

Abdullah H. Alsufyani, Suheir. A.M. Sayed, Mohammed Almalki, Bader M. Alsufyani, Bandar R. Alsufyani. (2022). Impact of Emergency First Response for Adolescents in Observation House in Taif, KSA. *International Journal of Early Childhood Special Education (INT-JECSE)*, 14(1): 833-840. DOI: 10.9756/INT-JECSE/V14I1.221097

Received: 12.10.2021 Accepted: 26.12.2021

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Impact of Emergency First Response for Adolescents in Observation House in Taif, KSA

Abstract

Background: The observation house in Taif is one of the social homes of the ministry of social affairs, which deals with the refinement, reform, and care of juveniles from the age of 12 to 18 years for whom the quantities are estimated to commit crimes of whatever crime, from minor and ordinary crimes to murders and this house is located north Taif City. Crisis first reaction alludes to the crisis or prompt consideration you ought to give when an individual is harmed or sick until full clinical therapy is accessible standard first aid training is done in this study.

Aim: To evaluate the impact of emergency first response training among adolescents and workers in the observation house.

Methods: Pre and post single arm community-based study design for Adolescents and workers in observation house in Taif City. Study duration from September 2020 to March 2021. data collected by standardized, close ended questionnaire for awareness through direct interview and observation checklist for emergency first response Care. Total coverage was taken during study duration. the study samples wear 100 (40 workers and 60 prisoners), the study had three phases and all participant pre assessment was done to find out the awareness and response needs during health emergencies and the intervention was designed according to the needs. The outcomes of the intervention were measured by comparison pre and post intervention scores. Data were analyzed by utilizing Levene's test for correspondence of differences and T – Test for uniformity of means

Result: We have eight outcom to measure pre and post intervention, the results showed that all the variables tested there are an increase in post training scores, solely based on mean and deviation, compared to pre intervention. The results A two-tailed independent samples t-test was used to compare the mean difference in overall score between pre intervention and post intervention (n = 100). The Type I error rate was set at alpha = 0.05. The results showed the average overall mean score is less in pre intervention (M = 3.311, SD = 1.7485) than for post intervention (M = 11.556, SD = 0.5647), $t(119,43) = 44.873$, $p = .000$.

Conclusion: emergency first response training in observation home given the adolescent's and worker's limited prior knowledge, it appears to be highly effective. One month following training, we saw substantial improvement and a high performance rate. Increasing the number of trained personnel in the observation house saves lives by reducing the number of persons who are injured or killed as a result of a delayed or inadequate response. While waiting for professional assistance, take urgent action and implement the right strategies., researchers recommended add the emergency first response to programs and activities that are provided to adolescents in the observation houses.

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Keywords: Emergency First Response, Cardiopulmonary Resuscitation, First Aid, Adolescents and Observation House.

Introduction

Adolescent reprobates who are in detention being scrutinized or preliminary, or whom the adjudicator chose to be kept in the house between the ages of twelve and eighteen years, are concerned about achieving the premise of care and good and strict direction, as well as wellbeing and instruction appropriate consideration for the adolescent reprobates who are in detention being scrutinized or preliminary, or whom the adjudicator chose to be kept in the house between the ages of twelve and eight, The duration of confinement in the perception houses is governed by a decision from the appointed authority as needed in the treatment plan, to avoid the negative repercussions of putting adolescent reprobates alongside senior reprobates, That led the state – welcomed by Allah – to establish extraordinary houses for teenage reprobates to provide therapy and preventive consideration, with the primary place of social perception being established in Riyadh on 10/24/1392 AH, and other social perception homes being opened progressively. (Minister of Human resource and social Development 2020).

Taif observation house receives cases of juveniles from Taif, Rania, Turbah, and Al-Kharma, and all the centers belonging to these governorates, and it currently has 40 cases for various cases. where the perception houses organize various projects and exercises of its prisoners to address their issues, right some of misinterpretations, alter their conduct to improve things and assist them with accomplishing the appropriate change. perception houses are viewed as friendly homes for adolescent reprobates to notice them, comprehend their issues, study their challenges with fitting with society, and analyze their conduct and degenerate disease to furnish them with assistance, backing and care to make ready for their reorganization, and empower them to dispose of their defects deviations and get back to society with psychosocial fit to add to the structure and creating of their country and be helpful to themselves, their families and their general public. (Minister of Human resource and social Development 2020).

Where perception exercises at home include initiatives such as cultural and controlling movement, social action, technical and vocational action, and sports action, There is no wellbeing action or Health schooling assists these youths to adapt to crisis cases until the emergency vehicle shows up. In the event that any crisis happens, the patient is moved to the

closest medical clinic for therapy, research is to Trains these teenagers and perception house laborers how to give crisis care to harmed or sick youths to safeguard their lives.

Building trust in ordinary rescuers and improving their ability to react when presented with a health-related disaster is at the heart of Emergency First Response training. Preparing members focus on applying skills in a non-stressful mastering environment while learning easy-to-follow endeavors for crisis care. All study materials, videos, and quick reference are maintained without the assistance of anybody else. (Emergency First Response Primary and Secondary Care 2020).

Health-related emergencies Bleeding, breathing issues, changes in mental status (such as strange behavior, disorientation, difficulty arousing), chest pain, and choking are all warning indications of a health emergency, according to the American College of Emergency Physicians. In order to satisfy the needs of children who are incarcerated in emergencies, more effort needs to be done. (Cousins, 2014).

Methodology

Study Design

Pre and post single arm community-based study design for Adolescents and workers in observation house in Taif City. To evaluate the impact of emergency first response training among adolescents and workers the training include the following: Cardio Pulmonary Resuscitation, Burn, Fracture, hyperglycemia, hypoglycemia, Choking, Epilepsy/Convulsion and Bleeding.

Study Area and Population

The observation house in Taif is one of the social homes of the ministry of social affairs, which deals with the refinement, reform and care of juveniles from the age of 12 to 18 years for whom the quantities are estimated to commit crimes of whatever crime, from minor and ordinary crimes to murders.. and this house is located north taif city.

Inclusion Criteria

Adolescents and worker have direct contact with adolescent in observation house.

Exclusion Criteria

Worker have not direct contact with adolescent in observation house.

Sampling Procedure

Total coverage was done to all adolescent and worker in observation house, total number of research participants will be 40 adolescent and 60 workers.

Study Period

Data was collected from September to November 2020.

Study Variables

Emergency first response training was include the following: Primary Care cardiopulmonary resuscitation (CPR) and Secondary Care (First Aid).

Data Collection Technique & Tools

Data were collected by standardized, close-ended Questionnaire for awareness through direct interview and observation checklist for Emergency first response.

Phases of the Study

The researchers collect the data from observation home in Taif City (September to November 2020) data were collected from both adolescent and employees the study contains three stages:

Stage 1: Pre Assessment was Conduct

Assessing their awareness about warning signs and how to be readiness for emergency first response and the training is designed accordingly.

Stage 2: Intervention

- Emergency first response training focuses on strengthening lay rescuers' confidence and willingness to respond in the event of a medical emergency. Participants in the training learn easy-to-follow steps for emergency care and get hands-on practice in a non-stressful learning setting. To improve learning, all instruction is accompanied by self-study resources, videos, and fast reference cards:
- **Cardiopulmonary (CPR)** - The methods and procedures for dealing with life-threatening emergencies are being taught. They were taught eight ways to help patients

who weren't breathing, didn't have a heartbeat, had a spinal injury, were in shock, or had major bleeding. We teach them how to perform CPR and continue to monitor the patient so that they can give the patient the best chance of survival possible while they wait for help.

- **First Aid**- This section teaches pupils how to perform first aid that decreases the danger of further harm because emergency medical assistance are sometimes delayed or unavailable. The training includes first aid response to burn, fracture, hypo and Hyperglycemia, choking, epilepsy/convulsion and bleeding.

Stage 3: Post intervention: After one month from intervention post assessing was done to assess their awareness and practice about emergency first response.

Training Schedule

The appointments were organized in advance, taking into consideration the schedule of each group, and the trainings was divided into seven sessions It was introduced in two weeks. Each session with duration of 25 minutes.

Two groups were consisting of:

1. Employees
2. Adolescent Prisoners

The training was developed and given by the authors using a powerpoint presentation, videos and practical training on emergency first response.

Data Analysis and Processing: The Data analyzed by computer (SPSS program). Levene's test for equality of variances and T – Test for equality of means were used to compare data.

Pre-Test: The tools were being tested and modified accordingly.

Data Presentations: To determine the effects of the intervention, data was given in the form of simple frequency, tables, and statistical significance analysis.

Ethical Considerations: An official letter will be taken from Taif University to approach the directors of the observation house for permission to conduct the study and approval was taken from Observation Home administration NO: 84071

- Informed consent was taken individually from each member

Results

Table 1.

Distribution of Participants pre and post intervention in Cardiopulmonary Resuscitation (CPR) : n = (100)

Groups	Mean	Std. Deviation	Levene's Test for Equality of Variances		T-test for Equality of Means		
			F	Sig.	t	Df	Sig. (2-tailed)
Pre intervention	6.7300	3.86085	41.430	.000	47.040	198	.000
Post intervention	25.9100	1.31114			47.040	121.535	.000

The above table compares the mean and standard deviation of variable cardiopulmonary resuscitation before and after training, and the results reveal that the mean of variable cardiopulmonary resuscitation after training is higher than it was before training.

The mean difference in cardiopulmonary resuscitation between pre-tradition and post-

tradition was compared using a two-tailed independent samples t-test. The alpha value for the Type I error rate was set to 0.05. The results suggest that the average Cardiopulmonary resuscitation is less for pre training (M = 6.7300, SD = 3.86085) than for post training (M = 25.9100, SD = 1.31114), $t(198) = 47.040$, $p = .000$.

Table 2.

Distribution of Participants Pre and Post Intervention in First Aid: n = (100)

First Aid	Pre		Post		T-test for Equality of Means					
	Mean	Std. Deviation	Mean	Std. Deviation	Equal variances assumed			Equal variances not assumed		
					t	Df	Sig. (2-tailed)	t	Df	Sig. (2-tailed)
Burns	3.1800	2.55200	10.5800	1.07478	26.724	198	.000	26.724	133.048	.000
Fractures	1.3500	1.09521	4.8500	.59246	28.108	198	.000	28.108	152.371	.000
Hypoglycemia	3.2600	2.63473	10.8600	.47183	28.394	198	.000	28.394	105.343	.000
Hyperglycemia	3.2600	2.63473	10.8600	.47183	18.738	198	.000	18.738	105.343	.000
Bleeding	5.1200	3.98553	17.5800	2.08011	27.715	198	.000	27.715	149.209	.000
epileptic seizures and convulsions	2.9000	2.13437	9.8300	.75284	30.620	198	.000	30.620	123.258	.000
Choking	2.6400	2.12022	8.9000	.38925	-29.040	198	.000	-29.040	123.258	.000

The mean burns for pre training and a post training (n = 100) was A two-tailed independent sample t-test with a significance level of 0.05 was used to compare the results statistically. The findings indicate that average before training scores (M = 3.1800, SD = 2.55200) are significantly less than average after training scores (M = 10.5800, SD = 1.07478), $t(198) = 26.724$, $p = .000$. a comparison of the mean and standard deviation of variable fractures pre and post training for first aid, and it is clear from the results that the mean of variable fractures after training is higher than before training and were significant. $t(198) = 28.108$, $p = .000$. The conclusion is that pre training scores (M =before training, SD =1.09521) are less than post training scores (M = 4.8500, SD = .59246), $t(198) = 28.108$, $p = .000$.

The mean difference in Hypoglycemia between pre and post training was compared

using a two-tailed independent samples t-test. The alpha value for the Type I error rate was set to 0.05. The results suggest that the average Hypoglycemia is less for pre training (M = 3.2600, SD = 2.63473) than for after training (M = 10.8600, SD = .47183), $t(198) = 28.394$, $p = .000$.

The mean of Hyperglycemia pre training and after training A two-tailed independent sample t-test with a significance level of 0.05 was used to compare the results. The results showed the average pre training scores (M = 1.3100, SD = 1.36844) are significantly less than average post training scores (M = 3.9400, SD = .31205), $t(198) = 18.738$, $p = .000$.

In terms of bleeding, the data revealed a substantial mean difference between pre and post training. The outcomes were noteworthy. $p = .000$, $t(198) = 27.715$. Pre-training scores (M =5.1200, SD =3.98553) are lower than post-

training scores ($M = 17.5800$, $SD = 2.08011$), $t(198) = 27.715$, $p = .000$.

The mean difference in epileptic seizures and convulsions between pre and after training ($n = 100$) was compared using a two-tailed independent samples t-test. The alpha value for the Type I error rate was set to 0.05. The results suggest that the average epileptic seizures and convulsions is less for before training ($M =$

2.9000 , $SD = 2.13437$) than for after training ($M = 9.8300$, $SD = .75284$), $t(198) = 30.620$, $p = .000$.

In the Choking the results were significant. $t(198) = -29.040$, $p = .000$. The conclusion is that before training scores ($M =$ before training, $SD = 2.12022$) are less than after training scores ($M = 8.9000$, $SD = .38925$), $t(198) = 29.040$, $p = .000$.

Table 3.

T-Test for overall distribution of participants pre and post intervention in first aid and cardiopulmonary resuscitation: $n = (100)$

Overall	Pre		Post		Levene's Test for Equality of Variances		t-test for Equality of Means		
	Mean	Std. Deviation	Mean	Std. Deviation	F	Sig.	t	df	Sig. (2-tailed)
	3.311	1.7485	11.556	0.5647	79.461	.000	44.872	198	.000
				Equal variances assumed			44.873	119.433	.000
				Equal variances not assumed					

The mean difference in overall score between before and after intervention ($n = 100$) was compared using a two-tailed independent samples t-test. The alpha value for the Type I error rate was set to 0.05. The data imply that before intervention ($M = 3.311$, $SD = 1.7485$) the average overall mean score is lower than after intervention ($M = 11.556$, $SD = 0.5647$), $t(119,43) = 44.8$.

Discussion

Cardiopulmonary resuscitation (CPR) is an emergency procedure that combines chest compressions with artificial ventilation in an attempt to maintain intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who has gone into cardiac arrest.. According to the data shown in Table 1, the participants became more knowledgeable about the proper method of CPR after they had training on it compared to the data pre training. Because the difference in results is so substantial, training might be considered a substantial benefit to the participants. The level of knowledge of 100 respondents rose after training, with a mean of 25.9100 and a standard deviation of 1.31114. The findings of this study are comparable to those of a prior study on the impact of cardiopulmonary resuscitation, which found that significant improvements was observed following training implementation, with the youngest age group showing the most improvement. Knowledge rose in seventh-graders ($M = 11.62$;

$SD = 2.04$), eighth-graders ($M = 11.43$; $SD = 2.10$), and ninth-graders ($M = 11.52$; $SD = 2.00$) after training. When comparing the results before and after the training, the improvement in knowledge for each age group was significant ($p < 0.05$). All age groups demonstrated equivalent levels of CPR knowledge after CPR instruction. (The effect of CPR instruction on schoolchildren's CPR knowledge, attitudes toward CPR, and readiness to help others and do CPR: design of a mixed methodologies study S. Piva, P. Gradiak, and B. Skela-Savi The effects of CPR instruction on schoolchildren's CPR knowledge, attitudes toward CPR, and readiness to help others and perform CPR: mixed methods research design. BMC Public Health 20, 915 (2020). This result is a contrary of what is cited in the previous study from Saudi Arabia. This study revealed that knowledge and skills of BLS among female school teachers are inadequate. Post cardiac arrest survival depends on the quality of CPR and rapid defibrillation. Almost two-thirds of respondents had insufficient knowledge of CPR and AED use, according to the survey. The results showed a mean of 5.00 and a standard deviation of 1.41 with 302 respondents. (Pivač et al., 2020)

Burns are potentially fatal injuries with a wide range of repercussions, including physical, functional, and vocational harm, as well as cosmetic and emotional harm. Knowledge of burn first aid helps to reduce the severity of the injury. Table 2 demonstrates an increase in percentage advancement, implying that after obtaining sufficient training, participants received

proper knowledge about first aid for burns. The degree of knowledge grew with a mean of 10.5800 and a standard deviation of 1.07478 after 100 respondents were trained. This is comparable to the findings of a recent Saudi Arabian study, which found that literacy and education levels are crucial factors in good first-aid practice adoption. The literacy rate among Saudis aged 15 and up was reported to be 94.4 percent (female 91.4 percent, male 96.5 percent). Our respondents were overwhelmingly university graduates, with 51.1 percent holding a bachelor's degree. (Alhejaili et al., 2020)²

Fractures (broken bones) are a common injury that first responders encounter. The proper first-aid treatment of fractures is critical in reducing pain and promoting fracture healing. Because of the adequate training offered to them, Table 3 demonstrates a significant rise in the proportion of first aid to fractures. The degree of knowledge increased with a mean of 4.8500 and a standard deviation of .59246 after 100 respondents were trained. This finding matches that of a prior study published on PubMed.gov, which stated, "A PFA instructional program has proved to enhance police officers' knowledge and perceived skill confidence in providing first aid" Qualitative study is needed, however, to throw additional light on the reasons for the poor use of trained first aid skills during follow-up." The mean PFA knowledge score increased from 44.73 percent prior to training (SD = 20.70) to 72.92 percent six months later (SD = 18.12), p.001, N = 102. PFA perceived skills confidence increased from 1.96 before training (SD = 0.74) to 3.78 6 months later (SD = 0.70), p.001, N = 102. Al-Johani et al., 2018).

Diabetes impairs a person's capacity to control blood sugar levels. Blood sugar fluctuations in either way can cause symptoms. Low blood sugar can occur in people with diabetes as a result of illness, stress, skipping meals, or using too much insulin. According to the data shown in Table 2, the participants became more knowledgeable about the proper method of first aid training on low blood sugar compared to the data before they had training. After the training of 100 respondents, With a mean of 10.8600 and a standard deviation of .47183, the degree of knowledge increased. Because the difference in results is so considerable, it can be claimed that training is of great assistance to the participants. This contradicts the findings of a previous study done in Siberia, which stated, "It is disheartening that few participants reported diabetes training for school workers". School staff training in Serbia was not conventional at the time of the study. Diabetes is a private matter that only the families are aware of. As a result, it's likely that everyone save those who are directly involved (patients/relatives) has only a rudimentary

understanding of the various facets of diabetes, as has been reported by other authors." (Ješić et al., 2016).

Before treating a diabetic patient, first-aid professionals must make key decisions. Understanding the mechanisms behind the medical condition is the best way to properly address an emergency involving a person with diabetes. Table 2 demonstrates that the proportion of advancement has increased, implying that participants have received sufficient understanding of first aid for high blood pressure after obtaining sufficient training. The degree of knowledge increased with a mean of 3.9400 and a standard deviation of .31205 after 100 respondents were trained. This statistic is consistent with an article from the Medical Learning Library that stated, "In the United States, more than 30 million people have diabetes." According to the National Diabetes Statistics Report, diabetes is the leading cause of death in the United States, This rise in diabetes coincides with an increase in emergency room visits from patients in life-threatening situations. As the prevalence of diabetes grows, so does the possibility of administering first-aid to someone with the disease." (Aljehani, 2019).

Because of the adequate training provided to them, Table 3 demonstrates a significant rise in the percentage of first aid to bleeding. The degree of knowledge increased with a mean of 17.5800 and a standard deviation of 2.08011 after 100 respondents were trained. "This study provides quantitative evidence that Stop the Bleed training is helpful, with both LRs and MRs displaying greater confidence and technical proficiency after a 1-hour course," according to a report published in Pub Med.gov. Building a pool of teachers, continuing LR training, and establishing how often skills should be recertified should all be priorities for future program development. " The study had a total of 1974 individuals. Both groups had the lowest pre-course confidence in their abilities to control active severe bleeding and pack a bleeding wound. In all six main categories examined, post-course confidence improved significantly for both groups (P 0.001). The two preceding areas of lowest pre-course confidence-management of active severe bleeding-LRs 2.0 (SD 1.2) versus 4.2 (SD 0.9) and MRs 2.6 (SD 1.4) versus 4.6 (SD 0.6), P 0.001-and capacity to pack a bleeding wound-LR 2.1 (SD 1.3) versus 4.4 (SD 0.6), P 0.001-showed the most substantial increases (SD 0.8) and P 0.001 for MR 2.7 (SD 1.3) versus 4.7 (SD 0.05). At the end of the course, objective assessments of LR abilities revealed a cumulative 99.3 percent competency on postcourse objective evaluations. (Schroll et al., 2020)

Epilepsy is a neurological illness that affects people all around the world. In comparison to the data before they received training, the participants became more informed about the right manner of first aid training on epileptic seizures and convulsions, as demonstrated in Table 2. The degree of knowledge grew with a mean of 9.8300 and a standard deviation of 75284 after 100 respondents were trained. This conclusion contradicts the findings of a study conducted in Makkah City, which said "Despite the importance of school health services, they are frequently neglected in many parts of the world, including Saudi Arabia, as a result of a lack of teacher awareness of first-aid care for common crises such as epileptic fits," according to the report. Only 39.3 percent of female elementary school instructors were aware of epilepsy first-aid in the current survey. As a result, substantially more public education programs, including teacher education on epilepsy and first-aid, are required." The teachers' ages ranged from 18 to 57 years old, with a mean of 36.5 years and 0.9 years. Every single one of them was a Saudi national. Their educational backgrounds spanned from secondary school to a Master's or PhD degree. The majority of the teachers (62.5%) had a Bachelor's degree, while 14.6 percent and 21.3 percent, respectively, had a secondary school certificate or diploma. Only 1.6% of teachers have a master's or doctoral degree. (Renzetti et al., 2020).

Choking happens when a constricted or clogged throat or windpipe prevents breathing. In some circumstances, air flow is completely restricted, while in others, some air can reach the lungs. Oxygen deprivation occurs when the body receives insufficient oxygen. Table 3 shows that there is an increase in percentage of progress and interprets that participants gained proper knowledge about first aid in choking after receiving proper training. After the training of 100 respondents the level of knowledge increased has an 8.900 mean and a.38925 standard deviation. This result is an opposite of the result obtained from the study conducted to pre-schoolers which stated that "The level of knowledge of mothers concerning first aid, particularly in cases of choking, was unsatisfactory. Only every 5th mother knew the current guidelines for cardiopulmonary resuscitation. Despite the awareness of a legal obligation to administer first aid by witnesses of incidents, only every 4th of mothers would give first aid to the affected children and practical first aid trainings should be carried out systematically, starting at the pre-school age and continuing throughout the life, which will increase the range and effectiveness of pre-medical assistance." There were 390 parents in the study. Their personal qualities are listed in Table

1. Males made up more than half of the group (55.6%). 40 percent of them were between the ages of 31 and 40, while 31.5 percent were between the ages of 20 and 30. More than half of them (53.3%) had at least a bachelor's degree, while 16.2 percent had only a high school diploma. More over half of them (51.8 percent) had a family size of 5 to 10 years. Almost two-thirds of them had children under the age of 18 years old, ranging from one to three (65.1 percent). (Bettelheim, 1980).

Acknowledgements

The authors would like to acknowledge Taif University for supporting this study through the University Research Supporting Project number (TURSP-2020/317).

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