Effects of Peer Education on the Knowledge and Practice Regarding Selected First Aid among Engineering Student's at South Valley University

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Abstract

Background: First aid becomes the essential phase and urgent intervention to carry out by general people about the spot of the accident. Peer education has been recognized as a valuable tool to giving training for under graduates in first aid which is essential as a primary response in emergency cases. **Aim:** Evaluate the effects of peer education on the knowledge and practice regarding selected first aid among engineering students at south valley university. **Methods:** A quasi experimental design (pre and posttest) was conducted on 160 students from the 1st to 4th years in the Faculty of Engineering at South Valley University. Two research tools were used in the study: A self-administered questionnaire concerning the socio-demographic characteristics of the studied student, their knowledge about first aid and student's performance checklist regarding the first aid measures. **Results:** After the application of peer education there were statistically significant changes in mean scores of all items as well as the overall score of knowledge and practice (P-Value < 0.001). **Conclusion:** The application of peer education has been effective in achieving substantial changes in the knowledge and practices of students regarding first aid procedures. **Recommendation:** The research proposed the use of peer education in teaching first aid for students in other colleges as well as students in the school setting.

Key Words: Peer Educational, First Aid, Faculty of Engineering Students.

Introduction

An emergency situation can occur at any place, any time and it is a situation challenging that needs urgent action. In an emergency, the first crucial phase depends on the involvement of somebody who can take proper action. The purpose of the first aid program is to teach the individual the principles of first aid that will aid them better identify and take appropriate action in an emergency. This reaction will help to keep life **(Kapoor, et al; 2017).**

First aid is the first care given to a victim who has been injured or had an unexpected disease, before the providing of progressive medical care. When medical assistance is delayed or not available, first aid can provide self-help and home care. In addition, well-chosen words of support, evidence of willingness to assist, and confidence encouragement

through demonstration of competence are included. Basic training is required to accomplish correct first aid management **(Hecht, 2016).**

Furthermore, first aid is an educational course in fundamental emergency treatment for both the general public and healthcare providers. It provides a wide variety of healthcare professionals and the public ability to recognize different life-threatening emergencies and provide first aid interventions in a safe, timely and effective manner. This includes recognizing the most common emergencies such as fractures, dislocations, sprains, shock, burns; wounds, amputations, poisoning, animal bites, cardiac arrests, choking, and other emergencies, its causes, signs and symptoms, complications, and its correct first aid or management. This includes applying splints and bandages, controlling bleeding, applying the dressing and performing cardiopulmonary resuscitation CPR and abdominal thrust **(Berg, et al; 2010).**

Numerous studies have revealed a clear association between the level of first aid education and the excellence of first aid measures and actions provided. This emphasizes the value of first aid training for the public **(Kalaiyarasan, 2015).**

Peer education is presently one of the most broadly adopted strategies for promoting health for young people, and is almost universally described as effective. Peer learning allows students to actively engage in courses and develop a variety of skills through contact with other students [6].It is identified as "peer instruction", "peer mentoring," "peer tutoring", peer teaching", and allows students to mutually allocate knowledge, ideas, and experiences **(Ravanipour, Bahreini, &Ravanipour, 2015).**

A student is assisted, guided, and supported by peer learners, which enables them to build on their learning through interaction and collaboration **(Andersen, & Watkins, 2018)**. Peer education is a good method of educating because it is effective to improve self-esteem, competence, and anxiety reduction in learning **(Duggan, etal; 2008)**. Previous studies show that students trained by peers have equal quality compared to students trained by professionals to train in basic life support **(Walpola, Fois, McLachlan, Chen, 2015).**

Peer education is the process by which younger generations, well-trained and provoked, take on informal or organized educational activities with their peers over a period of time (those parallel to themselves in age, background or interests).The aim of peer education is to change behavior, attitudes and develop good skills and knowledge. The improvement is between 15 and 30 percent **(Baser, Coban , Tasci, Sungur. and Bayat, 2007).**

Peer education can have a positive impact on overcoming major obstacles faced by educating students as regards health information, particularly first aid for traffic accidents. Moreover, providing education to the general population has many advantages for medical workers, in which the general population can also provide a hand to decrease the delay in providing medical help to victims before medical workers. The severe injury which may experience by the victim can be prevented when the general population timely gives health assistance **(Beck, Issleib, Daubmann, &Zöllner, 2015).**

There are two reasons for the value of providing information and a good standard of training about proper management of accidents and disease for students; first, it can help increase student

health knowledge, which in turn makes safer and better lives possible. Secondly, they can be used in the family and society as a second hand to alter. Therefore the university is supposed to train students to meet up these requirements which including; quick response to emergencies, assistance to victims and keeping safe, and cares for their own safety. This research was therefore aimed at assessing the influence of the training program on the knowledge and practice of students for first aid in the engineering faculty.

Significance of the study: -

Faculty of engineering has no health learning in their education curriculum plan and does not emphasize first aid and basic life support in the work environment, while students in these faculty expend most of their school day in a faculty environment and home care, which is a most likely setting for accidents due to natural work in this faculty and outside the faculty (home care) as; electrical shock, burn, bleeding, shock, and fracture, ect., which may need first aid measures. It is important to perform our research in order to teach those students first aid and basic life support in order for them to be able to cope with these injuries safely and to keep their knowledge and skills up to date.

Subjects and Methods:

Aim of the study:

The objective of this study was to evaluate the effect of peer education on the knowledge and practice of selected first aid among engineering students at South Valley University.

Research Hypothesis:

1. Mean knowledge scores of the study subjects will be higher after applying the peer education program.

2. Mean practice scores of the study subjects will be higher after applying the peer education program.

Research design:

In this research, a quasi-experimental design (pre and post-test) was used.

Setting:

This study was conducted in the Faculty of Engineering at south valley university, a public area in Upper Egypt.

Sample:

A convenient sample of160 University students from the Faculty of Engineering with different academic levels of the engineering program and willing to participate were included, their ages ranged from 17-24 years and from both sex. Exclusion criteria included students who were not prepared to take part in the research.

Tools of the study:

The following tools were used to collect data:

Tool I: Self-administered questionnaire the researchers developed this tool on the basis of a comprehensive literature review. The questionnaire was made up of two parts:

Part (1): Socio-demographic data included. This section dealt with data relating to the age, gender, parents' educational levels, department and place

of residence, history of any prior accidents and previous first aid training and duration of the first aid training.

Part (2): knowledge questionnaire sheet used to assess the level of knowledge of the student, including 70 multiple choice questions on bleeding (10 items), fracture (10 items), electrical shock (10 items), shock (10 items), CPR (10 items), drowning (10 items) and burning (10items).

Scoring system: The participants' knowledge scoring system was carried out as follows: one point was given for each correct answer and zero was given for each incorrect answer. The cumulative score for the participants' knowledge was determined by adding the scores obtained for each set of questions. The overall grade for all questions was 70. The following categories were used to categorize the knowledge scores:-

·Poor knowledge: less than 50% (the participant score <35deemed poor knowledge)

· Fair knowledge: 50 - < 75% (the participant score 35– <53deemed fair knowledge)

· Good knowledge: 75% or more (the participant score 53 and more deemed good knowledge)

Tool II: Students' Performance Checklist regarding selected first aid It was developed by the researcher and consist of 55steps that cover the following: bleeding (7 steps), fracture (7 steps), electrical shock (7steps), shock (7 steps), CPR (10 steps), drowning (7 steps) and burn (10steps).

Scoring system: The participants' practice scoring method was done as follows: one point was given for each

done step and zero was given for each step that was not done. The cumulative score for the participants' practice was determined by adding the scores obtained for each set of steps. All of the steps summed up to a total of 55 points. The practice scores were categorized as follows:-

·Inadequate practice: less than 50% (the participant score < 28 deemed in adequate practice)

·Moderately inadequate practice: 50 - < 75% (the participant score 28-<42deemedmoderatelypractice)

·Adequate practice: 75% or more (the participant score 42 and more deemed adequate practice).

Tool validity:

The content validity of the tools was evaluated by a panel of three experts in the field of medical and critical care nursing. Modifications were made based on the panel's evaluation of sentence comprehension and content appropriateness. By applying this instrument to 10 students who were removed from the sample, the test-retest approach was used to assess the reliability of the tool which was 0.83.

Ethical Consideration:

Before conducting the study, researchers obtained approval from the Dean of the Faculty of Nursing and the Dean of the Faculty of Engineering at South Valley University. In order to get acceptance to participate in the study, researchers introduced themselves to students who met the inclusion criteria and told them about the intent of the study. All students have been notified that engagement is voluntary and that at any time they can withdraw. Oral informed

consent was obtained from students who were prepared to employ in the study.

Pilot study:

In order to verify the clarity and assess the feasibility of the study tools, a pilot study of 10% of the total sample was performed. All students who took part in the pilot study were not included in the study sample.

Procedure:

The research was performed over a three-month period from the beginning of October 2020 to the end of December 2020, two days a week from 10:00 a.m. to 12 p.m. Data were collected through five phases: preparation, Assessment, planning, Implementation, and Evaluation.

Preparation phase: After clarifying the intent and essence of the research, the selection of students who agreed to participate was allocated to become a group of 10 undergraduate nursing students volunteer peer trainers. In the following research, participants were recruited to become peer trainers through the training of nursing students.

The researcher invited fourth-year students after specifying the study's goal, and those who agreed to participate and met the criteria were allocated to be peer trainers. Nursing students were trained by obtaining the researcher's additional revision of the information on first aid knowledge and the performance of the first aid chosen.

The educational sessions for nursing students have performed over 2 sessions in the adult skill and critical care lab of the faculty of nursing. It took about 50 to 60 minutes for each session, approximately one hour (according to content provided).

The one-day educational sessions consisting of two parts: The theoretical part presented as a slide show and a practical part based on selected first-aid measuring including bleeding, fracture, electrical pulse, shock, CPR, drowning, and burning.

Prior to teaching to the target students, nursing students were tested for their knowledge and the performance of selected first aid using Tool I and Tool II. The ten trainers were reinforced, re-demonstration, and evaluated to achieve the desired level.

Each participant was given a handout containing the content of the educational sessions planned by the researchers to use it as a potential guide and during their peers' training.

Choosing trainee students to participate in the study through an announcement using Arabic posters describing the study's goal and nature placed at the entrance of the South Valley University Engineering Faculty. The research included the first 160 responding students.

Assessment phase: Interview with the target students before starting a program to gather and evaluate their knowledge and performance about select first aid using the questionnaire. This was done by administered questionnaires to participants and they were given time to answer. It took about 15-20 minutes to answer the questionnaire. After data was obtained, the researcher reviewed it, removed incomplete or missed responses.

Planning phase: The researchers designed an educational program, which was arranged according to the priority of the study student's needs. First aid topics covered included the concept of first aid, the goal of first aid, and first aid for

bleeding, burns, fractures shock, electric shock, drowning, and basic life support.

Implementing phase: A total of 160students were divided into 4 groups each of which had 40 students. Knowledge and practice on selected first aid steps were imparted to the qualified nursing students under the guidance of the researchers to their own peer groups. Six sessions were used to implement the education program: two sessions covered the theoretical portion and four practical sessions were done to cover the practice of selected steps for first aid. It took about 30-45 minutes per session.

Each student was given an illustrated brochure with instructions about first aid. This brochure provides details on selected first aid interventions that have been systematically arranged. It was designed in simple Arabic by the researchers, and the contents were consistent with related literature.

Evaluation phase: The student's feedback was obtained by the use of a questionnaire (posttest). The assessment was conducted before, immediately after completion of the training sessions, and 2 months later.

Statistical Analysis:

The data gathered was coded and tabulated. Statistical Package Social Science (SPSS) Version 23 was used. Descriptive analysis was performed using the range, frequencies, percentages, means, and standard deviations. Chi-square was used in inferential statistics to compare two qualitative variables. The Student t-test was used to compare quantitative continuous results, and multiple linear regression analysis was used to compare two classes. Statistical significance was described as a p-value of less than 0.05.

Results:

Table 1: indicates that the age of the students' ranged from 18- 22 years with a mean± SD 19.61±0.82, and the majority of them (71.9 %) were male. Regarding the various departments of the students around half (49.4 %) were studying electrical engineering. Considering the place of residence, more than half (58.1%) was from urban areas. In relation to educational status of their parents, 81.3% of parents were non-medical professionals. Regarding previous first aid training attendance, 94.4% of students did not participate in the previous first aid training program. With regard to history of previous injury, 47.5% of students had no history of the previous injury.

Table 2: reveals that there was a highly significant increase in mean knowledge scores of all elements between the pre-program, immediate post, and post 2 months of the program as well as in total knowledge mean score (p= (<0.001*).

Figure (1) shows that none of the studied students (0.0%) had good knowledge preprogram compared to (61.9% and 54.4% respectively) immediate post, and 2months program. There were statistical significant between pre, immediate post and post 2 months program implemented at p < 0.001.

Table 3: shows that the mean scores of the practice of all elements were increased in the immediate post and post 2 months compared with preprograms with statistically significant differences between them as well as in total mean practice score at p < 0.001.

Figure (2) shows that none of the studied students (0.0%) had adequate practice preprogram compared to (63.7%

and 56.9% respectively) immediate post, and post 2 months. There were statistical significant between pre, immediate post, and 2months post program implemented at p < 0.001

Table 4: reveals that there was a statistically significant relation between knowledge and practice levels, a good level of knowledge with adequate practice level showed a high percentage (48.8%) in the immediate post and a good percentage (40.0%) in the post 2-months educational program than a good level of knowledge with moderately adequate (15.0%) in the immediate post and (14.4%) in the post 2-months educational program.

Table (5) In order to detect important predictors of knowledge scores, linear regression analysis was performed. The dependent variable was the total post-program application of the knowledge score, while the independent variables were: age, gender, parent's educational levels, residence, department, previous trauma history, and previous first aid training. Regression model results revealed that age, residence, department, history of previous trauma, and previous first aid training were significant predictors for knowledge. An increase in knowledge scores is correlated with statistically significant direct associations between age, residence, department, history of prior trauma and previous first aid training, and knowledge score with an increase in all these variables. Also, show that department and previous first aid training was significant predictors for practice. The statistically significant direct correlations between the department and previous first aid training and practice score with an increase in these variables are associated with an increase in practice score.

Table (1): Percentage distribution of socio-demographic characteristic of studied students (No= 160).

Socio-demographic characteristics	No	%
Age:		
19-20	138	86.3
>20	22	13.8
Mean± SD		
Range	19.61±0.82	
	18-22	
Sex:		
Male	115	71.9
Female	45	28.1
Department:		
Mechanical engineering	36	22.5
Electrical engineering	79	49.4
Civil engineering	45	28.1
Residence:		
Urban	93	58.1
Rural	67	41.9
Parents' educational levels:		
Illiterate	15	9.4
Non-medical professional	130	81.3
Medical professional	15	9.4
History of previous injury:		
Fracture	45	28.1
Cut injury	15	9.4
Head injury	9	5.6
Other injury	15	9.4
None of the above	76	47.5
Pervious first aid training:	9	5.6
Yes	151	94.4
No		
Length of first aid training:	9	5.6
Less than one week	151	94.4
Not at all attended		

Table (2): Mean score, standard deviation and t- value differences of students' knowledge score.

Knowledge domains	Maximum allowed points	Pre	Immediate post	Post 2 months	Paired sample t test	
		Mean ±SD	Mean ±SD	Mean ±SD	Pre-immediate post $t(p)$	Pre-post2monthes $t(p)$
Bleeding	10	4.87±1.49	7.53±2.08	7.0±1.73	13.41 (<0.001*)	13.29 (<0.001*)
Fracture	10	4.14±2.07	7.51±1.81	7.11±1.68	16.23 (<0.001*)	15.34 (<0.001*)
Drowning	10	5.02±1.58	7.60±0.11	7.34±1.47	15.40 (<0.001*)	14.70 (<0.001*)
CPR	10	4.75±1.98	7.43±1.96	7.23±1.73	13.33 (<0.001*)	13.28 (<0.001*)
Burn	10	5.11±2.32	8.15±1.87	7.66±1.81	14.47 (<0.001*)	12.47 (<0.001*)
Electrical shock	10	5.51±1.86	7.71±1.86	7.41±1.67	11.28 (<0.001*)	10.22 (<0.001*)
Shock	10	5.73±1.91	7.87±1.82	7.62±1.75	11.92 (<0.001*)	10.38 (<0.001*)
Total knowledge	70	35.16±8.63	54.03±11.30	51.4±9.54	19.33 (<0.001*)	19.26 (<0.001*)

t- test& p-valuesignificance (<0.005*)

Figure (1): Comparison between Levels of Knowledge among Studied Students' Regarding Selected First Aid Measures at Pre, Immediate and Post 2-MonthsEducational Program.
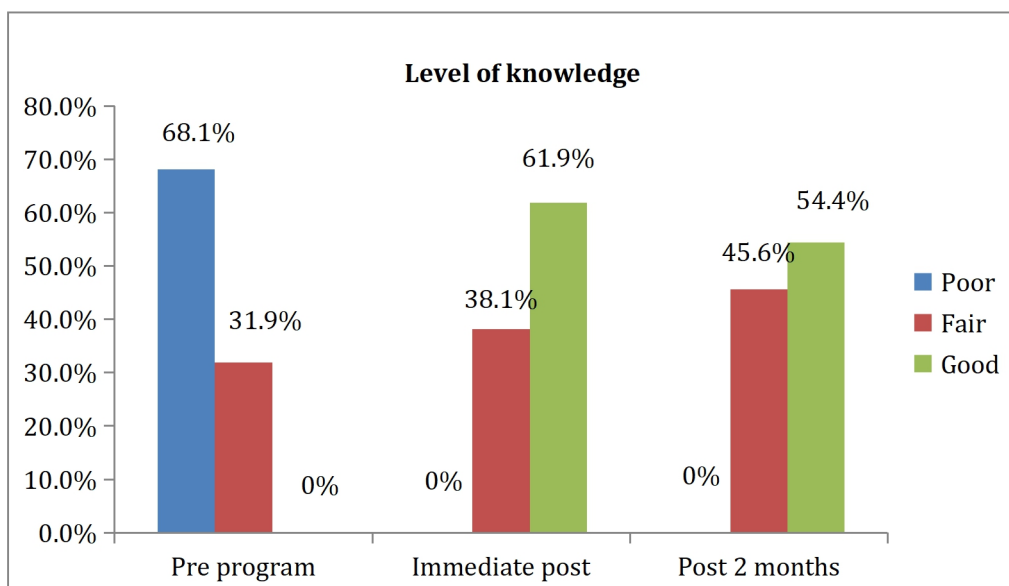
Table (3): Mean score, standard deviation and t- value differences of students' practice score.

Knowledge domains	Maximum allowed points	Pre	Immediate post	Post 2 months	Paired sample t test	
		Mean ±SD	Mean ±SD	Mean ±SD	Pre-immediate post t(p)	Pre-Post 2 months t(p)
Bleeding	7	2.45±0.80	5.48±1.19	5.10±1.07	28.07 (<0.001*)	25.51 (<0.001*)
Fracture	7	2.44±0.94	5.35±1.46	4.90±1.30	21.25 (<0.001*)	20.31 (<0.001*)
Drowning	7	2.36±0.07	5.59±1.19	5.33±1.09	29.70 (<0.001*)	30.01 (<0.001*)
CPR	10	2.42±1.11	7.56±1.67	7.12±1.42	34.31 (<0.001*)	34.23 (<0.001*)
Burn	10	3.03±0.03	8.05±1.86	7.22±1.39	32.02 (<0.001*)	35.68 (<0.001*)
Electrical shock	7	2.36±0.79	5.57±1.21	5.15±1.08	29.16 (<0.001*)	27.01 (<0.001*)
Shock	7	2.40±0.79	5.50±1.22	5.24±1.12	27.97 (<0.001*)	27.55 (<0.001*)
Total practice	55	17.49±4.86	43.13±8.42	40.08±6.53	34.46 (<0.001*)	38.40 (<0.001*)

Figure (2): Comparison between Levels of Practice among Studied Students' Regarding Selected First Aid Measures at Pre, Immediate and Post 2 Months Educational Program.
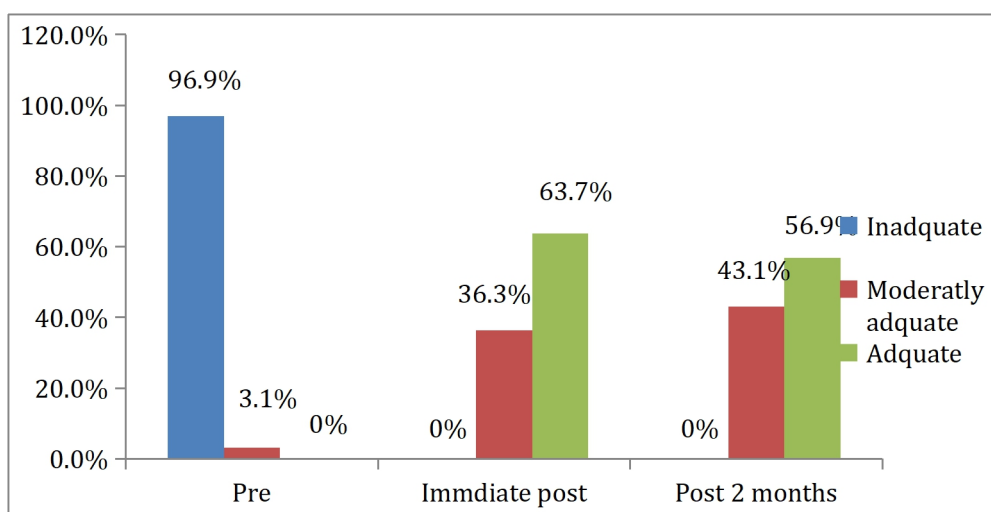
Table (4) Relation between Student's Knowledge and Practice regarding Selected First Aid Measure at Pre, Immediate and Post 2-Months Educational Program.

Total practice	Knowledge pre				Knowledge Post		Immediate		Knowledge Post 2 months			
	Poor		Fair		Fair		Good		Fair		Good	
	No	%	No	%	No	%	No	%	No	%	No	%
Inadequate	109	68.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Moderately adequate	46	28.8	5	3.1	37	23.1	24	15.0	46	28.8	23	14.4
Adequate	0	0.0	0	0.0	21	131	78	48.8	27	168	64	40.0
$\chi 2(P)$	11.03 (0. .003)*				25.41 (0.000)*				21.65 (0.000)*			

Table (5): Multiple linear regressions model for the change in knowledge and practice post application of program

	Unstandardized Coefficients		Standardized Coefficients			95 % Confidence	
	B	Std. Error	Beta	T -test	P value	Lower Bound	Upper Bound
Knowledge score							
(Constant)	-15.564-	20.744		-0.750-	0.454	-56.543-	25.415
Age	3.041	1.022	0.227	2.975	0.003	1.022	5.060
Residence	3.308	1.667	0.148	1.985	0.049	0.015	6.601
Department	3.643	1.159	0.235	3.144	0.002	1.354	5.932
History of previous trauma	-0.980-	0.463	-0.156-	-2.115-	0.036	-1.896-	-0.065-
Pervious first aid training	12.947	3.998	0.241	3.238	0.001	5.049	20.846
R square= 0.148 Model of ANOVA:F=6.92 p <0.001*							
Variables entered and excluded (sex, parents' educational levels, pervious and duration of previous first aid training)							
Practice score							
Constant	36.429	2.002		18.200	0.000	32.476	40.383
Department	3.092	0.910	0.261	3.397	0.001	1.294	4.890
Pervious first aid training	7.997	3.157	0.195	2.533	0.012	1.762	14.233
R square= 0.080 Model of ANOVA:F=7.88 p <0.001*							
Variables entered and excluded (age, sex, residence ,parents' educational levels, pervious history of trauma and duration of previous first aid training)							

Discussion

First aid awareness plays a vital role for undergraduate students, as they are the lifesavers of tomorrow. In the lives of students, there is a growing likelihood that they could experience a life-saving situation equally within and outside the university that needs first aid intervention, which may help improve the patient's medical state before going to the hospital.

Rapid first aid and basic life support administration without delay after injury will reduce the morbidity and

mortality rate resulting from it **(baser, et.al 2007)**. A peer educator is considered a role model that can achieve a positive task in enhancing the sense of worth and influencing health-related behaviors between peer friends **(Peel &Warburton 2009)**. This research was therefore carried out to examine the impact of peer education on the knowledge and practice of chosen first aid among the faculty of engineering students at South Valley University.

The results revealed an improvement in the knowledge and practices of faculty of engineering students who received information from the trained peers. This improvement could be attributed to the intervention, which managed to create statistically significant differences with regard to the participants 'knowledge and practice.

As regards the students' knowledge of the chosen first aid interventions, the findings of this research revealed that after the implementation of the peer education program, there was a statistically significant reduction in the poor level of knowledge and a statistically significant rise in the level of fair and good knowledge. Additionally, there were statistically significant improvements in students' knowledge about bleeding, burn, fracture, shock, electrical shock, drowning, CPR and in total knowledge, this may be related to the effect of peer education on the level of understanding of the student and responding to information. **Abbas et al., 2018** stating that there is an increase in knowledge level related to basic life support after being given health education using a peer-based health education method. Respondents can easily interact and discuss with their peers, so information absorption becomes easier for respondents resulting in improvement of knowledge. **Mobarak, Afifi &Qulali,**

2015 also stated that with the improvement of knowledge through this training, the respondents will be able to respond accurately to traffic accident cases and face the challenges.

This study is in the same line with a previous study made by **Williams & Labonte, 2007** that confirmed peer education can improve the respondents' knowledge of first aid of traffic accidents. The peer education approach can help to improve knowledge about health problems. This approach is useful because peer education empowers the information recipients as educators and learners**.** This is also in accordance with a study by **Prasetyawan & Fitri 2019** which revealed that there significant differences in cognitive scores after being given health education through peer education. Consequently, the research hypothesis one (H1) declared that peer educational program will be effective in enhancing the faculty of engineering students' knowledge of selected first aid procedures was justified.

In terms of the bleeding, fracture, shock, electrical shock, burn, drowning and CPR practice of the studied students, statistically significant improvements were made in the mean scores of all previous items. As well, the current research outcome showed that after the implementation of the peer education program, there was a statistical improvement in the overall practice amongst the studied students. This may be related to that educating basic life support by way of peer technique as the method encourages engagement and communication that enhances the capacity of students to provide basic support for life. This result was in concurrence with **Beck S, et al 2015**, which initiate that peer learning-based health education has a positive impact on the ability to provide first aid and basic

life support. This outcome was also consistent with **Prasetyawan & Fitri 2019** who showed that in Glagah 1Senior High School, Banyu Wangi, there was a significant variation between the group given health teaching through using peer education and group demonstration method towards the skills of common people to provide first aid for traffic accidents.

Peykari., 2015 and Arasteh 2018 have suggested that, compared to the demonstration, peer education will enhance awareness and better skills. Individuals can easily communicate, debate, and be more accessible to each other through peer education so that knowledge is gained more flexibly. This knowledge is the basis for enhancing the abilities of individuals to perform first aid. This finding was reliable with **Khan et al**., who conducted research in Karachi in 2010, which institute that first aid training students scored higher than those who did not have first aid training. Additionally, **Abd El-Hay et al**., **2015**, Governorate of Elgharbia in Tanta City (East & West), stated that during his research, there was a highly statistically considerable increase in the mean score of total practice. This can be attributed to an increase in awareness following training along with the studied students that contributed to the improvement of their practices. Therefore, the research hypothesis (H2) that claimed that the peer education program would be successful in enhancing the practices of chosen first aid measures of the faculty of engineering students was justified.

The present study showed that statistically significant positive associations between knowledge and practices were found. This could be as a result of good and systemic knowledge given by trained students which have a good impact in improving the levels of practices and increase the level of knowledge also this may be because of the enhancement of student knowledge which enhances their comprehension and willingness to undertake these procedures correctly. This outcome was consistent with **Muneeswari, 2014**, which institute that there was a statistical correlation between first aid post-test knowledge and student performance. Additionally, the value of knowledge in health education necessity not is over looked, as the first step towards proper practice is to improve their knowledge. In conjunction, **Abd El-Hay et al, 2015**, noted that during the study, there were statistically positive associations between knowledge and practices among the studied students from the first aid pre, immediate, and 1-month post-training program.

The current research discovered that a statistically significant direct correlation was found between age, sex, educational level of parent, residence, department, history of previous trauma and previous first aid training with an increase in knowledge score. This may be related to that the young age has the ability to accommodating more knowledge and understanding than the older one, also when their parent had a good level of education this has a good impact on the level of awareness and sensibility of the students. This result was in the same line with those **Elewa and Saad.,2018** in Cairo City, Egypt, who reported that association between knowledge about first aid among child in two governmental primary schools in El-Massara Administration and preferred demographic variables like age, grade level, and fathers' education. Other research results by **Wafik and Torkin, 2014** Zagazig Region, Egypt, which reported that a large number of parents of the study subjects are educated, which could have a positive effect on the

awareness of their children, demonstrated the study outcome.

In addition, the current study found a statistically significant direct correlation among departments and previous first aid training with an improvement in practices score; this may be related to the more training received the more improvement in the level of practice. This is consistent with **Metok., 2014**, who reported a significant correlation between the health camp attended by non-medical professional students and the post-test level of practice after the training was performed.

Conclusion:

The application of peer education has been effective in achieving substantial changes in the knowledge and practices of students regarding first aid procedures. Of peer education has been effective in achieving substantial changes in the knowledge and practices of students regarding first aid procedures. There was also a strong association between their overall knowledge and overall practice.

Recommendations:

(1) In order to promote the health of students and develop student awareness and skills, the use of peer education programs in teaching first aid is significant.

(2) Application of peer education for other faculty students as well as students in the school classroom during teaching first aid.

(3) First-aid preparation modules should be added to the students' curriculum and revised periodically to develop their awareness and skills.

(4) Guidelines for first aid are required to minimize injury morbidity and mortality and to improve student knowledge by regularly training quality first aid programmers in schools.

Conflict of interest

There were no conflicts of interest.

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