%); practical training took place at their workplaces (19%); additional option of receiving wages part-time and combining work with studying (8%); work experience is not lost during training courses (22%).

– Negative answers: knowledge has not increased significantly (the lack of new information) (92%); the lack of teachers' practical experience (51%); practical classes were of no interest (78%); lectures were not delivered on the subject (groups were formed of specialists who were trained in different cycles) in order to save teachers' time (63%).

Suggestions for improving the training in Military Medical Academy were the following:

- to invite practitioners and teachers from other educational institutions for lecturing and conducting situational tasks - 69%;
- to increase teachers' practical training - 25%.

The trainees were highly satisfied and appreciated with the quality of courses in Sverdlovsk Regional Medical College. The total share of positive answers here was 100%, in this cause 28% rated education as excellent, and 72% - as good.

Health staff gave the following positive answers to the question about the quality of training courses in Sverdlovsk Regional Medical College:

- 100% improved their theoretical knowledge;
- the course material conveyed by the teachers was interesting, informative and accessible; active forms of learning were used – 78%, which is important for the development of scientific thinking [18],
- 51% mastered new techniques and technologies of medical services,
- 39% acquired additional skills at practical classes,
- the bases for practical training were different medical organizations (the opportunity to exchange experience) – 42%.

The proposal to improve the training in Sverdlovsk Regional Medical College was only the following answer: to send staff more often for studying in this college – 82%.

Based on the first level of evaluation results the following conclusion can be drawn: the learning process in Sverdlovsk Regional Medical College has been positively evaluated, which allows to increase the medical personnel motivation to obtain and assimilate knowledge and to use it in their work. The educational process in the Military Medical Academy requires improving the quality of education.

The second level is evaluation of the acquired knowledge; it was carried out by the interview of trainee's managers. 42 managers of secondary health personnel were interviewed in 2016 about new knowledge, skills and abilities of their subordinates acquired in educational institutions.

The managers rated their subordinates acquired knowledge in Military Medical Academy in the following way:

- mainly satisfied 15%;
- partially satisfied 37%;
- do not meet the requirements 48%.

Thus, the result of subordinates' acquired competencies has not met the managers' expectations.

Based on the results of the correspondence study of knowledge acquired in Sverdlovsk Regional Medical College only positive assessments were obtained. 41 % of surveyed managers appraised the knowledge gained in Sverdlovsk Regional Medical College as fully adequate and 59 % realized that the knowledge is largely adequate to their needs.

Twice a year, the heads of nursing staff conduct testing employees for establishing professional and managerial competencies level. All the test results were highly appreciated by those employees who were trained at Sverdlovsk Regional Medical College.

Thus, the conducted study allows to appreciate the increase of knowledge and the possibility of introducing it at their workplace from health personnel studying at the medical College of the Health Ministry.

The third level of the research makes it possible to assess the effectiveness and training impact by revealing changes in the health staff behavior after being trained.

Nursing staff labor behavior was estimated for this purpose by managers after training using the supervision method. The following results were obtained (Fig. 2).

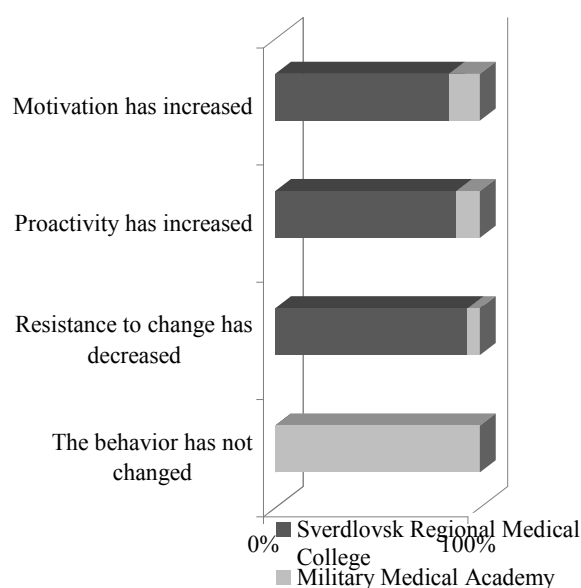


Figure 2. Nursing staff labor behavior assessment by managers after their training in educational institutions, %. Compiled by the authors.

Employees' behavior of those who were trained in Military Medical Academy has slightly changed to 20%, even those whose theoretical knowledge was assessed positively.

The labor behavior of nursing staff, after training in Sverdlovsk Regional Medical College improved significantly - more than 80%. Competent, motivated employees began to initiate the use of new methods and technologies in medical services, improving their jobs and various operation modes, including the health and sanitary-epidemiological ones; their resistance to change decreased respectively.

Thus, behavioral responses of trained personnel are characterized by the ability to implant acquired competencies into practical activities, and the formed level of motivation - to use them.

The fourth level of efficiency allows to evaluate the final training result, using the following indicators: productivity and quality of work in accordance with the key performance indicators (KPI), the complications and patients' complaints existence, staff moral, staff turnover, etc.

As a result of the study – determining the health personnel effectiveness of work who have been trained in Sverdlovsk Regional Medical College - managers confirm positive changes, such as: quality indicators of medical services improvement (no complications, patients claims, etc.), staff moral improvement in the department, increased responsibility and work discipline more than 80% (Fig.3).

The results of the conducted study confirm that, insignificant changes have occurred in the staff work as the results of training in Military Medical Academy less than 20%.

4. Conclusion

Thus, the analysis of the additional vocational education effectiveness of health personnel of “354 Military Clinical Hospital” in medical Colleges confirms the following:

Firstly, the professional development system does not fully provide for the differentiated health personnel training;

Secondly, the quality of knowledge obtained by specialists does not meet international standards that influences to the work efficiency.

Consequently, the low level of additional professional education of the “354 Military Clinical Hospital” specialists in Military Medical Academy does not contribute to improving the quality of medical services and has risks [19].

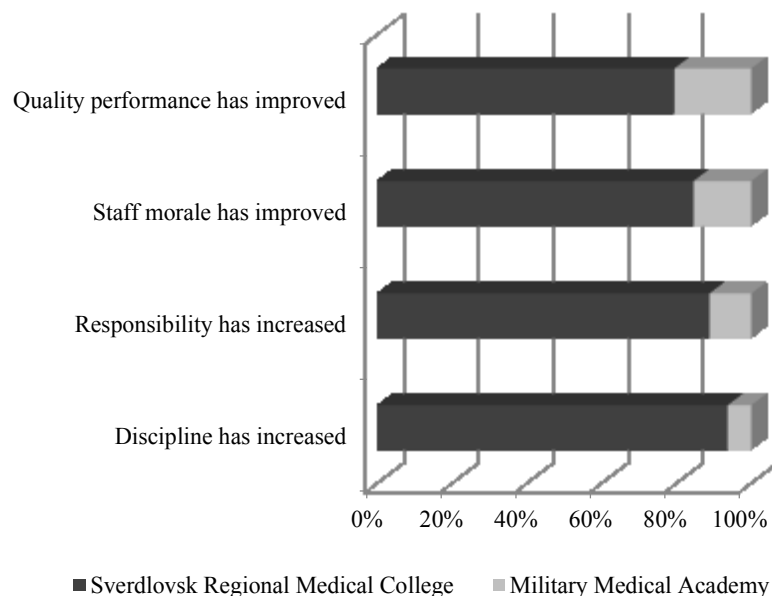


Figure 3. Work performance evaluation of trained health personnel, %. Compiled by the authors.

For the future development and optimal usage of the health personnel' intellectual potential the head of “354 Military Clinical Hospital” should pay more attention to corporate training. The health personnel corporate educational system [20], which is based on the hospital needs assessment and the analysis of its state, uses a variety of modern teaching methods, fundamentally different from the professional education system in medical colleges will contribute to improve the efficiency of the organization.

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