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## KNOWLEDGE OF NON-HEALTHCARE PROVIDERS TOWARDS FIRST AID SKILLS IN RIYADH CITY, SAUDI ARABIA.

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### ABSTRACT

**Background:** First aid assistance is crucial and cost-effective in serious emergent conditions to preserve individuals' life and reduce morbidity when a bystander does it with good knowledge about first aid. Applying wrong first aid techniques may further complicate and worsen the situation. Thus, this study aims to assess the level of knowledge among non-healthcare providers toward first aid skills.

**Materials and Methods:** An observational cross-sectional study was conducted in Riyadh city, Kingdom of Saudi Arabia, in 2019. The sample size was 405 non-healthcare providers. The level of knowledge was obtained by the analysis of a questionnaire composed of first aid practices and sociodemographic questions. The questionnaire was reviewed and validated by four experts in the field of Emergency Medicine from different centers.

**Results:** The final sample size was (n=405) participants, 57% of whom were female and 43% were male, the majority of them fell between 21-30 age interval. It was found that 11.4% had good knowledge, 66.9% had an average score, and 21.7% scored poorly. About 24.4% of the participant reported that they applied First aid to someone in need before. However, 84.8% of them did not receive any training and acted by their personal knowledge.

**Conclusion:** Our study showed that participants had insufficient knowledge of first aid skills in order to apply it correctly and without any consequences in emergency situations. Moreover, the majority of participants did not receive an official first aid training and applied it based on personal knowledge.

**Keywords:** First Aid, knowledge, Attitude, Public Health, Saudi Arabia.

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## INTRODUCTION

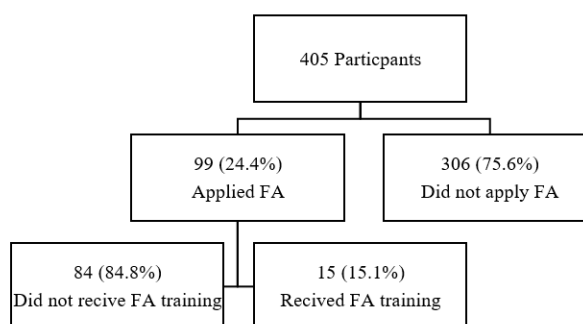
First aid (FA) is the first assistance and help given to a person having a serious emergent condition to preserve his life. Many patients die before health-care professionals reach the scene, especially in big cities with a long response and transport times for emergency medical services to arrive at the emergent scene. [1] This Traumatic injury constitutes a significant health problem that can lead to death or lifelong disabilities, which will lead to a huge burden on national healthcare costs. [2] When an individual has a cardiac arrest actions taken by bystanders are of crucial importance and can help improve survival rate. The survival of out-of-hospital cardiac arrest with early initiation of cardiopulmonary resuscitation (CPR) was significantly better in the bystander group who initiate CPR earlier (32%) than in the delayed-CPR group. [3] Also, clinical outcomes of patients having acute burn injuries are better in patients having first aid than in patients who didn't receive it. [4] Moreover, correct first aid management in traumatic patients done by bystanders can reduce mortality up to 4.5%. [5] First aid skills in a non-healthcare provider help in situations where healthcare providers not available. It will provide a rapid response until healthcare providers arrive at the emergent condition and reduce the demands on hospitals and emergency departments. [6] A study done by Bakke et al. shows that bystanders in trauma situation who was previously trained in first aid skills gave better first aid than untrained bystanders. [6] To perform first aid by the bystander in emergent seen, the bystander needs to have adequate knowledge and the right training.

Health care providers usually learn the necessary skills to perform basic first aid in medical institutions as obligatory training. A recent study in Riyadh showed more knowledgeable than non-health college students in Riyadh. [3] Also, first aid trained students deal better with emergent cases than untrained students. [7] However, this is not the case for Non-healthcare providers and non-healthcare college students since not all non-medical institutions provide to their staff first aid training to act fast in case of emergency [1] A study done by AlYahya et al. about first aid knowledge among male teachers in Riyadh, his study showed that only 10.6% of the male teachers have the adequate knowledge about first aid. [8] Although teachers are one of the most important populations to have first aid skills to help their students in critical situations. These findings signify the importance of assessing population knowledge and attitude toward first aid, including female teachers and not only male as the female teachers represent a high population too. On the other hand, there was no evidence of a recent study that asses parents' knowledge about first aid and what to do in critical situations. Based on these observations, we conducted a study to explore the knowledge, attitude, and practice of first aid among Saudi population epically in Riyadh as it is the capital of the kingdom and has the highest number of citizens. This study's novel data will help establish awareness campaign can be customized and designed according to each person level of education. Moreover, this study will help to overcome the economic impact caused by traumatic injuries when adequate knowledge

and training are provided to preserve and save patients' life.

## MATERIALS AND METHODS

A cross-sectional study was conducted in Riyadh city, Kingdom of Saudi Arabia, in 2019. The study participants were adult non-healthcare providers, 21 years old and above in Riyadh city. Ethical approval was obtained from King Fahad Medical City (KFMC) in Riyadh. The target population size was based on 50% prevalence and 95% confidence interval. The sample size was 385 participants and was raised to 405. The participants were collected from northern, eastern, western, southern, and central Riyadh areas. Verbal and informed consent was obtained from all participants. They all informed that the study completely nameless, willingly, and dedicated for scientific and research purposes. Data were collected using a questionnaire that four expert consultants have validated in emergency medicine from three different medical centers. The questionnaire was composed of 34 questions, including sociodemographic questions and the rest about first aid techniques. According to the answers, a scale has been established in order to categorize the level of knowledge and attitude of the participants into three ordinal categories. If the participant scored between (0-8), then the knowledge will be considered as poor if the score was between (9-16) then moderate is considered to be the level of knowledge, and if the score was between (17-23) will be considered as good knowledge. The data were analyzed using Statistical Package for the Social Sciences (SPSS) version 19.0, and the P-value of



**Figure 1:** Participants who applied First Aid (FA).  
N ( % )

<0.05 was considered as statistically significant.

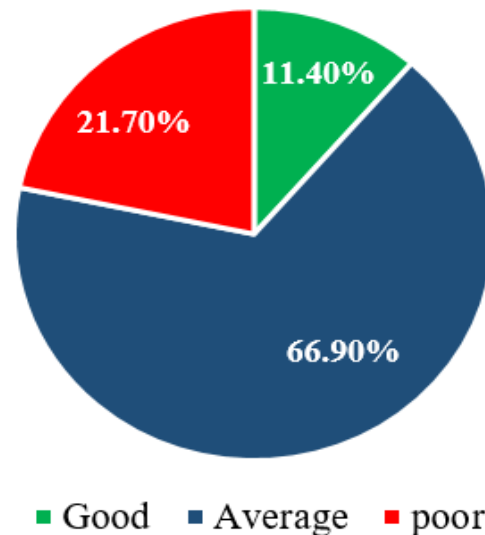
## RESULTS

A total of 405 respondents were included, 57% were female, and 43% were male, with a 1:1.32 male to female ratio. All the participants were from the age of 21 and above. The majority of them (n=244) fell between 21-30 age. About 44.9% were married, divorced, or widow, and around 89.01% have children, and the remaining 55.1% of the sample were singles. [Table 1] Our data showed that only 23.7% had received first aid training, and almost two thirds of the participant had their training more than two years ago. In comparison, others had their training in the time range between one month and up to two years. As can be seen from [figure 1], the knowledge score among the group who applied first aid before based on previous training (n=15) is slightly higher than the other group who acted by their personal knowledge (n=84) ( $P = 0.044$ ). Most of the participants who have applied first aid before were single female students between the ages of 21-30.

Table 1. Distribution of study sample by Sociodemographic characteristics. N ( % )			
Gender	Male 174 (43%)	Female 231 (57%)	Total  405 (100%)
Age	21-30	244 (60.2%)	
	31-40	72 (17.8%)	
	41-50	59 (14.6%)	
	51-60	25 (6.2%)	
	61 and above	5 (1.2%)	
Marital status	Married 167 (41.2%)	Single 223 (55.1%)	
	Divorced 13 (3.2%)		
	Widow 2 (0.5%)		
Out of 182 that have children	162 (89.01%)		
Educational level	Uneducated	0 (0%)	
	Elementary	3 (0.7%)	
	Middle school	6 (1.5%)	
	High School	77 (19%)	
	Diploma	34 (8.4%)	
	Bachelor's degree	253 (62.5%)	
	Higher degree	32 (7.9%)	
Occupation	Unemployed	84 (20.7%)	
	Student	159 (39.3%)	
	Employee	116 (28.6%)	
	Retired	29 (7.2%)	
	Freelancer	17 (4.2%)	

Among the participants, only 48.1% answered correctly regarding CPR definition but reflected poor knowledge of CPR technique. Although approximately more than half of the participants know the normal blood glucose level, yet when they were given a case scenario of a diabetic patient who lost his consciousness and what the first respond should be, about 45% answered correctly and 12% will give the patient insulin which is dangerous and can kill the patient. This data indicated that the knowledge of participants in this specific point is not satisfactory.

Surprisingly the majority of the participants, 84.9% had good knowledge about fracture signs, and 83.2% had knowledge about what is the appropriate procedure in case of



**Figure 2:** Level of knowledge towards FA skills among the participants

**Table 2. Answers reported by the participant. N ( % )**

Emergency question	Correct answers N ( % )	False answers. N ( % )
CPR related question	195 (48.1%)	210 (51.9%)
CPR related question	35 (8.6%)	370 (91.4%)
CPR related question	231 (57%)	174 (43%)
Fractures related question	344 (84.9%)	61 (15.1%)
Fractures related question	337 (83.2%)	68 (16.8%)
Fractures related question	297 (73.3%)	108 (26.7%)
Diabetes related question	235 (58.0%)	170 (42.0%)
Diabetes related question	184 (45.4%)	221 (54.6%)
Seizure related question	143 (35.3%)	262 (64.7%)
Seizure related question	361 (89.1%)	44 (10.9%)
Heat stroke related question	176 (43.5%)	229 (56.5%)
Heat stroke related question	307 (75.8%)	98 (24.2%)
Chemical toxins related question	197 (48.6%)	208 (51.4%)
Chemical toxins related question	103 (25.4%)	302 (74.6%)
Electrical injuries related question	319 (78.8%)	86 (21.2%)
Electrical injuries related question	310 (76.5%)	95 (23.5%)
Bleeding related question	104 (25.7%)	301 (74.3%)
Bleeding related question	152 (37.5%)	253 (62.5%)
Drowning related question	239 (59.0%)	166 (41.0%)
Epistaxis related question	190 (46.9%)	215 (53.1%)
Burns related question	152 (37.5%)	253 (62.5%)
Scorpion stings related question	58 (14.3%)	347 (85.7%)
Burns related question	55 (13.6%)	350 (86.4%)

fractures in car accidents. Despite the good knowledge, 16.8% reported actions that may further complicate the situation or had no clue about what actions should be made in fractures caused by accidents. Furthermore, about 75.8% of the total participants had medical information about sunstroke signs. However, more than half of the participants had no knowledge about what is the

appropriate action in case of sunstroke. Similarly, 89.1% answered correctly regarding the definition of epilepsy, yet only 35.3% knew the right intervention when an epileptic patient has a seizure. The overall knowledge of the right management of epistaxis was 46.9%. Finally, when it comes to how to deal with scorpion sting, the majority of the participants, 85.7% have

answered incorrectly as they would drain the poison by their mouths. [Table 2]

After analyzing the data from all the participants, it was found that only 11.4% of them had good knowledge when they were asked about common emergency situations that may encounter them in their life, 66.9% had an average score and 21.7% scored poorly, according to the scoring system that was described in the method section. The mean level of knowledge score among the participants was 11.64, which yields an average score according to our scale. Overall the participants were more knowledgeable in cases of fractures, car accident situations, and electric shock. Yet, they have insufficient knowledge in cases of CPR, scorpion stings, and chemical swallowing. [Figure 2]

## DISCUSSION

The purpose of this study was to evaluate levels of awareness, and attitudes regarding first aid among Riyadh citizen that doesn't have any medical background. Many studies discussed the importance of first aid intervention, including a study was done in Bangladesh, showed that first aid intervention by non-medical staff was given to 94,232 individuals. For hospitalized injuries, they were either improving (62.6%) or had recovered (33.2%), and more importantly, about (58.8%) of improved patients were assessed by non-medical staff [11]. The majority of our study are adults, and they are more likely to get fatal injuries than any other age group, primarily due to their involvement in multiple complex tasks such as vehicle injuries, fractures, and bleeding from open wounds [12]. Therefore, increasing the knowledge among adults who

may cross a situation like these interfere in a proper way and dramatically change the outcome of the injured person. First aid enables any bystanders to provide the appropriate assessment to a person in a life-threatening situation to preserve life or prevent further injuries until the emergency medical service arrives [10]. Females were more knowledgeable than males ( $P = 0.01$ ), which can be explained due to the fact that females usually are the ones taking care of their children. Our data have also shown that higher scores were not associated with higher educational levels ( $P = 0.74$ ), ages ( $P = 0.15$ ), or the type of occupation ( $P = 0.30$ ). When participants were asked what they will do if they encounter a patient with epistaxis 53% of them answered incorrectly, similar to AlYahya et al. finding in his study about first aid among male school teachers, about 62.2% answered incorrectly [8]. Furthermore, our findings supported Al-Johani et al. study that showed that 72.1% of parents answered incorrectly how to manage a case of epistaxis [9]. Despite the knowledge improved in our research regarding epistaxis yet still not satisfactory. Curiously when participants asked what should be done in case of scorpion sting, 85.7% answered the wrong answer, while 47.9% of them answered they would suck the venom. A study done by Halawani LM et al. about first aid knowledge among female university students showed similar findings 60% answered wrong, and 38% answered that they would suck out the blood out with their mouths. Indeed this is a dangerous and ineffective way of dealing with insect venom, thus improving knowledge about it is by including the subject in future first aid courses [7]. Nonetheless,

23.7% of our study participants had first aid training even though the percent of trained participants is not satisfactory, and most of them had their training a long time ago, which required to be repeated in a regular matter to maintain their first aid knowledge and skills. The majority of the participants agreed upon the need for specialized first aid courses to be given to society. In a similar way, studies carried out in AL Madinah, Egypt, and India, participants agreed that they should know about first aid, and they were all willing to undergo training on first aid. This should encourage authorities to start effective programs in the first aid for non-healthcare providers [9]. Age, educational level, marital status and occupation have no significant effect on the level of knowledge as our study showed, the only significant factor influencing the level of knowledge is the exposure to first aid sessions that illustrate how to give first aid and highlight its importance in dealing with injuries and accidents [7,15]. Social media is the main source of information, followed by family and friends [7,8,15], yet these resources are not accurate and not sufficient to fill the gap in knowledge [15]. The majority of the participants 97.3% agreed when they were asked if they want to learn about first aid if there were training courses implement in society.

Previous studies have focused on determining the level of FA knowledge among specific populations such as teachers, students, or parents [8,9]. However, in our study, we aimed to assess the level of knowledge regarding FA in a larger population involving the different segments

of the society to get more accurate and generalized results.

## CONCLUSION

We conclude that the participants had insufficient knowledge of first aid skills in order to apply them perfectly and without any consequences in emergency situations. Moreover, the majority of participants have not received official first aid training and applied it based on personal knowledge. Therefore, we recommend that first aid training should be introduced to many enterprises, institutions, and schools.

## LIMITATION

## AND

## RECOMMENDATION

Our research study was conducted in Riyadh city, the capital of the Kingdom of Saudi Arabia (KSA) only. We hope future researchers apply it in all KSA cities to obtain more accurate results. Providing first aid courses for all sectors of society must be an obligatory requirement because it can preserve human life. Moreover, with minimum and rapid intervention, first aid actions might be cost-effective in some situations.

## CONFLICTS OF INTEREST

The author declares that there is no conflict of interest.

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## REFERENCES

- 1- Rogers FB, Shackford SR, Hoyt DB, Camp L, Osler TM, Mackersie RC, *et al.* Trauma deaths in a mature urban vs rural trauma system. A comparison. Archives of surgery 1997;132:376–381 .
- 2- Demetriades D, Kimbrell B, Salim A, Velmahos G, Rhee P, Preston C, *et al.* Trauma deaths in a mature urban trauma system: is “trimodal” **distribution** a valid concept. J Am Coll Surg 2005 Sep 1;201(3):343-8.
- 3- Cummins RO, Eisenberg MS, Hallstrom AP, Litwin PE. Survival of out-of-hospital cardiac arrest with early initiation of cardiopulmonary resuscitation. Am J Emerg Med 1985 Mar 1;3(2):114-9.
- 4- Bakke HK, Steinvik T, Eidissen SI, Gilbert M, Wisborg T. Bystander first aid in trauma—prevalence and quality: a prospective observational study. Acta Anaesthesiol Scand 2015 Oct;59(9):1187-93.
- 5- Cuttle L, Kravchuk O, Wallis B, Kimble RM. An audit of first-aid treatment of pediatric burns patients and their clinical outcome. J Burn Care Res 2009 Nov 1;30(6):1028-34.
- 6- Tannvik TD, Bakke HK, Wisborg T. A systematic literature review on first aid provided by laypeople to trauma victims. Acta Anaesthesiol Scand 2012 Nov;56(10):1222-7.
- 7- Halawani L, Alghamdy S, Alwazae M, Alkhayal W. Knowledge and attitude of Saudi female university students about first aid skills. Journal of family & community medicine 2019;26(2):103–107.
- 8- AlYahya IA, Almohsen HA, AlSaleem IA, Al-Hamid MM, Arafah AM, Al Turki YA, *et al.* Assessment of knowledge, attitude, and practice about first aid among male school teachers and administrators in Riyadh, Saudi Arabia. Journal of family medicine and primary care 2019 Feb;8(2):684.
- 9- Al-Johani AS, Sabor S, Aldubai SR. Knowledge and practice of first aid among parents attending Primary Health Care Centers in Madinah City, Saudi Arabia, A Cross Sectional Study. Journal of family medicine and primary care 2018 Mar-Apr;7(2):380-8.
- 10- Vishma BK, Sheethal MP, Shanthi M. Perception and Practices Regarding First-Aid among Nursing Students in Mandya. International journal of health sciences and research 2014;4(12):84- 88.
- 11- Hoque D, Islam M, Sharmin S, Rahman Q, Agrawal P, Rahman A, *et al.* Impact of First Aid on Treatment Outcomes for Non-Fatal Injuries in Rural Bangladesh: Findings from an Injury and Demographic Census. Int J Environ Res Public Health 2017;14(7):762.
- 12- Barrimah I, Midhet F, Sharaf F. Epidemiology of road traffic injuries in Qassim region, Saudi Arabia: consistency of police and health data. International journal of health sciences 2012 Jan;6(1):31.
- 13- Alomar M, Al Rouqi F, Eldali A. Knowledge, attitude, and belief regarding burn first aid among caregivers attending pediatric emergency medicine departments. Burns 2016 Jun 1;42(4):938-43.
- 14- Kattan AE, AlShomer F, Alhujayri AK, Addar A, Algerian A. Current knowledge of burn injury first aid practices and applied traditional remedies: a nationwide survey. Burns & trauma 2016 Dec 1;4(1):37.
- 15- Khatatbeh M. International journal of preventive medicine. Int J Prev Med 2016;7(1):24



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