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Effects of Camping First Aid Awareness Program on Short-Term Knowledge of Individuals at Al-Quryyat City

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Abstract

Background: *Accidents and injuries are part of daily events. Simple first aid (FA) actions can reduce pre-hospital deaths significantly. First aid training is a cost-effective way to save lives and decrease the burden of injuries. The aim of the study is to assess the immediate effects of camping first aid awareness program on short-term knowledge of individuals at Al-Quryyat city in Saudi Arabia.* ***Methods:*** *A quasi-experimental pre-test /post-test design was used to conduct this study. A convenient sample of 400 individuals living in Al Qurayyat city at Jouf Governate.* ***Results:*** *The study revealed that 16.8% of the study subjects have poor knowledge, and there is a statistically significant improvement in knowledge scores post the program implementation than pre.* ***Conclusion and Recommendation:*** *Based on the findings of the study, there were significant improvements in the mean score of knowledge. So, it is necessary to improve wide spreading of first aid training programs to the whole community.*

Keywords: *Camping, First Aid, Life Support, Training Program, Saudi Arabia.*

1. INTRODUCTION

Intentional and unintentional injuries account for 8.5 % of all deaths worldwide[1]. Injuries are a relatively neglected health concern; approximately 4.7 million people die each year because of them. It was revealed that 35% of deaths occur within the first 5 minutes after an accident, and 54% during the first 30 minutes, and those witnesses were present at the accident scene before paramedics arrived in more than half of the emergency cases. Accidents and injuries are a common occurrence and an increasing global public health issue[2].

In Saudi Arabia (SA), annual mortality rates from unintentional injuries were estimated to be 14.8 per 100,000 people[3]. Also, it recorded 30,263 cases of neck and back injuries, 41,561 fractures, 779 burn cases, and 467 cases of suffocation[4].

One of the factors that raises the risk of injury is camping or other outdoor activities. Camping is an outdoor activity that involves spending time outside in more natural settings in a shelter, such as a tent or a recreational vehicle, in pursuit of activities that provide enjoyment. Millions of people enjoy camping because it allows them to reconnect with nature, escape the daily grind, and spend time with family and friends. Almost all outdoor activities are safe and pleasurable, but tragedies and disasters sometimes occur.

Outdoor camping, on the other hand, increases the danger of harm. Heat stroke, burns, snake bites, animal attacks, shock, blisters, insect bites, abrasions, strains & sprains, poisonous plants, and other common camping ailments can all be treated with basic first aid (FA) skills. Injuries can happen in a variety of ways when you're out in nature. Although it is hard to prepare for every possible event, risks can be reduced[5].

Injury prevention can significantly lower the financial burden on the national economy and the public healthcare system. In addition to the financial costs and mental health consequences of being exposed to accidents, trauma, and injury, both victims and their families may be affected. Furthermore, injuries necessitate rehabilitation, which has an impact on patients' productivity and well-being[3].

Prior to the administration of advanced medical care, first aid is the primary care given to a victim of injury, an accident, or an unforeseen sickness. Its goal was to save lives, promote recovery, and prevent the casualty's condition from deteriorating. Because injuries and accidents have become so common, it is regarded one of the most important communal survival skills for all personalities. Everyone, especially children, should be educated and trained in life-saving procedures such as first aid[6, 7].

Outdoor or camping FA is different from regular FA. People must be prepared for a variety of accidents, as well as being away from medical assistance for hours or more in some circumstances. Unfortunately, it is possible that a long period of time will pass before an ambulance arrives. As a result, all countries, whatever of their resources, require the public adoption of FA programs to save lives. As a result, the Red Cross and Red Crescent Societies emphasize on basic lifesaving techniques like as FA[8].

The most important elements of the camping puzzle, whether individuals are camping with their spouse, family, or a group of friends, are being aware of potential outdoor hazards, and having a well-prepared and stored FA kit. Many teaching campaigns around the world have been successful in changing people's attitudes or behaviours around FA.

First aid (FA) awareness is essential to deal with minor injuries and incidents while camping, when everyone is prepared for any type of hiking or trekking event that may occur, getting outside is often more pleasurable and much healthier. Individuals must be prepared to cope with any emergency, as it is unlikely that they will be able to reach a hospital while camping and will have to deal with the disaster on their own[5].

Many studies have been undertaken around the world to assess FA knowledge among various groups from various perspectives. Unfortunately, there are few published reports in the Middle East assessing the general public's knowledge of FA[9].There are no studies regarding outdoor camping FA. To the best of our knowledge, no reports or studies have been conducted in the SA. Hence, this study was conducted to assess these issues to understand the community people awareness regarding to camping first aid and to evaluate the immediate effects of camping first aid awareness program on short-term knowledge of them.

2. METHODS

2.1 Study design and sampling

A quasi-experimental pre-test /post-test design was utilized in this study. This study was conducted in Al-Quryyat city at Jouf Governate, Kingdom of Saudi Arabia. A convenient sample of 400 individuals living in Al-Qurayyat city were included in this study. The sample size for this study was determined using the calculator.net program, and it was 300 participants. This indicates that 300 participant or more were required to have a 95% confidence level that the actual value is within 5% of the measured value. To be conservative, the sample size was raised by 10% to be 400.

2.2 Study tool

An electronic self-administered questionnaire designed by the researchers via Google forms was used to collect the data of this study based on the current related literatures[3, 6, 9]to assess individuals' knowledge toward outdoor camping first aid at pre, post training program, it comprised three parts:

2.2.1 Part one: Data related socio-demographic, such as (age, sex, level of education, marital status, working condition, and residence).

2.2.2 Part two: Data related previous camping FA experiences, such as preference of camping, history of accidents during camping, type of accidents during camping, availability of first aid kit, previous training regarding FA, last training regarding FA, previous information regarding FA and source of information regarding FA.

2.2.3 Part three: Individuals' knowledge regarding camping First aid. This part was utilized on two occasions: before and after the program's implementation. It consisted of 20 questions (10 true and false question and 10 multiple choice questions); covering the following topics, basic life support, common types of outdoor camping accidents, injuries and its management including (bleeding and wound, burn, fainting, poisons, chocking, heat stroke, cold pinch, scorpion sting, and animal bite).

2.3 Scoring system

The total score of knowledge was 20 points, each correct answer was scored "1", and a score of "0" was given to incorrect knowledge or do not know. Then the total scores were converted into percentages and classified into three categories where, those who get a score of 70% and more was classified as "good knowledge", those who get a score of 50% to less than 70 % was classified as "fair knowledge" and those who get a score of less than 50% was classified as "poor knowledge level".

2.4 Validity and reliability

A panel of five experts in critical care nursing, medical and surgical nursing, and community health nursing from the Faculty of Nursing in Alexandria and Jouf Universities evaluated the designed tool for content validity. Cronbach's alpha was used to account the tools' reliability coefficient, it showed a variation in the reliability coefficient value of 0.90, which is still statistically significant and indicates very high reliability.

A pilot study was conducted on 10% of participants to test the tool for its clarity, organization, and applicability, as well as to determine the time required to complete the questionnaire. Accordingly, the necessary modification was done, some questions were added, and others were clarified or omitted. As a result, all participants of pilot were excluded from the study.

2.5 Statistical Analysis

All statistical tests were conducted using SPSS version 25.0 (SPSS, Chicago, IL). Continuous data were normally distributed and were expressed in mean ± standard deviation (SD). Categorical data were expressed in frequency and percentage. Chi-square test was used for comparison of variables with categorical data. The comparisons were determined using Paired t test for two variables with continuous data. Statistical significance was set at $p<0.05$ To quantify the degree and direction of the linear relationship between the research variables, the Pearson correlation coefficient (Pearson's r, test) was used to measure correlation among variables.

3. RESULTS

Study was conducted on 400 subjects, more than one third of them aged between 30 to less than 40 years, and 40 years and more (37%, 34% respectively). More than sixty percent of them were male and married with the same percent for both (63.3%). Less than three quarters (70%) of them had bachelor's degree. Regarding their working, the table presents that, more than one third (36.3%) of them were educational sector workers compared to only 3.5% of those who are health sector workers. Finally, the majority (89.3%) of them were urban residence, as shown in Table1.

Table 1: Distribution of the Study Subjects according to their sociodemographic data (n=400)

Sociodemographic data	Frequency	%
Age (Years)		
Less than 20	11	2.8
20 to less than 30	105	26.3
30 to less than 40	148	37.0
40 and more	136	34.0
Sex		
Male	253	63.3
Female	147	36.8
Marital status		
Single	130	32.5
Married	255	63.8
Divorced	15	3.8
Educational level		
Secondary	87	21.8
Bachelor	280	70.0
Postgraduate	33	8.3
Working condition		
Non-working	83	20.8
Educational sector	145	36.3
Private sector	45	11.3
Students	35	8.8
Health sector	14	3.5
Other sectors	78	19.5
Residence		
Urban	357	89.3
Rural	43	10.8

Table 2: Distribution of the study subjects according to their camping and First Aid Training Experiences

Camping and training experiences	Frequency	%
Preference of camping		
No	42	10.5
Yes	358	89.5
History of accident during camping		
No	247	61.8
Yes	153	38.3
Type of accident	No=153	
Injuries (wound, bleeding)	53	34.6
Burn	26	17.0
Suffocation	23	15.0
Heat stroke	20	13.1
Fainting	11	7.2
Fall	8	5.2
Cold Pinch	8	5.2
snakebite and scorpion- bite	4	2.6
Availability of first aid kit	n. 400	
No	206	51.5
Yes	194	48.5
Previous training regarding FA		
No	208	52.0
Yes	192	48.0
Last training regarding FA	**n. 192**	
Since some days	32	16.7
Since some months	91	47.4
Since some years	69	35.9
Previous information regarding FA	**n. 400**	
No	232	58.0
Yes	168	42.0
Source of information regarding FA	**n. 168**	
Previous training	78	46.4
Friends	34	20.2
Studying	31	18.5
internet resources	25	14.9

Table 2 presents that, the majority (89.5%) of the studied subjects were prefer camping experience. Regarding their history of accidents during camping it was noted that slightly less than two fifths (38.3%) of them reported that they have history of accidents during camping, among them around one third (34.6%) of them suffered from injuries, followed by less than one fifth who experienced burn (17%). Less than half (48.5%) of them reported that they have first aid kit while camping, less than half (48%) of them reported that they received FA training. Finally, regarding previous information regarding FA, only 42% of them reported that previous training was the main source of their information, followed by friends, studying, and internet resources (20.2%, 18.5%, and 14.9% respectively).

Table 3: Distribution of the Study Subjects According to Their Total Mean and Mean Percent Scores of Their Knowledge Regarding First Aid Pre and Post the Training program

Total FA knowledge score	Maximum allowed scores	Pre	Post	Test of significance (*p* value)
Mean ± SD	20 points	11.7±2.6	16.9±1.4	t:88.722 *p*:<0.001*
Min-Max		1-18	9-20	
Mean % ± SD	100 points	58.6±13.2	84.9±7.3	
Min-Max		5-90	45-100	

t: Student t-test; *p*: *p-value* of test of significance; *: significance at P ≤0.5

Table 3 declared that there is a statistically significant improvement in knowledge scores post the program implementation than pre where mean % scores of their knowledge pre the program implementation was 58.6±13.2 with a minimum score of 5% and maximum 90% compared to 84.9±7.3 with a minimum score of 45% and maximum 100% post the program, where t-test is 88.722 with p value <0.001.

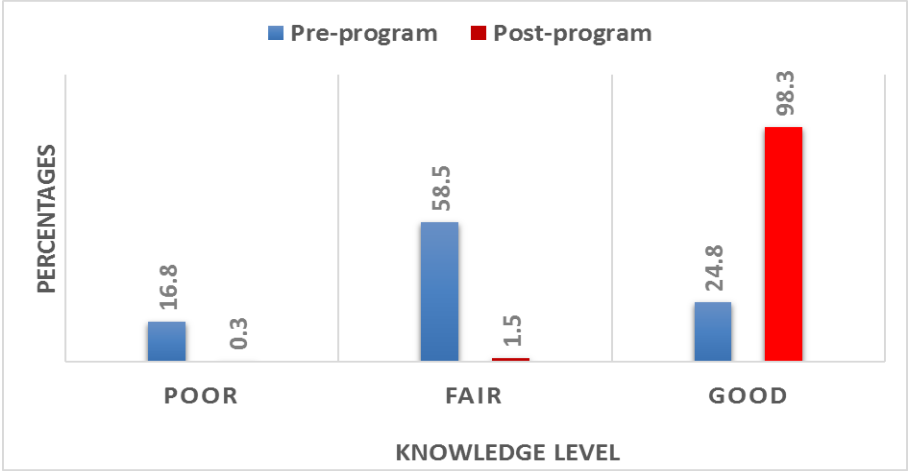

Figure 1: Total knowledge score pre and post program

Figure 1 portrays that, less than one fifth (16.8%) of the study subjects have poor knowledge pre the program compared to 0.3% post the program implementation. Slightly less than one quarter (24.8%) of them have good knowledge pre the program compared to the majority (98.3%) of those who have good knowledge post the program implementation.

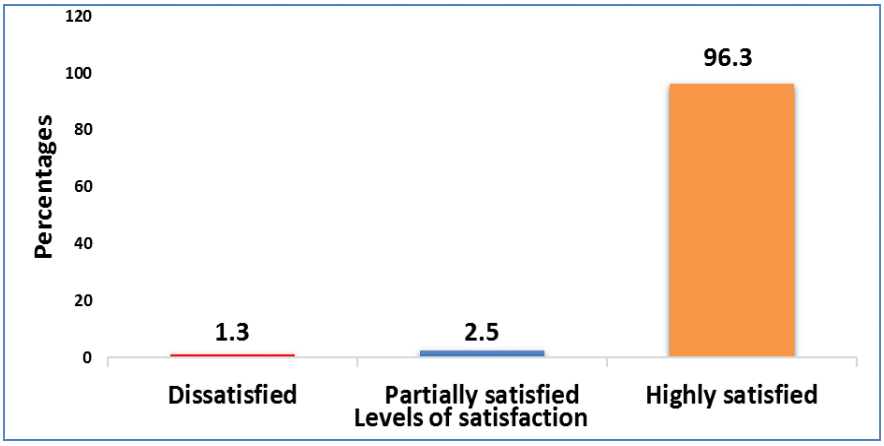

Figure 2: Total satisfaction score post program

Figure 2 portrays that, the vast majority (96.3%) of the study subjects reported that they highly satisfied of the training program compared to only 1.3% who were dissatisfied.

Table 4: Association between the Study Subject's Total Knowledge Percent Scores Regarding First Aid Post the Training Program Implementation and Sociodemographic Data

Sociodemographic data	Mean % ± SD of knowledge (post)	Test of significance *p value*
Age		
Less than 20 Years	79.5±9.3	F:3.905 *p*:0.009*
20 to less than 30 Years	84.4±7.9	
30 to less than 40 Years	86.2±6.8	
40 Years and more	84.5±6.9	
Sex		
Male	84.6±7.4	F:1.402 *p*:0.237
Female	85.5±7.0	
Marital status		
Single	83.5±7.4	F:5.130 *p*:0.006*
Married	85.5±7.2	
Divorced	88.7±6.9	
Educational level		
Secondary	84.8±8.2	F:0.055 *p*:0.947
University	85.1±7.2	
Post	84.8±6.6	
Working condition		
Non-working	84.4±7.6	F:3.749 *p*:0.003*
Educational sector	85.2±6.3	
Other sector	84.3±7.6	
Private sector	85.4±7.1	
Students	83.3±8.1	
Health sector	92.5±9.1	
Place of Residence		
Urban	84.9±7.3	F:0.001 *p*:0.981
Rural	85.0±7.7	

F: ANOVA test; *P*: *p-value* of ANOVA test; *Significance at p value ≤0.05

Table 4 shows that there is a significant association between study subject's total knowledge percent scores regarding first aid post the training program implementation and their age where the higher scores noted among those who aged 30 to less than 40 years (86.2±6.8) compared to the younger one aged less than 20 years (79.5±9.3) with F: 3.905 and P value 0.009. There is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their marital status where the higher scores noted among divorced (88.7±6.9) compared to single (83.5±7.4) with F: 5.130 and P value 0.006. Furthermore, there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their working where the higher scores noted among health sector workers (92.5±9.1) followed by educational and private sector workers with nearly the same percentages (85.2±6.3, 85.4±7.1 respectively) with F: 5.130 and P value 0.006. Finally, there is no significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their sex, educational level, and place of residence.

Table 5: Association between the Study Subject's Total Knowledge Percent Scores Regarding First Aid Post the Training Program Implementation and Camping Experience

Camping experience	Mean % ± SD of knowledge (post)	Test of significance P value
Prefer camping		
No	87.1±7.4	F:4.135
Yes	84.7±7.3	*p*:0.043*
History of accident during camping		
No	85.1±7.4	F:0.191
Yes	84.8±7.2	*p*:0.662
Availability of first aid Kit		
No	84.8±7.1	F:0.374
Yes	85.2±7.6	*p*:0.541
Previous training regarding FA		
No	84.7±7.4	F:0.666
Yes	85.3±7.2	*p*:0.415
Last training regarding FA		
Since some days	84.1±6.7	F:6.151
Since some months	87.1±6.9	*p*:0.003*
Since some years	83.4±7.1	
Previous information regarding FA		
No	84.4±7.1	F:2.959
Yes	85.7±7.6	*p*:0.086
Knowledge level pre-program		
Poor	81.5±9.2	F:14.120
Fair	84.9±6.9	*p*:<0.001*
Good	87.5±5.6	
Satisfaction level		
Dissatisfied	88.0±7.6	F:0.513
Partially satisfied	84.0±3.9	*p*:0.599
Highly satisfied	84.9±7.4	

F: ANOVA test; *p*: *p-value* of ANOVA test; *Significance at p value ≤0.05

Table 5 shows that there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their preference of camping where it is surprising to found that those who didn't prefer camping have a better score (87.1±7.4) with F: 4.135 and P value 0.043. There is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and the last FA training received where those who trained at the previous months have better scores (87.1±6.9) compared to those who trained since some years (83.4±7.1) with F: 6.151 and P value 0.003. Furthermore, there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their level of knowledge pre the program implementation where those who have poor knowledge pre the program has lower scores (81.5±9.2) compared to those who have good knowledge (87.5±5.6) with F: 14.120 and P value :<0.001. Finally, there is no significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their history of accident during camping, availability of first aid Kit, previous training regarding FA, previous information regarding FA and satisfaction level.

4. DISCUSSION

Accidents are a major public health problem worldwide leading to death, injuries, and major economic loss [10]. The burden of injuries to global health is considerable, but simple FA actions can reduce pre-hospital deaths significantly. Furthermore, FA training is a cost-effective way to save lives and decrease the burden of injuries[11]. Camping FA differs from the usual FA as a significant time may pass until the arrival of an ambulance[9]. Millions of people are trained annually in FA worldwide[11]. Unfortunately, it was reported that the frequency of FA given by laypeople to trauma casualties worldwide ranges from 10.7% to 65%, and incorrect FA is being given in up to 83.7% of the cases[12]. Hence, properly administered FA can mean the difference between life and death, rapid versus prolonged recovery and temporary versus permanent disability [13]. This makes it's too necessary to increase the knowledge of population about FA for all age groups and anywhere. Therefore, this study was conducted.

In referral to the personal characteristics, the study was conducted on 400 subjects, more than one third of them aged between 40 years and more 34%. This result is supported by El Magrabi et al., Who found that that about two fifths of them aged > 40 years[14], this finding was in agreement with Sunil et al., who found that nearly half of the teachers were in the age group of more than 40 years[15].In relation to sex, the result of current study revealed that more than sixty percent of the study sample was male. This in agreement with Sunil et al., who found that 59.5% of the study sample were males[15].On the contrary, El Magrabi et al. who observed that more than two thirds of study were female[14]. Finally, in relation to previous information regarding FA, only 42% of them reported that previous training was the main source of their information, followed by friends, studying, and internet resources (20.2%, 18.5%, and 14.9% respectively).

This may be due to that more than one third (36.3%) of the study sample are work in education sector (teachers) and 3.5% are health sector workers who are continuously increase their awareness and skills toward first aid by attending training FA program which is vital for teachers to provide solutions in case of the occurrence of accidents to maintain safety of students who are frequently exposed to injury at school during their activities. In addition Rapid administration of first aid by school teachers may minimize morbidity and mortality of pupils attributed to injury-related problems, therefore, teachers should have adequate knowledge and practice in basic first aid skills[16].

The population of the current study who received FA training was more than the populations of Midani et al., who found that Only 33% of their sample received FA training during their life[9], and still higher than the populations in India (11.2%)[17]and Jordan (29.2%)[18]. Furthermore, a study carried out in Saudi Arabia by AL-Samghan et al, reported that less than one third of primary schoolteachers in Abha, KSA had previous training in first aid[19]. Alshammari reported that more than one-half of teachers (58.28%) had not taken first-aid training it was reported that only 26.4% of teachers had attended first aid lectures and the majority of them had not attended the lectures[16].

This study is against Alshammari, who reported that most of the study sample depend on media and social media to gain information regarding first aid principles[16]. Also, This finding is in contrast with Amro and Qtait who found that nurses and doctor was the main sources of teachers' knowledge about first aid[20].

Regarding knowledge of FA, the finding of the current study declared that there is a statistically significant improvement in the FA post test knowledge score of the study sample than pre test knowledge score. And slightly less than one quarter (24.8%) of them have good knowledge pre the program compared to the majority (98.3%) of those who have good knowledge post the program implementation.

This agrees with Masih et al. who reported that the knowledge post test score of their study sample was significantly higher than pre test knowledge score about first aid management of selected minor injuries[21]. This result is also in congruent with Abd El-Hay et al. who found that were significant improvement in the level of knowledge among students post program[13]. Moreover, Abdella et al. reported that there was poor knowledge about pediatric first aid among staff in the preschools before the program intervention while their results showed that the knowledge score to be significantly higher among them after the program implementation[22]. In addition in a study performed by Behairy and Al-Batanony, who observed that the study participants, generally, had poor knowledge and incorrect situational practice in the pretest [23]. A statistically significant improvement was shown in the knowledge and practice at post and follow-up tests. Also, the current study result is in contrary to El-sharkasyet al., who conducted the study in Port Said- Egypt about Impact of First Aid Training Program for Car Drivers about Road Traffic Injuries[24]. They found lack of satisfactory knowledge in relation to first aid measures. In addition, the result of the current study revealed that the mean knowledge score of population is less than one fifth (16.8%) of the study subjects have poor knowledge pre the FA program, and slightly less than one quarter (24.8%) of them have good knowledge pre the program. This result is against with Midani et al., who conducted his study in the United Arab Emirates about Knowledge and attitude toward first aid and found that more than half of the population (54.2%) had poor knowledge of basic first aid[9]. Similar findings were reported in Jordan[18], and India[17].

AlYahya et al.conducted a study to assess the levels of knowledge of teachers in the Riyadh city and reported that 60.1% of teachers had information about first aid practices which was more than our findings[4]. Another study from Saudi Arabia reported that more than half of teachers 51.26% had poor knowledge[25].Another study demonstrated that there was an unsatisfactory level of first aid knowledge among primary school teachers[26]. A study from Al-Robaiaay showed that sports teachers had poor knowledge about first aid. In Madinah, 44.76% was the percentage of good first aid knowledge of overall school instructors[27]. A study from Egypt reported that the knowledge of primary school teachers about first aid was inadequate[28]. A study from Iraq reported that 95% of teachers had total fair knowledge and 5% had poor knowledge[16].An Indian study showed that 77.5% of government school teachers had an average level of knowledge toward first aid, whereas 12.5% and 10% had good and poor knowledge, respectively[29]. Another Indian study reported that 13% and 87% of school teachers in Mangalore had poor and moderate knowledge, respectively[30]. Another study found that 72.5% had good knowledge[31].

In 2020, Taklual et al. performed a study to investigate the associated factors of first aid knowledge, attitude, and practice among elementary school teachers in Ethiopia. They found that school teachers have low knowledge of FA [32]. The result of the current study found that there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program and their age where the higher scores noted among those who aged 30 to less than 40 years compared to the younger one aged less than 20 years. This is in line with Midani et al., who reported that significant difference was observed among the age groups; the older the participants, the greater their knowledge of FA [9]. This was also reported in China where 57.3% of the elderly population had knowledge of FA [32].The possible explanation may be related to the fact that as age increase the awareness and exposure also increase. Regarding marital status, there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their marital status where the higher scores noted among divorced. This result is in line with Alshammari who reported that Marital status significantly correlated with knowledge regarding partial chocking [16]. However, against with the result of the current study findings he reported that singles had the highest knowledge when compared to married

and divorced, while the married population had higher knowledge regarding chemical contamination of eyes. Furthermore, there is a significant association noted between study subject's total knowledge percent scores regarding first aid post the training program implementation and their working where the higher scores noted among health sector workers followed by educational and private sector workers with nearly the same percentages. This is not surprising as health sector workers have educational background about FA due to their nature of work and their education and educational sector workers (teachers) who are the main caregivers in school and the first- line protectors and the first one who respond to any emergency, so they should have adequate knowledge regarding FA.

5. CONCLUSIONS

There was improvement of knowledge regarding camping first aid measure among population of AlQurayyat city at Jouf Governate after application of the training program. Continuous educational and training programs for all public as a whole of about first aid for early management of injuries and emergencies. First aid knowledge and practices should be incorporated in the educational curricula.

Limitations

This study has several limitations. Firstly, there was a substantial loss to follow-up. Although this was expected, and anticipated for, it may have influenced the results, since there was an imbalance in loss to follow-up due to COVID-19. More people dropped out of the study, possibly because of the training session held only electronic and because of COVID-19, and the direct training sessions were canceled. Many of the study samples did not complete the questionnaire and hence repeated sessions were done.

Informed Consent Statement: Consent was obtained in the form of participants stating that they were willing to complete the questionnaire in before and after receiving the program.

Data Availability

The dataset generated and/or processed during this research is accessible upon reasonable request from the corresponding author.

Conflicts of Interest: The authors declare that they have no conflicts of interest.

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