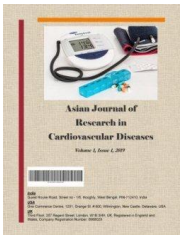

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Knowledge about Basic Cardiopulmonary Resuscitation in High School Students

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Authors' contributions

This work was carried out in collaboration among all authors. Author HA designed the study, wrote the protocol and wrote the first draft of the manuscript. Author YM performed the statistical analysis and performed sampling. Author MM managed the literature searches, performed sampling. Author PE managed of the study, edited the manuscript and wrote the manuscript. Author AK performed sampling, wrote the manuscript. Author SN wrote the manuscript and managed of the study. Author MM managed the analyses of the study, submitted and edited the manuscript. All authors read and approved the final manuscript

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ABSTRACT

Background and Aim: The teaching of cardiopulmonary resuscitation (CPR) in schools is very effective and affordable in order to promote it in a community. Initiation of resuscitation measures within 4 minutes increases the chance of survival in individuals by 2-4 times. Students can learn this process CPR, it is taught to other family members to save lives of people who have a heart attack, if necessary, therefore, this study was conducted to determine the knowledge about basic CPR in high school students in Masjed-Soleyman in 2018.
Materials and Methods: In this descriptive cross-sectional study, stratified random sampling was performed in second grade high school students in Masjed-Soleyman in 2018. Data were collected through a researcher-made questionnaire on knowledge of CPR. Data analysis was done with

spss-20 software using T-test, ANOVA and Pearson correlation coefficient.
Results: In this study, 165 students with mean age of 16.72 ±0.87 were enrolled. Of these, 46.7% were boys and the rest were girls. Mean score of knowledge and attitude of these people was 2.85 ± 2.40, which indicates a very weak awareness about CPR. Pre-university students and those who received information from cyberspace had significantly better knowledge about CPR ($p < 0.05$). There were not statistically significant between mean of knowledge and gender scores, grade Point average, the place of residence, parent's job and parents' education ($p < 0.05$).
Conclusion: The results showed that students' knowledge of CPR is very weak and also attention to factors such as cyberspace and the use of new educational tools such as film and software can be very effective and raise awareness of these people. It should be noted in the macro plans to raise the level of literacy of students as those who can play a role in CPR.

Keywords: Knowledge; students; cardiac arrest; cardiopulmonary resuscitation.

1. INTRODUCTION

Cardiopulmonary resuscitation (CPR) involves a series of systematic and targeted measures that the vital functions of the body, the heart, the lung and the brain, are performed to restore vital functions. When blood circulation or breathing is interrupted, the passage of seconds is vital and during these seconds the person's brain may be permanently damaged or it will stop working [6]. If you know the methods of CPR, you can save the patient from death, Cardio-pulmonary arrest may occur at any time and place. According to studies, 84.7% of cardiopulmonary arteries are at home and the rest are in public places. This means that most often there is an individual as an observer during cardio-pulmonary arrest. That if you have the ability to perform a cardiopulmonary resuscitation, can be in the golden time (4 to 6 minutes of cardio-pulmonary arrest), which even the most advanced emergency services are often on the way to prevent brain death by saving the patient and save the patient's life [2]. Pulmonary resuscitation is an emergency method for a person whose heart is not disabled or breathed [3]. The CPR can restore the flow of blood and respiratory tract until the emergency is reached [4]. According to the official statistics of the country, cardiac arrhythmias and accidents, the first and second factors are the leading causes of death in Iran [5]. A large number of sudden cardiac arrhythmias occur annually, but its survival rate is less than 1% in the world [6]. Initial donations from survivors to the accidental site can lead to more survival and less injuries. And that CPR is a vital component of support for life and the first step in responding to cardiopulmonary arrest. The success of resuscitation requires the skill and performance of the resuscitating students of all students. For this reason, we have to educate students in this field to raise their level of science and reduce the mortality caused by cardiopulmonary bypass [4]. All people in the community must acquire the knowledge and skills necessary for the proper functioning of the emergency because there is no chance to repeat it [7]. Even if you have not been trained to perform pulmonary resuscitation, you can use hands-free pulmonary rehab for young people and adults (This method is not recommended for children) [8]. Pulmonary resuscitation by hand by squeezing the chest keeps circulation of blood flow until the emergency is reached. If you have been trained, you can use pressure on the chest, open the respiratory tract and artificial respiration. Artificial respiration helps to restore oxygen to the individual lungs that is breathless [9].

In our society, considering the financial and demographic conditions of the country and the presence of 20 million students in schools and, on the other hand, the existence of appropriate conditions includes the students' prying mind, Availability of educational facilities in schools, the possibility of transferring learning to family and community, being young and having the opportunity to use the lessons learned throughout life, it is very affordable to promote them in society [5]. There are still not available studies about knowledge of CPR in young patients, therefore this study was conducted to determine Knowledge about CPR in second-grade high school students in Masjed-Soleyman city in 2018.

2. MATERIALS AND METHODS

This cross-sectional study was conducted in June 2018 in Masjed-Soleyman. The research community included 165 students (approximately 77 boys -88 girls) secondary schools in the city of Masjed-Soleyman that was stratified random

sampling. The questionnaires were coordinated by the Education Ministry and the Masjed-Soleyman Healthcare Network and presented to the students.

The data gathering tool was a two-part questionnaire: Demographic information and knowledge assessment (16 questions) related to students' performance in relation to CPR Questions are five options. The questionnaire includes questions about the diagnosis of cardiac arrest, detecting the right place to start a heart massage and the ratio of heart massage and artificial respiration was. Questions were five options, with four options for recovery information and the last option was that if the person did not complete the correct action or did not know the correct answer in general, he would choose the option "I do not know".

How to score questions was that the correct choice of score 1 and the wrong options and I do not know the score 0. Knowledge based on the number of resuscitation questions was considered from 16 scores and then, the level of awareness was divided into three levels of knowledge, weak (0-5), moderate (5-11) and high (11-16). This researcher-made questionnaire was based on knowledge of basal CPR with formal reliability and Stability of 71/0.
First, each person was given a description of the questionnaire, and then, if they were satisfied and filled in, the written informed consent form was provided to them. Then, the questionnaires were distributed among the students and students were asked to respond with precision and they were appreciated at the end of the work, the variables studied in this study include: Individual characteristics including age, gender, Educational base location and parent's job and the level of education was parents.

Data analysis using SPSS software 20 and t-independent statistical, Anova and Pearson correlation coefficients.

3. RESULTS

In this study, 165 students with mean age of 16.72 ± 0.87 were included. Of these, 46.7% were boys and the rest were girls. 35.2% of the second base, 29.7% of the first base, 18.2% of the third grade, and the rest of the pre-university. 55.2% had a GPA 18 to 20, 73.3% of the fathers' jobs were freelance and 83.6% of them were housewives.

Also, 25/5% had received their information on cardiopulmonary bypass during their study, 11.5% of the virtual space and 6.3% of the training classes and the majority of 59.4% did not have any particular information.

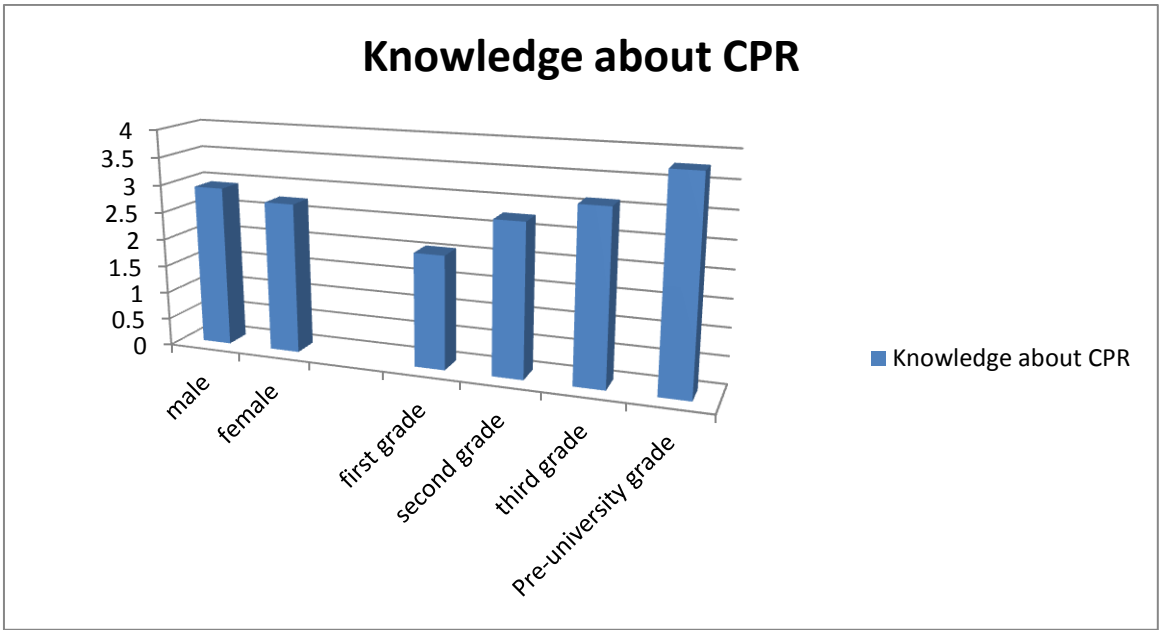

Fig. 1. Mean scores of knowledge about CPR in terms of gender and marriage in the referrals to 22 Bahman hospital in Masjed-Soleyman

Mean score of knowledge and attitude of these people was 2.85 ± 2.40, which indicates a very weak awareness about recovery. 83.6% of the subjects had poor knowledge and 100% had poor and moderate knowledge. Pre-university students and those who were learning cyberspace had a meaningful statistical meaningful awareness about recovery ($p < 0.05$) (Fig. 1).

There was no significant relationship between the mean scores of knowledge and GPA, place of residence, parent's job and parent's education ($p > 0.05$). Although boys had higher knowledge scores than girls, this difference was not statistically significant ($p = 0.68$) (Fig. 1). Also, there was a statistically significant correlation between age and knowledge about recovery of direct and non-significant correlation ($p = 0.32$) ($r = 0.07$).

4. DISCUSSION AND CONCLUSION

According to the results, the average score of students' knowledge was about 5.5 which indicates their poor awareness, and which is improving by educating students about cardiopulmonary resuscitation, which increases the level of science and the performance of students [10]. And that young students may be discouraged or unprotected in the CPR, which is due to the physical disability in providing the CPR [11]. The fears related to the CPR are: Inability to harm and participate in legal affairs. If teens know how to identify a dangerous situation, they can interpret a situation as an emergency. And, for example, help the ambulance with the least amount of indirect assistance [12]. The speed and duration of compression directly affects the cardiac output and these factors determine the quality of resuscitation [5]. According to a study conducted in Saudi Arabia, there is a need to improve CPR education among Saudi students, which helps reduce mortality rates among the community [13]. According to the American Heart Association, the Institute of Medicine and other leading organizations, CPR education in schools is one of the main measures to increase long-term intervention [17]. In the past, the patient was dead whenever the heart died out. But now it's known that certain procedures performed in four minutes will keep the patient alive. Returning to previous quality of life and health status is the ultimate goal of a care regeneration system [15].

According to a longitudinal study in Germany, schools are an ideal way to train BLS and CPR skills [16]. According to previous suggestions and recommendations in Germany, we strongly recommended that the BLS / CPR modules be implemented as part of compulsory syllabus or academic programs [17]. According to studies conducted in Japan, the importance of CPR has been eager to attract more interest and increase the attendance of CPR training courses in Japan [18]. According to a theory in Norway, by providing students with good quality education at school, the next generation can strengthen the first part of the chain of survival in the OHCA [19].

CPR skills and their application depend on training, experience and self-esteem. CPR is an important skill that everyone needs to learn. You do not have to be a medical professional who knows or uses CPR. He never knows when, where and how he uses this skill to save someone or be a hero to a stranger. More studies are needed to assess the knowledge and attitude toward CPR in society [20].

In general, male students are more aware of CPR than female students; the reason is that male students are more interested in outdoor activities and it is recommended that all universities arrange a 3-week CPR course a year and arranges it as a graduation education for students. However, of course, media can also play an important role in raising public awareness of CPR. CPR training is recommended as part of a high school curriculum by the European Revival Council. Norway was the first country to have introduced CPR as compulsory school curriculum since 1961. Later, many European countries have developed CPR school curricula.

The results showed that students' knowledge of CPR was very weak and paying attention to factors such as cyberspace and the use of new educational tools such as movies and software can be very effective and raise awareness of these people. It should be in the macro plans to increase student literacy, pay attention to people who can play a major role in cardiopulmonary resuscitation.

It is recommended that CPR be integrated into the school curriculum, because different communities and organizations recommend that basic school support skills be taught to reduce mortality. In addition, the limitation of the study includes a small sample size that is limited to high school in a limited city. The larger sample

size and the inclusion of multiple schools from different cities, public schools and private schools provide more general information.

CONSENT

Each person was given a description of the questionnaire and then, if they were satisfied and filled in, the written informed consent form was provided to them.

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Diane B, Viva J, Monica J, Fudala BA, Leonard D, William C. Mastery learning advanced cardiac life support skills by internal medicine residents using simulation technology and deliberate practice. J Gen Intern Med. 2006;21:251-256.
2. Holmberg M, Holmberg S, Herlitz J. Effect of bystander cardiopulmonary resuscitation in out-of-hospital cardiac arrest patients in Sweden. Resuscitation. 2000;47:59-70.
DOI: 10.1016/S0300-9572(00)00199-4
3. Borimnejad L, Rasouli M, Nikbakht A, Mohammadi H, Kheirati L. Effect of trained cardiopulmonary resuscitation team on the outcomes of cardiopulmonary resuscitation. Journal of Babol University of Medical Sciences. 2008;10(3):55-61.
4. Habibi M, Khalilian A, Seyed Salchi A. Survey of knowledge and attitude of nonmedical personnel of Mazandaran university of medical sciences toward first aid and basic cardio pulmonary resuscitation in 2011. Journal of Rescue and Relief. 2012;4(4):70-81. Persian
5. Davari F, Khanjari S, Asemi S, Haghani H. The effect of basic cardio pulmonary resuscitation on knowledge and skill of girl students' grade three high school level]. Iran Journal of Nursing. 2003;17(39):58-63. (Persian)
6. Awareness and attitudes of Chinese students towards cardiopulmonary resuscitation, Chen ZQ, et al. Emerg Med J; 2010.
7. Lowenstein SR, Sablan EM, Lassen CF, et al. Benefits of training physicians in advanced cardiac life support Chest. 1986; 89:512-6.
8. Lund-Kordahl I, Olasveengen TM, Lorem T, Samdal M, Wik L, Sunde K. Improving outcome after out-of-hospital cardiac arrest by strengthening weak links of the local Chain of Survival; quality of advanced life support and post-resuscitation care. Resuscitation. 2010;81:422-426.
DOI: 10.1016/j.resuscitation.2009.12.020
9. Perkins GD, Brace SJ, Smythe M, Ong G, Gates S. Out-of-hospital cardiac arrest recent advances in resuscitation and effects on outcome. Heart. 2012;98:529-535.
DOI: 10.1136/heartjnl-2011-300802
10. Samavat T, Hojjatzade E, Shams M. Prevention and control of cardiovascular discases. Second Edition. Tehran: Javan Publications; 2012. (Persian)
11. Lubrano R, Romero S, Scoppi P, Cocchi G, Baroncini S. How to become an under 11 rescuer: A practical method to teach first aid to primary schoolchildren. Resuscitation. 2005; 64(3): 303-307.
12. Yekefallah L, Sadeghi T, Babayi M. The new of cardio pulmonary resuscitation. First Edition, Tehran: Salemi Publications; 2012. (persian)
13. Al-Turki YA, Al-Fraih YS, Jalaly JB, Al-Maghlouth IA, Al-Rashoudi FH, Al-Otaibi AF, et al. Knowledge and attitudes towards cardiopulmonary resuscitation among university students in Riyadh, Saudi Arabia. Saudi Med J. 2008;29(9):1306–09.
14. Mozaffarian D, Benjamin EJ, Go AS, Arnett DK, Blaha MJ, Cushman M, Das SR, de Ferranti S, Despres JP, Fullerton HJ, Howard VJ, Huffman MD, Isasi CR, Jimenez MC, Judd SE, Kissela BM, Lichtman JH, Lisabeth LD, Liu S, Mackey RH, Magid DJ, McGuire DK, Mohler ER III, Moy CS, Muntner P, Mussolino ME, Nasir K, Neumar RW, Nichol G, Palaniappan L, Pandey DK, Reeves MJ, Rodriguez CJ, Rosamond W, Sorlie PD, Stein J, Towfighi A, Turan TN, Virani SS, Woo D, Yeh RW,

Turner MB; American Heart Association Statistics Committee and Stroke Statistics Subcommittee . Heart disease and stroke statistics—2016 update: A report from the American Heart Association. Circulation; 2016.

15. Clinical Awareness of Do's and Don'ts of Cardiopulmonary Resuscitation (CPR) Among University Medical Students-A Questionnaire Study,Meena Kumari K, Mohan babu Amberkar, […], and Siddharth Bansal; 2014.
16. Shannon FL, Jurkovich GJ, Hansbrough JF. Assessment of the proficiency of the surgeon in providing basic and advanced cardiac life support. Surg Gynecol Obstet. 1984;159:9-12.
17. Hanefeld C. A first city-wide early defibrillation project in a German city: 5-year results of the Bochum against sudden cardiac arrest study. Scand J Trauma Resusc Emerg Med. 2010;18: 31
DOI: 10.1186/1757-7241-18-31.
18. Attitudes Toward the performance of bystander cardiopulmonary resuscitation in Japan, Taniguchi T, et al. Resuscitation; 2007.
19. Education in Resuscitation: An ILCOR symposium: Utstein Abbey: stavanger, Norway; 2001.
20. Al-Turki YA, Al-Fraih YS, Jalaly JB, Al-Maghlouth IA, Al-Rashoudi FH, Al-Otaibi AF, et al. Knowledge and attitudes towards cardiopulmonary resuscitation among university students in Riyadh, Saudi Arabia. Saudi Med J. 2008;29(9):1306–09.

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