

*Original Article***Effects of two educational method of lecturing and role playing on knowledge and performance of high school students in first aid at emergency scene***Akbar Hassanzadeh^{*}, Arezu Vasili^{**}, Zahra Zare^{***}***Abstract**

BACKGROUND: This study aimed to investigate the effects of two educational methods on students' knowledge and performance regarding first aid at emergency scenes.

METHODS: In this semi-experimental study, the sample was selected randomly among male and female public high school students of Isfahan. Each group included 60 students. At first the knowledge and performance of students in first aid at emergency scene was assessed using a researcher-made questionnaire. Then necessary education was provided to the students within 10 sessions of two hours by lecturing and role playing. The students' knowledge and performance was assessed again and the results were compared.

RESULTS: It was no significant relationship between the frequency distribution of students' age, major and knowledge and performance before the educational course in the two groups. The score of knowledge in performing CPR, using proper way to bandage, immobilizing the injured area, and proper ways of carrying injured person after the education was significantly increased in both groups. Moreover, the performance in proper way to bandage, immobilizing injured area and proper ways of carrying injured person after educational course was significantly higher in playing role group compared to lecturing group after education.

CONCLUSIONS: Iran is a developing country with a young generation and it is a country with high risk of natural disasters; so, providing necessary education with more effective methods can be effective in reducing mortality and morbidity due to lack of first aid care in crucial moments. Training with playing role is suggested for this purpose.

KEY WORDS: Speech, role playing, accidents, emergencies.

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Injuries have always been a treat to human life. One of the main problems in modern societies is accidents, incidences, injuries and damages and many children, adolescences and adults lose their lives in such incidences or become disabled for the rest of their lives.

In general, it is estimated that 60 million people in the world are subjected to such incidences every year and got injured.¹ In addition, the direct cost of such incidences (their health care costs) is reported to be 500 billion dollars per year in the world;² while the indirect costs,

the pain and sorrow of such incidences as well as the psychological and emotional costs are not included.

Statistics show that the 4th cause of death in the world after health attach, cancer and brain damage, is the environmental damages, and in Iran, more than 14 beds in each hospital is occupied by injured people. Therefore, there is a need for everybody to have the knowledge of first aid and be able to give fast help to injured people around them and save their lives at the right moment.

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First aid includes actions that at the time of incidences are done to prevent death, damages and complications and/or to reduce pain before the arrival of health care personnel and/or to carry the injured to health centers.³ In fact, first aid is to give emergency care to injured and patients. These aids can never replace medical care, but they help injured to recover faster and have the chance to reach a place where the necessary health care is provided.

Studies show that the youth of societies do not have sufficient knowledge of first aid at emergency scenes. A study conducted in the Mashhad University of Medical Sciences showed that 61.7% of people in the society did not have enough knowledge of first aids.⁴ In another study on people of Tehran, 82% of people said that medications and medical care are more important than first aids.⁵

These studies show that people in Iranian society are not aware of first aid and its importance and as a result can't perform it usefully. Considering the special age of high school students and that they are almost the most accessible group and the readiest for learning and also are ready to join the society, they are a good link between family, society and educational systems and they can transfer some information to their families. Also, according to studies lack of skill and knowledge of first aid needed for heart attacks, accidents and incidences cases at the crucial time is the main cause of 75% of deaths and 90% of complications and disabilities caused by accidents. Therefore, education can play an effective role in increasing people's knowledge and performance in such situations.⁶

One of the most important components of education is choosing proper teaching method.⁷ In Iran, speech is the commonest method of teaching about health care issues,⁸ while other methods such as games and role playing which involve learners can increase their learning.

In a study by Samadi on 180 students of guidance schools of Masal, the effects of participating and passive (speech) teaching methods on students' educational achievements in Arabic language course were compared and the results showed a significant difference between

talented and slow students in learning from these two methods.⁹

In another study on 105 students of second semester in high schools of district 15 in Tehran, there was a difference between educational achievements, emotional characteristics and performance with teaching methods (group discussion, speech and experiment) and in fact the group discussion method was showed to be better than speech.¹⁰ Since first aid is a basic principle in health care, the best and most effective method should be selected to provide education in order to have the highest learning outcomes. Therefore, this study aimed to compare two teaching methods of speech and role play to find the proper method for teaching first aid to this age group.

Methods

This is a semi-experimental study conducted in 2008 to compare the effects of two teaching methods of speech and role play on knowledge and performance of high school students for providing first aid at the emergency scene. In this study, the researcher received the special permission for the research from the Faculty of Health and also obtained the ethical approval for the study. Then the sample was randomly selected from male and female high school and pre-university students studying humanities and math in district 3 of the Isfahan city, who had the entry criteria. Selected students were divided into two groups, each including 60 students. The male/female ratio in the groups was 2/3. For the sampling, from public high schools of ward 3 of Isfahan, two schools were randomly selected; then two classes (humanities and math) who were willing to participate in the study were selected from each school. Then students were randomly divided into two groups of A (speech teaching method) and B (role play teaching method).

When the groups were formed, a questionnaire was used to assess their knowledge and performance in first aid at emergency scene. The questionnaire was researcher-made and its Cronbach's alpha was 0.8.

The educational course was provided for the

male and female students in separate groups with speech and role play methods. The educational content included 4 variables: CPR performance, proper way to do bandage, proper way of dressing and proper way of carrying injured, and was provided within 10 sessions, each 2 hours, by two health teacher who had already passed first aid courses. It should be mentioned that lesson plan for each session was already prepared and there was complete harmony between teachers regarding teaching method and contents before each session. Validity and reliability of teaching methods was checked by a checklist including questions on teaching method, teachers' teaching performance, teachers' behavior toward students, keeping track of time, enough pause between teaching subjects, proper start, proper ending and proper way of choosing students. After the course, the students' knowledge and performance of first aid was assessed by the questionnaire and were compared.

To compare the mean score of knowledge of the two groups before and after intervention, independent t-test was used and to compare the mean score of knowledge before and after intervention within each group, paired t-test was used. In case that the knowledge's score before education was not the same in the two groups, Covariance analysis was used to eliminate the distortion effect of this difference after education. It should be mentioned that first year high school students and science students as well as those students who were absent in sessions or moved out of the program were not entered to the study. Finally, to analyze data, descriptive and inferential statistic methods and SPSS were used.

Results

The results of chi-square test showed no significant relationship between the frequency distribution of students' age, major, knowledge and performance before the educational course in the two groups and both groups were the same in these regards.

The results of paired t-test showed that the score of knowledge in emergency first aids was

significantly increased in both groups ($p < 0.001$). However, the student t-test showed that this increase after educational course was significantly higher in role playing method group compared to the speech method group ($p < 0.001$).

Also, paired t-test showed that students' knowledge's score on performing CPR, proper way to do bandage, immobilizing injured area and proper ways of carrying injured was significantly increased in both groups ($p < 0.001$). However, the student t-test showed that this increase after educational course was significantly higher in role playing method group compared to the speech method group ($p < 0.001$).

The results of paired t-test showed that the students' performance of emergency first aids was significantly increased in both groups ($p < 0.001$). But student t-test showed that this increase was significantly higher in role play group compared to lecturing group after educational course ($p < 0.001$).

The results of paired t-test showed that the students' performance in the role play group in performing CPR was significantly increased after the educational course ($p < 0.001$). But this difference was not significant in speech method group after education ($p = 0.861$).

Moreover, the results of paired t-test showed that the students' performance in proper way to do bandage, immobilizing injured area and proper ways of carrying injured person after educational course was significantly increased in both groups ($p < 0.001$). But student t-test showed that this increase was significantly higher in playing role group compared to speech group after educational course ($p < 0.001$).

Discussion

The results of the present study show that role playing method of teaching is better than speech method in increasing students' knowledge and performance in providing first aids at emergency scene.

Various studies show that in most cases, education increases knowledge. But many studies have also shown that the effects of various teaching methods are different. For example, a study by Dougal and Gonterman, which com-

pared three teaching methods, resulted that education was effective on increase in learning.¹¹ The study of Salmeh on knowledge and attitude of female students in the last year of high school in Sari towards thalassemia showed that education increases knowledge.¹²

Confirming the results of the present study, in the study of Knowles also role play group had significantly higher scores compared to controls.

Certainly, one of the reasons for lower effects of speech method compared to role play method is lack of students' participation in teaching process, which reduces educational efficiency. Samadi study on 180 students of guidance schools in Masal showed a significant difference between participating teaching method and speech method and that the former was much better. In general, participating methods, which involve students in education process and make them active and create interaction during teaching, turn educational experience to an effective two-sided stream. And the more students are involved in education process, the more the effects are increased.

Role play is one of the most participatory teaching methods, in which educational process becomes very enjoyable and desirable by creating competition and excitement among students. In this method, students learn new subjects with higher satisfaction. In addition, in this method audiences emotionally relate to role players. But in lecturing method the satisfaction is much lower than participatory methods. In fact, the students' satisfaction has a direct correlation with their participation in education process. Results of a study by Kim et al also showed that the participations' satisfaction in game and role play methods is higher. In this study which was conducted in Washington University, 40 interns were educated by various methods. At the end, 80% said that the course was thoroughly effective and 75% of interns described learning from games and video films very favorable. Also, participants said that role play was interactive, experimental, convenient and interesting. But they suggested that scenarios of real life examples should be used in role

play.¹³

It is necessary to mention that even though lecturing method in most studies seemed to have low efficiency compared to other methods, in some cases it had equal effect and efficiency and even was better than other methods. In a study by Baghaei which aimed to compare the effects of lecturing method and problem-solving method in the course of diseases and blood nursing, the results showed that both lecture and problem-solving method had the same effects on learning.¹⁴ Moreover, in a study to compare the effects of two methods of lecturing and using posters on teachers' knowledge of chickenpox in primary schools of Tehran, no significant difference was found between the effects of education and teaching methods.¹⁵ In another study by Sagharvanian aimed to compare the effects of two teaching methods of program and lecture on university students' knowledge about AIDS transmission ways, no significant relationship was found between increase of knowledge and teaching method. Although the students' satisfaction of program method was much higher than lecturing method.¹⁶ Likewise, Beeson et al in their study showed that lecturing method was more effective on students' knowledge and performance compared to video films.¹⁷ The results of these studies were not in agreement with the present study and the reason can be teachers' lack of experience in new methods or in other words, teachers' better skill in lecturing method; since for many years educational contents have been traditionally taught through lectures. However, these studies have shown that if lectures are used equally along with other methods, such as proper plan and design of the curriculum, and teachers' mastery on content and teaching method, usually participatory, multimedia and active methods are better than lecturing.

Especially in case of role play method, one of the reasons for the priority of this method over lecturing is excitement and stimulation it gives to the audience. This fact was observed in the process of present study as well. In the study of Deneve, students reported that using role play was more exciting and valuable than lectures.¹⁸

Also, the results of this study is in agreement with those of the study which was conducted in Toronto.

In general, performance in selected concepts for the students in this study was based on basic cases mentioned by the Red Crescent Society and considering the effectiveness of role play method in improving students' knowledge and performance, it is recommended that this method and in general participatory methods should be used more in teaching and specifically in cases that active participation of students in performance is of more importance.

Therefore, considering that Iran is a developing country with a young population and it is a country with high risk of natural disasters such as flood and earth quack, and at the same time it has an increasing rate of accidents and inci-

dences and considering that at the time of incidences, the most significant and useful step to prevent death and complications is what individuals around injured people do for them before the professional helps arrive to the scene, therefore, providing necessary education with more effective methods can be significant and effective in reducing mortality and morbidity due to lack of first aid care in crucial moments. As a result of the current research role play teaching method is suggested for this purpose.

The Authors declare that have no conflict of interest in this study and ethical committee approved the study.

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References

1. Robertson LS. Injury control: some effects, principles and prospects. In: Detels R, Holland W, McEwen J, Omenn GS. Oxford textbook of public health. 3rd ed. New York: Oxford University Press Inc; 1997. p. 1307-19.
2. World Health Organization Strengthening country health information unit division of epidemiological surveillance and trend assessment. Geneva: WHO; 1995. [Pamphlet].
3. Zarrinfar N, Mohajerani SA, Azadpour M, Rezaei S. Comprehensive textbook of educational aid under supervision of teachers of Tehran University of Medical Sciences. Tehran: Publications of Tehran University of Medical Sciences; 2003. (Persian)
4. Azizi A. Knowledge of injured victims' entourage who are referred to Emergency Medical Section about emergency medical aids at the scene. [Research grant]. Mashhad: Mashhad University of Medical Sciences; 2001.
5. Mohammadi R. Individuals' attitudes towards the role of first aid in saving injured victims in Karaj. [Research grant]. Tehran: Tehran University of Medical Sciences; 2005.
6. Safavi AA. General methods and techniques of teaching. 8th ed. Tehran: Moaser Publications; 2008. (Persian).
7. Mohaddes HR. Comparing the effects of three teaching methods of game, lecture and role play on the knowledge of female students of the first year of guidance schools in the 4th district of Mashhad about puberty diet. [MSc Thesis]. Isfahan: School of Health, Isfahan University of Medical Sciences; 2002. (Persian).
8. Leshin CB, Pollock J, Reigeluth CM. Instructional design strategies and tactics. 1st ed. New Jersey: Educational Technology Pub; 1992. (Persian).
9. Samadi Shalbaf M. Comparing the effects of participatory teaching method with passive teaching method on educational achievements of male students in first year of guidance schools in Masal city. Quarterly of Abstracts of Iranian Theses 2002; 10(2). (Persian).
10. Nikpour AR. Surveying the effects of two educational method of lecturing and group consultation on knowledge and performance of high school students in Tehran. [Research grant]. 2005.
11. Dougal J, Gonterman R. A Comparison of Three Teaching Methods on Learning and Retention. JNSD 1999; 15(5): 490-505.
12. Salmeh F. Effects of education on knowledge and attitude of female students about thalassemia and its preventions. Scientific-Research. Journal of Mazandaran University of Medical Sciences 1996; 6(13). (Persian).
13. Kim S, Stevens NG, Pinsky L. Casting anxiety in small group facilitation: faculty development vai role play. Medical Education 2003; 37(5): 489.
14. Baghaei M, Roshan Z. A comparison of two teaching strategies: lecture and PBL, on learning and retaining in nursing stdents. Medical Faculty Journal of Guilan University of Medical Sciences 2003;12(47). (Pesrain).

15. Farahani Nia M. Studying and comparing the effects of two teaching methods of lecture and poster on teachers' knowledge of chickenpox and its epidemic prevention in primary schools of Tehran [MSc thesis]. Tehran: School of Nursing and Midwifery, Iran University of Medical Sciences; 1989. (Persian).
16. Sagharvanian M. The effects of program teaching method and lecture on increasing students' knowledge of AIDS transmission ways and its preventions [MSc thesis]. Mashhad (Iran): School of Nursing and Midwifery, Mashhad University of Medical Sciences; 1993. (Persian).
17. Beeson SA, Kring DL. The effects of two teaching methods on nursing students' factual knowledge and performance of psychomotor skills. *J Nurs Educ* 1999; 38(8): 357-9.
18. Deneve KM, Heppner MJ. Role Play Simulations: The Assessment of an Active Learning Technique and Comparisons with Traditional Lectures. *Innovative Higher Education* 1997; 21(3): 231-46.