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THE ROLE OF TWO EDUCATIONAL APPROACHES (WORKSHOP AND MULTIMEDIA) ON NURSES' PERFORMANCE IN THE FIELD OF BLOOD TRANSFUSION

Forough Rafii[1], Maryam Janamiri[2*], Afsaneh Dehnad[3], Hamid Haghani[4]

1. *Professor,Department of Medical Surgical,School of Nursing and Midwifery,Iran University of Medical Sciences,International Campus,Tehran,Iran, P. O. Box.1996713883*
2. *Masters student, Department of Nursing,School of Nursing and Midwifery,Intrernational Campus,Iran University of Medical Sciences,Tehran,Iran, P. O. Box.1996713883*
3. *Assistant Professor,Department of English,Faculty of Management and Information, Tehran,Iran, P. O. Box.1996713883*
4. *Tutor,Departmen of Statistics, Intrernational Campus,Iran University of Medical Sciences,Tehran,Iran, P. O. Box.1996713883*

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ABSTRACT

Given the risks of error in the process of blood transfusion and the vital role of blood in restoring patients, it is of the utmost importance to find effective approaches for reducing the nurses' functional errors. The present study aims to compare the role of multimedia and workshop training practices on the nurses' performance in the field of blood transfusion.
Methods: This study is a quasi-experimental study with a control group which was conducted in 2015. A total of 111 nurses working in oncology, emergency and surgery wards of three different educational hospitals were divided into three groups of 37 according to the inclusion and exclusion criteria. The data were collected through a two-section questionnaire including demographic information and Performance Assessment Questionnaire of Pourfarzad et al. on blood transfusion ,conducted 2 weeks before and after the intervention. The data were analyzed by SPSS version 20 based on using Chi-square, independent and paired t-test, Scheffe test, covariance, Kruskal-Wallis and ANOVA tests.
Results: The results showed that the mean and standard deviation of performancescore before and after training was 68.87±4.61 and 78.26±3.06 in the workshop group, 70.36±7.06 and 79.0±78.91 in the multimedia group, and 71.35±2.74 and 71.1±2.52 in the control group. Both methods were statistically effective andthere was no significant difference between the results obtained through multimedia and workshop groups ($p<0.05$).
Conclusion: Due to the equal effectiveness of both methods, the use of these methods for improving the performance of nurses in blood transfusion process is recommended.

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Introduction

Blood plays a vital role in saving the lives of patients. Various byproducts such as red blood cells, platelets, cryo and fresh frozen plasma can be extracted from blood and thus save the lives of several patients. Currently, more than 50percent of patients in the ICU and 50 to 70 percent of patients in orthopedic and surgerywards need blood transfusion . But several errors

Corresponding Author: Maryam Janamiri , E-mail: m.janamiri @ gmail.com

have been occurred observed in blood transfusion chain and its transportation indicating that blood is not transfused properly to patients [1].The causes of errors in blood transfusion chain include the wrong prescription, lack of correct identification of patient during sampling or blood transfusion, wrong sampling and tagging, mistakes in sending blood from the blood bank to the hospital, errors during blood or blood products transfusion, noncompliance of the principle for storage and transport of blood, and also technical errors due to weakness in the performance of healthcare personnel [2,3]. Performance is a set of psychomotor skills requiring physical mobility, coordination and use of motor skills. ; Trainings are required to develop these practices which are measured in terms of speed, accuracy, distance, administration or techniques [4]. Medical errors can be reduced through frequent controls and familiarity with the correct methods [5].

One of the goals of clinical governance is promoting evidence-based clinical abilities and skills among healthcare personnel andconsequentlyraising the quality level of services along with the promotion of clinical abilities and skills.. Accordingly, the issue of improving the quality of medical education becomes increasingly more important [6]. Nursescan respond to rapid changes in the health system via continuous education, thereby increasing their professional skills. While the relationship between education and nursing services is continuously growing, due torapid scientific and technological advances in the field of health, basic nursing education is effective only for 10 years [7-9]. Given the importance of improving the quality and effectiveness of continuouseducation programs, the format and content of these programs require to be reviewed and tested [10].

As effective learning is the result of a good teaching with the right tools, choosing the right educational approach is one of the most important actionsfor designing and implementing educational programs [11]; because [12].

Currently, the common and traditional method of continuousnursing education is holding workshops and lectures that have the advantages such as cost-effectiveness[13,14].

A relatively recent method used in training is the use of multimedia. Literally,multimedia means multiple media [15] which are used for communication and delivery of issues and concepts, using various media such as speech, music, images, text, animation, interactive environments, and interfaces [16].

Aqajaniet al. studied the effect of multimedia on students' performance [15]. also noted that holding educational workshops for nurses could significantly improve their performance in complying standard precautions to prevent HIV transmission during blood transfusion in emergency departments [17].

In most studies in various fields of nursing education, and traditional nursing training, the use of workshop method has been mentioned. However, its comparison with modern training methods, by which nurses can learn the contents on their own and out of educational environment, has not been addressed. Accordingly, the present study aimed to compare the effect of multimedia and educational workshop methods on nurses' performance in blood transfusion.

Methodology

In this quasi-experimental study which had a control group the study population consisted of bachelor's degree nurses working in oncology, surgery and emergency wards of the teaching hospitals affiliated to Iran University of Medical Sciences. .. Available sampling method was conducted; then, the inclusion criteria (having at least 6 months of experience at the current workplace) and the exclusion criteria including lack of cooperation during the studyand displacement of nurses from the target wards (emergency, surgery or oncology) were considered.The study was carried out in three groups of 37 people, including control, intervention with workshop and intervention with multimedia in order to comparatively examine the effect of these two methods on nurses' performance in blood transfusion. Data was collected through a two-part questionnaire. The data was collected through a two-section questionnaire. The first part had 7 questions related to demographic data of nurses (age, sex, history of blood transfusion, education level, work experience in the emergency, surgery or oncology ward); the second part was a self-reported questionnaire measuring the nurses' performance in blood transfusion [2]. The study instrument consisted of 20 questions about nurses' performance in blood transfusion with five-item Likert scale ranging from "never" to "always", and the score range was from zero to four. As the scores were between (0-80), gaining a score less than or equal to 75% of the total score (0-60) indicating weak performance, 76% to 90% (60-72) average performanceand more than 90% (73-80) good performance.The questionnaire response time was 10 minutes. The questions were in the context of necessary measures before blood transfusion, during blood transfusion and also necessary actions when unwanted reactions occured. In order to determine the validity of the data collection instrument, content validity was used. Thus, it wasstudied and evaluated by reading books and relevant articles and asking the opinions of 8 professors. The reliability of self-reported questionnaire was evaluated using Cronbach's alphamethod on 30 completed questionnaires(0.7). (In order to determine the validity of the data collection tool, content validity was used; so that it wasstudied and evaluated by reading books and relevant articles and asking the opinions of 10 professors. The reliability was measured by internal consistency using Cronbach's alpha (0.759) for the performance questionnaire.

The procedure was carried out as pre-test and post-test study for all three groups. Before the intervention, a pre-test was conducted for all three groups. In the workshop group, training and re-training of blood transfusion scores were conducted in the form of lecture, slideshow, group discussion and question and answer practice during 4 sessions of 4 hours. In the multimedia group, educational materials in the field of blood transfusion were saved in a file using StoryLine software which was then given to the participants through multimedia (audio and video) file. The content of educational materials

in both intervention groups were completely identical and only the training method was designed differently. The presentations in both methods were extracted from reference books, articles and reliable scientific websites including materials on blood transfusion process, blood transfusion history, its applications, and necessary nursing measures when encountering blood transfusion complications. Two weeks after the intervention, all three groups participating in the study were post-tested. The data analysis was performed because of descriptive and analytical statistical methods using SPSS version 20.

Research findings

Demographic data in(Table 1) confirmed the homogeneity of the groups in terms of gender, age, andwork experience. Based on analysis of variance at significance level of P <0.05, the three groups showed no statistically significant difference in terms of the mean age. Also,the three groups were homogeneous in terms of gender and work experience, based on chi-square and Kruskal-Wallis tests. However, the groups were significantly different in terms of employment status based on

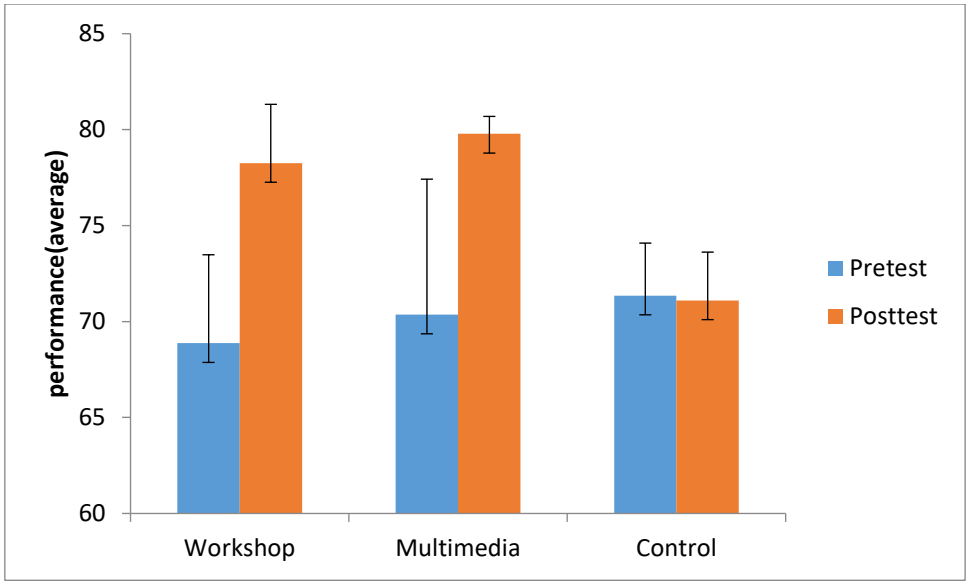
Table 1. Demographic characteristics of the nurses participating in the study

		work				Job Status
	Age	experience(year	Male	Female	Official	Contractual
32.05± 6.2	4.4±4.77		13.5	86.5	42.9	57.2
33.83±7.62	7.15±6.74		10.8	89.2	54.1	45.9
30.32±5.37	3.54±3.37		10.8	89.2	16.2	83.8
0.07	0.68			0.917		0.012

Table2- distribution and homogeneity of blood transfusion times between groups

	blood transfusion times				
	0	1-4	5-8	9-12	12<
control	21.6	40.5	16.2	5.4	16.2
multimedia	10.8	21.6	24.3	8.1	35.1
workshop	29.7	27	5.4	18.9	18.9
p-value		0.031			

The mentioned results of (table 2) represents that based on Fischer test, the blood transfusion times had statistically significant differences in three groups (p=0.031).Its worth mentioning that, the majority of participants in control group had done blood transfusion%40.5 (1-4) times, whereas, in the workshop group the majority (%29.7) had never experienced the blood transfusion. In addition, %35.1 of multimedia group faced more than 12 times of blood transfusion



In addition, %35.1 of multimedia group faced more than 12 times of blood transfusion

Figure 1. Comparing the performance of nurses before and after intervention in the three groups:

According to (Figure 1), the standard deviation and mean of performance before and after training were68.87±4.61 and 78.26±3.06 in the workshop group. Theperformance improved from moderate to good level after the intervention. The standard deviation and mean of performance before and after training were70.7±36.06 and 79.78±0.91in the multimedia group. Most of the participants were at moderate level before the intervention, but all the participants came at good level after training.Also,the performancescore in the control group in pre-test and post-test were 71.35±2.74 and 71.10±2.52 which did not significantly change. Paired t-test for multimedia and workshop groups showed significant differences before and after the intervention (p-value <0.001). The results of analysis of variance and the mean performance score showed no statistically significant difference after the training (p-value = 0.117).Scheffe Determination Test showed that the mean score of performancewas statistically different in all three groups and it was lower in the control group. The mean performance score in the multimedia group was higher.

Table 3. Comparison of changes in the performance of the subjects in the workshop with multimedia groups

	ΔPerformance		Independent t analysis
	Average	SD	
Workshop	9.38	9.38	t = 0.021 Df=72
Multimedia	9.41	7.17	P=0.984

According to the results, p-value of independent t-test was larger than 0.05 as shown in Table 3. The performance score changes in the two workshop and multimedia groups were not significantly different. So both groups were effective in increasing the performance score.

Conclusion

Faultless performance of nurses in the process of treatment, in general, and in the process of blood transfusion, in particular, is effective in reducing the risks of blood transfusion [18].Since that weakness in nursing performance is often the result of lack of knowledge, taking education and training into consideration is important [19]. Knowles suggests that adults are self-directed people and can take the responsibility of learning on their own due to mental maturity. In fact, he believes in Andragogyand defines it as: "Andragogyis the art and science of helping adults to learn". Knowles'sAndragogyTheory suggests that the teaching-learning process, based on assumptions of adults' tendency to know what they are going to learn, learning through personal experience, learning by problem-solving approach depends on faster results [20]. According to Knowles, adults' readiness for learning regularly tends to improve social conducts of individuals; thus, he believes that adult's trend to learn the things, which are matched with their social functions and roles faster. That is why adult education is content-oriented instead of being problem-oriented [21]. Davis believes that education is a process by which an individual gains the skills needed to do a task or job or improves these skills. There exists some ground during education to build upon learning experiences occurring while performing their jobs presently or in the future.at the pile resent and future [22]. Our findings suggest that, all the participants were at moderate level of performance before the intervention. These results were inconsistent with the study of Pourfarzad et al where the majority of subjects were at good level of performance [2]. Although the majority of nurses' performance in this study and Pourfarzad were similar, the need for further training on blood transfusion complications and improvement of treatment performance are emphasized and the necessity to hold training programs and controlling managers were highlighted. In the present study, the performance level of nurses in the field of blood transfusion improved to a good level after holding training programs; however, it did not occur in the control group due to lack of training which might confirm the effect of training on improvement of nurses' performance.

Comparing changes in performance of the subjects in the workshop and multimedia groups for introducing a more effective way indicated that both groups' performance improved and there was no significant difference between them. Therefore, no one is preferred to another. According to the present study, both methods can be used to improve the nurses' performance in blood transfusion.

The present study emphasizes the effectiveness of blood transfusion training and retraining the courses for the medical staff after graduation. It also states that training courses related to blood transfusion need specialized training programs. As these skills are not included in the curriculum of nursing education, they are less aware of the complications of blood transfusion. It seems that participation in training courses increased participants' performance score by attending workshops or studying multimedia files. Regarding the multimedia method, the use of images, voice and interactive animations engaged nurses in the process of learning and they were actively involved in learning and deep understanding of materials ,thereby improving their knowledge, attitude and performance. With regard to workshop method, the presence of a teacher allows theoretical and sometimes practical trainings and it is also possible to ask questions for the participants that might be effective on their scientific promotion [23]. According to Mayer (2001), who is one of the greatest theorists in the field of designing educational multimedia, and based on cognitive learning theory, the rational for the effectiveness of multimedia is that: "the logic behind multimedia presentation of material is that the whole cognitive capacity of human is applied to process the information." In fact, educationalmulti-media, according to their multi-sensory nature, can be easily adapted by different learning styles and provide an easy and sustainable learning with various forms of interaction [24] It seems that multimedia method affectsthe improvement of knowledge and consequently performance and attitude through creativity, saving time, elimination of unnecessary activities, and presentation of materials in different formats, active learning with feedback, repetition, and learning matched with learners' speed.

Given the effectiveness of both methods on the improvement of nurses' performance in blood transfusion, the present study suggests that future studies focus on the improvement of educational content for nurses and duration of training sessions and evaluation of the effect of these items on nurses' performance in blood transfusion be emphasized.

References

1. Gray, A .; Hart, M .; Dalrymple, K. and Davies, T. (2008). Promoting safe transfusion practice: right blood, right patient, right time. British Journal of Nursing. 17 (13). pp.812-817
2. Purfarzad Z, FarmahiniFarahani M, Ghamarizare Z, Ghorbani M, Zamani M. Nurses' Knowledge and practice of blood transfusion in hospitals of Arak in 2010. Sci J Iran Blood Transfus Organ (2012). 9 (3).pp. 33745. [Article in Farsi]

3. Smith A. Gray A. Atherton J. Pirie E. Jepson R., Does Time Matter? An Investigation Of Knowledge And Attitudes Following Blood Transfusion Training, Nurse Education In Practice. J. Nep(2013). (8).pp.1-13.
4. Bent B. Andresen and Katja van den Brink. Multimedia in Education Curriculum. UNESCO Institute for Information Technologies in Education (2013).pp.1-136.
5. Graaf, J., Kajja, I., Bimenya, G., Postma, M., and Sibinga, C (2009). Bedside practice of blood transfusion in a large teaching hospital in Uganda: An observational study. Asian Journal of Transfusion Science, 3 (2).pp. 60-65
6. ZouAlfaghari M, Sarmadi M R, Negarandeh R, Zandi B, Ahmadi F. [Attituds of Nursing and Midwifery School's Faculty toward Blended E-learning at Tehran University of Medical Sciences (Persian)]. Hayat. (2009). 15 (1).pp. 31-9.
7. Jalali R. [The Survey of Nurses' Viewpoint on Continuous Nursing Education in the Teaching Hospitals in Kermanshah, 2002 (Persian)]. SDME (2004). 1 (2).pp. 113-20.
8. Heravi M, JadidMilani M, Rezheh N. [The Effect of Lecture and Focus Group Teaching Methods on Nursing Students Learning in Community Health Course (Persian)]. IJME (2004). 4 (11).pp.55-9.
9. Mark Hawkins. Adverse Transfusion Reactions. A Reference for Nurses. College of Licensed Practical Nurses of Alberta (2013).pp.1-39.
10. Park, y.m. & Kim, s. y(2013). Impact of Job Stress and Cognitive Failure on PaitientSafty Incidents Amony Hospital Nurse- safety and Health at Work.J
11. Safavi A. [General Teaching Methods and Techniques (Persian)]. Tehran: Moaser(2008).
12. Baghaie M, AtrkarRoushan Z. [A Comparison Of Two Teaching Strategies: Lecture And PBL, On Learning And Retaining In Nursing Students (Persian)]. JUMS (2003). 12 (47).pp. 86-94.
13. Seif, A. (2011). Measurement, Evaluation and Educational Evaluation. Twenty-eighth edition, Tehran: Publication time.pp. 780
14. Haghani F, Eghbali B, Memarzadeh, M. Effects Of Teaching Method Workshop. On General Surgery Residents. Teaching Skills. Journal Of Education And Health Promotion (2012). 1 (1).pp. 1- 5.
15. Aghajani M, MirbagherAjorpaz N, Mohammadi S, Mohammadi A. Designing Multi-media Learning Software (MLS): effects on surgical technology students' knowledge, attitude and practice. Life Science Journal (2013). 10 (10s).
16. Harris, A., Atterbury, C., Chaffe, B., Elliott, C., Hawkins, T., Hennem, S., Howell, C., Jones, J., Murray, S., New, H., Norfolk, D., Pirie, L., Russell, J. and Taylor, C. (2009). Guideline on the administration of blood components. British Committee for Standards in Haematology.
17. Montazer, SH, AminiAhiDashti, H.,Shekarriz, R.,Shojaei, HR.Comparing the awareness and knowledge of nurses, residents and interns about blood products transfusion and its adverse reactions. Journal of Pasyar N., Gholamzadeh,S.The effect of education on nurses' knowledge and performance about AIDS in emergency departments of the hospitals affiliated to Shiraz University of Medical Sciences. Nursing Research (2009). Vol. 4, No. 12-13 pp. 81 -90.
18. Kaur P, Kaur G, Kaur R, and Sood T. Assessment of Impact of Training in Improving Knowledge of Blood Transfusion among Clinicians. Transfus Med Hemother. Jun(2014). 41 (3):pp. 222-226.
19. Hay SN, Scanga L, Brecher ME. Life, death, and the risk of transfusion: a university hospital experience. Transfusion (2006). 46 (9). pp.1491-1493.
20. Knowles, M.S., Holton III, E.F. and Swanson, R.A., 2014. The adult learner: The definitive classic in adult education and human resource development. Routledge
21. Davis, D., O'Brien, MAT, Freemantle, N., Wolf, FM, Mazmanian, P. and Taylor-Vaisey, A., 1999. Impact of formal continuous medical education: do conferences, workshops, rounds, and other traditional continuous education activities change physician behavior or health care outco
22. Imani, F., Aghabakhshi, H., QaediMohammadi, Mohammad Javad. The effect of short-term in-service training courses on the performance of municipal employees in District 7 of Tehran in(2010). Case Study. Social Research (2012). Vol. 5 No. 17.pp. 29 -46
23. Alijanpour E, Amri-maleh P, Khafri S, Razzaghi F. (2014). Assessment of different cardio-pulmonary resuscitation teaching approach on quality of education in medical student, Babol (2011). Medical Journal of Mashhad University of Medical Sciences. 56 (6). pp.376-382.
24. ZareiZavaraki, Ismail; Jafarkhani, Fatimeh. Multimedia education and its role in special education. Exceptional education (2009). Vol. 99 and 98. pp.21-28.