

A cross-sectional assessment of Knowledge and attitudes of primary schools' teachers towards first aid of children: A step for injuries prevention in Qassim, Saudi Arabia

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Abstract: School is the second home for children and at school there's a whole new set up of challenges. Parents when they drop their children off school they totally rely on the teachers as the second parents in the institute, they fully believe that their children will be cared for. Various activities are developed at school, so it is suitable place for accidents to happen and First aid is a basic need there. Hence teachers are fully responsible to prevent any harm to the student, therefore, they have to be filled with knowledge & practice of first aid.

Objectives: The study aimed to assess knowledge and attitudes of primary schoolteachers towards first aid in Qassim region, Saudi Arabia.

Method: A descriptive cross-sectional study was conducted among a convenience sample of 700 primary schools' teachers from primary schools in 18 provinces at Qassim region, Saudi Arabia. validated questionnaire was applied for data collection. The questionnaire included three parts: part 1 had Sociodemographic details of the participants, part 2 had items related to Knowledge, and attitude regarding first aid skills was included in part three. Data was analysed using SPSS version 23.

Results: It was found that 79.9% of participants received first-aid knowledge and the main sources of their information were from experience and internet. The mean score of knowledge about the first aid of the population was found to be 17.36. It was found that teachers who have good knowledge of first aid are 87.6%. With regards to teachers' attitudes towards first aid, the results showed that 91.4% of the teachers had a positive attitude toward first aid.

Keywords: first aid, teachers, training, safety, accident, injury prevention.

1. INTRODUCTION

School lifestyle is an essential phase of the students' life, which has a direct impact on their physical and mental health (Qureshi et al., 2018). Each year, schools all over the world suffer from accidents ranging from small to large damaging accidents that seriously affect the operation of the school (Mersal and Aly 2016), Study demonstrated that greater part of school related injuries happened in school play area, during physical exercises, on school building, while at the same time going or returning from the school. (Ganfure and Ameya,2018). Students are prone to injuries and accidents, which may

range from minor accidents to severe accidents ensuing in bleeding and fractures, thus the first-aid management becomes as vital as taking students to a medical facility (Qureshi et al., 2018).

Emergency situation can be detected everywhere and every time on the road, house or even in the learning institutes. School children are more prone of sudden injuries and accidents because they're in their active hours especially breaks after classes (De Lima Rodrigues et al., 2015), The essential responsibility for a student's health is the family; however, outside of the family, the teacher is responsible for the health of the student in the classroom. so they are required to be aware of the basic first aid rules. (Faydalı and Yeşilyurt, 2018), Proof from school-based medical aid programs shows preparing can be actualized effectively, in this manner giving a setting to instructing abilities to diminish injury seriousness and expanding emergency treatment information (Reveruzzi, 2016), Injuries, accidents and sever conditions occurring in school environments want immediate and proper life-saving care before affected person receives treatment by medical health team (Kaur et al., 2017).

In the event of sudden injury early intervention within (3–5 minutes) with first aid helps prevent damage, that is why it is important for all teachers to be able to recognise (Calicchia et al., 2016). First aid training has the potential to reduce morbidity and mortality from common injuries and illnesses, which represent a significant public health burden. In addition, training courses must prepare teachers to provide appropriate and efficacious treatment for a wide range of conditions (Mersal, Aly 2016), Delay in diagnosis, and therefore in treatment, may have serious penalties (Brkic et al., 2018), This makes it vital to have primary knowledge of first aid The ultimate aim of first aid is to end or to reverse the possible harm at a given time before accomplishing the suitable health care center (Ganfure et al., 2018).

The knowledge of first aid, when appropriate applied, can bridge the hole between temporary or everlasting injury, fast recovery, or long-term disability (Qureshi et al., 2018), Consequently, first aid is an urgently needed care given to victims of abrupt disease or accidents until professional help arrives. So early involvement of such situations among school-aged children decreases morbidity and deaths (Khatatbeh, 2016).

School teachers not only carry on roles as educators but also as protector who must ensure the security and well-being of children whereas at school, in case of any accidents, the primary dependable individual is generally the teachers they should be trained to give aid and have the potential to protect lives (Al Gharsan, Alarfaj, 2020), This role can only be achieved if academics have the enough knowledge and skills for such situations (Al-samghan et al., 2015), (Ganfure et al., 2018), First aid providers should be able to quickly and calmly evaluate the position, deal with life-threatening situations while protecting themselves from the danger, receive medical assistance and call an ambulance in case of severe trauma or injury (Khatatbeh, 2016).

First aid is not complex, it requires the right behaviour and a few simple tricks with ample awareness and experience to get anyone to cope with injuries (Swetha, 2015) First aid could be achieved by everyone and includes self-care, so that first aid can be provided by any individual in the emergency scene and care such as family members, educators, policemen, firefighters, first responders, medical professionals, etc. (Piazza, 2014; Singletary et al., 2015), First aid information is methods and strategies that used perform practices associated to prevention and immediately response to health emergencies. It can be given in all areas such as household, schools, workplace, and recreational areas (Ganfure et al., 2018).

First Aid training is becoming more common in non-medical settings, including the community, workplace, and schools which was once often associated with medical personnel and health care professionals (Zayapragasrazan 2016), Health professionals that work in educational interventions in school may direct their actions based on scientific support, and the education professionals who have no training in providing first aid, but are faced with accidents in their daily lives (Neto et al., 2016).

Albeit generally it was accepted that first aids ought to be instructed by health experts, late studies have revealed that teachers (with satisfactory preparing) may be the group that is most appropriate to do it (Abelairas-Gmeza, Carballo-Fazanes 2020), Numerous of studies have demonstrated that what really keeps the common educator from interceding in case of a crisis is the dread of accomplishing something incorrectly, while instructor who are prepared in maneuvers are bound to make a move (Calicchia et al., 2016).

School nurses play a key role in preventive primary prevention, such as an instructional program that helps educators recognize, perceive and respond to major injuries, Community health nurses are in a better position to educate teachers on the most serious child accidents and first aid (Lines et al., 2016) experts such as medical doctors or nurses in their premises as a permanent employee. Teachers, as a full time employee are the primary care givers and can be the first line protector of students at school. So, it is vital for the teachers to be skilled in first aid management (Qureshi et al., 2018).

The purpose of this study was to assess knowledge and attitudes of primary schoolteachers towards first aid in Qassim region.

2. METHODS

Study design and Participants

This study is a descriptive cross-sectional study, this current study was applied at primary schools in the Kingdom of Saudi Arabia at Qassim region, which included 18 provinces (Alrass, Unayzah, Al Badayea, Bukayriyah, Al-Khushaib, Dhrieh, Al Quarah, Buraydah, Almithnab, Qusaiba, Ash shimasayah, Duhknah, Alfawwarah, Diras, Ad Dal'ah, Uyun Al Jawa, Uqlat as Suqur, Nabhanyah). Final sample size is 700 consisting of 518 females and 182 males.

Study Measurements/Tools

All schoolteacher's completed a self-administered questionnaire developed by Altammeemi, 2016. in Arabic language based on recent literature, utilized in the current study to assess knowledge and attitudes among primary school teachers' in Qassim region. A survey made out of three sections, the initial part included basic information and demographic characteristics of teachers such as age, sex, residence, social data, number of children and years of experience. Subsequent part included questions about first aid information which was separated into five fields; 1-Wounds and Bleeding (5) items. 2-Bone and joint injuries (7) items. 3-Medical situations (5) items. 4-Burns (7) items. 5-Bites and stings (4) items. while the last part included inquiries with consideration to the instructor's attitude toward first aid (12) items. It's tested and showed good reliability and validity which developed by Altammeemi, 2016.

Data collection

After the permission obtained from the academic and primary schools, a pilot study is carried out on 5% of teachers to test the clarity of questions and to estimate the time needed to fill the tool, which was required 7 to 10 minutes to complete all items according to the results of pilot study modifications was done of several items. We restructured tool into a Google form then distributed online among school's administration, we requested the administration to distribute the survey to every teacher in the school. The questionnaire was self-completed and data collection took place in April and May, 2019.

Data analysis

The data were collected using Google forms service, coded and processed using Microsoft Excel and the Software Statistical Package for the Social Science (SPSS) version 23. Descriptive statistics including frequencies and percentages were used to describe the items and the study variables. As the variables are nominal data, the Chi square was conducted to test the significant differences and relationship based on the study objectives. The p values at 0.01 were considered statistically significant.

Ethical considerations

Official permissions were obtained from the research center at the College of Nursing, Qassim University, and primary schools to conduct the study. Data were collected after explaining the aim of the study to participants to be familiar with the importance of their participation. In addition, we informed that participation in this study is voluntary and demographic surveys will be completely anonymous with no identifiers.

3. RESULTS

Personal information:

As shown in Table (1) 700 people participated in the current study including 74 % female and 26% male; the majority of age were in 36-45 years old group with 42.3%, and 87.6% lived in city while 12.4% lived in village, around two thirds (72.3%) were married, and 67.4 got kids, 79.9% reported that they got information on first aid. And the mean of years of the job was 11.45 ± 8.9 .

Table 1: Sociodemographic data and personal information of participants (n=700)

Factor	Category	n	%
Gender	Male	182	26%
	Female	518	74%
Age	Below 25	3	0.4%
	25-35	268	38.3%
	36-45	296	42.3%
	46-55	133	19%
Housing	City	613	87.6%
	Village	87	12.4%
Marital statuses	Single	164	23.4%
	Married	506	72.3%
	Divorced	14	2%
	Widow	16	2.3%
Do you have children?	No	228	32.6%
	Yes	472	67.4%
Have you received any information on first aid?	No	141	20.1%
	Yes	559	79.9%
Years of experience (M±SD)		11.45±8.9	

As shown in Table (2) General information about first aids was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participants. All the Statement of the General information about first aids reported highly (Yes) the percentages ranged between 97.7% and 87.6%, the chi square (X^2) values were significant ($p<0.01$).

As shown in the Table (2), the source of the information was varied from five sources, the experience and the internet were the most used source (33.3%) and (30.5%) respectively, then TV and reading (14.9%) and (14%) respectively, and then the lowest used source was Training course (7.3%).

Table 2: Sources of teachers' information (n=700)

Source	Responses	
	N	Percent
Experience	279	33.3%
Internet	255	30.5%
TV	125	14.9%
Reading	117	14.0%
Training course	61	7.3%
Total	837	100.0%

Descriptive analysis and chi square test of the General information about first aids:

As shown in Table (3) General information about first aids was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. All the Statement of the General information about first aids reported highly (Yes) the percentages ranged between 97.7% and 87.6%, the chi square (X^2) values were significant ($p<0.01$).

Table 3: Descriptive analysis and chi square test of the General information about first aids (n=700)

Statement	N/%	Yes	Not sure	No	X^2	p
The main purpose of first aid is to preserve life?	N	684	10	6	13.05.68**	0.000
	%	97.7%	1.4%	0.9%		
Features of a good paramedic to be a good listener& calm	N	652	31	17	1127.23**	0.000
	%	93.1%	4.4%	2.4%		
Preventing accidents is the responsibility of paramedic	N	626	42	32	991.42**	0.000
	%	89.4%	6%	4.6%		

First aid is applied immediately to treat the injured child until medical help arrives	N	669	15	16	1220.18**	0.000
	%	95.6%	2.1%	2.3%		
When you are providing first aid, the first priority is given to life threatening case	N	613	54	33	927.60**	0.000
	%	87.6%	7.7%	4.7%		
** significance at the 0.05 level						

Descriptive analysis and chi square test of Wounds and Bleeding:

As shown in Table (4) Wounds and Bleeding was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. All the Statement of the Wounds and Bleeding highly reported (Yes), the percentages ranged between 76.6% and 43.4%, the chi square (X^2) values were significant ($p < 0.01$).

Table 4: Descriptive analysis and chi square test of Wounds and Bleeding (n=700)

Statement	N/%	Yes	Not sure	No	X^2	p
The main purpose of wound care is to prevent inflammation	N	536	63	101	591.99**	0.000
	%	76.6%	9%	14.4%		
The first procedure to control bleeding is through direct pressure on the wound	N	515	97	88	510.19**	0.000
	%	73.6%	13.9%	12.6%		
The first step to cleaning the wound is to wash it with water	N	304	167	229	40.34**	0.000
	%	43.4%	23.9%	32.7%		
Bleeding of falling tooth is the most common type of bleeding in school children	N	398	156	146	174.526**	0.000
	%	56.9%	22.3%	20.9%		
If the child's nose is bleeding, the best way to stop the bleeding is to sit back and lean back and squeeze the nose	N	370	106	224	149.91**	0.000
	%	52.9%	15.1%	32%		
** significance at the 0.05 level						

Descriptive analysis and chi square test of Bone and joint injuries:

As shown in Table (5) a Bone and joint injury was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. The Statement of the Bone and joint injuries fluctuated between (Yes) and (Not sure) answers, 4 statements had (Yes) answer the percentages ranged between 75.6% and 62.9%, and 3 statements had (Not sure) answer, the percentages ranged between 48.6% and 37.6% the chi square (X^2) values were significant ($p < 0.01$).

Table 5: Descriptive analysis and chi square test of Bone and joint injuries (n=700)

Statement	N/%	Yes	Not sure	No	X^2	p
There are two types of fractures open and closed.	N	440	230	30	360.29**	0.000
	%	62.9%	32.9%	4.3%		
The fractured person should be given fluids.	N	200	340	160	76.57**	0.000
	%	28.6%	48.6%	22.9%		
In case of bone fractures you must just splint the fractured bone then seeks medical help.	N	466	149	85	356.78**	0.000
	%	66.6%	21.3%	12.1%		
During the fracture immobilization only the direct fracture area should be immobilized	N	257	263	180	18.36**	0.000
	%	36.7%	37.6%	25.7%		
In case of open fractures, you should align the ends of broken bone then splint it& send the injured person to the hospital	N	266	317	117	92.57**	0.000
	%	38%	45.3%	16.7%		
Joints injuries include Sprains and dislocations.	N	529	141	30	588.38**	0.000
	%	75.6%	20.1%	4.3%		
The first aid measures for joint injuries are immobilize area, apply ice/cold pack, use soft splint, and seek medical care	N	495	172	33	481.56**	0.000
	%	70.7%	24.6%	4.7%		
** significance at the 0.05 level						

Descriptive analysis and chi square test of Medical situations:

As shown in Table (6) Medical situation was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. All the Statement of the Medical situations highly reported (Yes) answer, the percentages ranged between 90% and 56.6%, the chi square (X²) values were significant (p<0.01).

Table 6: Descriptive analysis and chi square test of Medical situations (n=700).

Statement	N/%	Yes	Not sure	No	X ²	p
Carcinogenic shock is a life-threatening condition caused by low blood perfusion to tissues, and the first indicator of trauma is loss of consciousness.	N	466	203	31	441.40**	0.000
	%	66.6%	29%	4.4%		
The main purpose of raising the legs of a fainted person is to increase blood flow to the brain.	N	598	75	27	859.82**	0.000
	%	85.4%	10.7%	3.9%		
First aid for choking involves encouraging coughing and pushing (abdominal pressure) if necessary.	N	590	68	42	819.23**	0.000
	%	84.3%	9.7%	6%		
The most prominent signs of food poisoning are nausea, vomiting, abdominal pain, and headache: fever, diarrhea.	N	630	52	18	1013.98**	0.000
	%	90%	7.4%	2.6%		
The best way to help a child with food poisoning is to make him lie down, give him more fluids and then send him to the hospital.	N	396	210	94	198.94**	0.000
	%	56.6%	30%	13.4%		

**** significance at the 0.05 level**

Descriptive analysis of Burns:

As shown in Figure (1) Burns was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. All the Statement of the Burns highly reported (Yes) answer, the percentages ranged between 88.7 % and 44.9 %, the chi square (X²) values were significant (p<0.01).

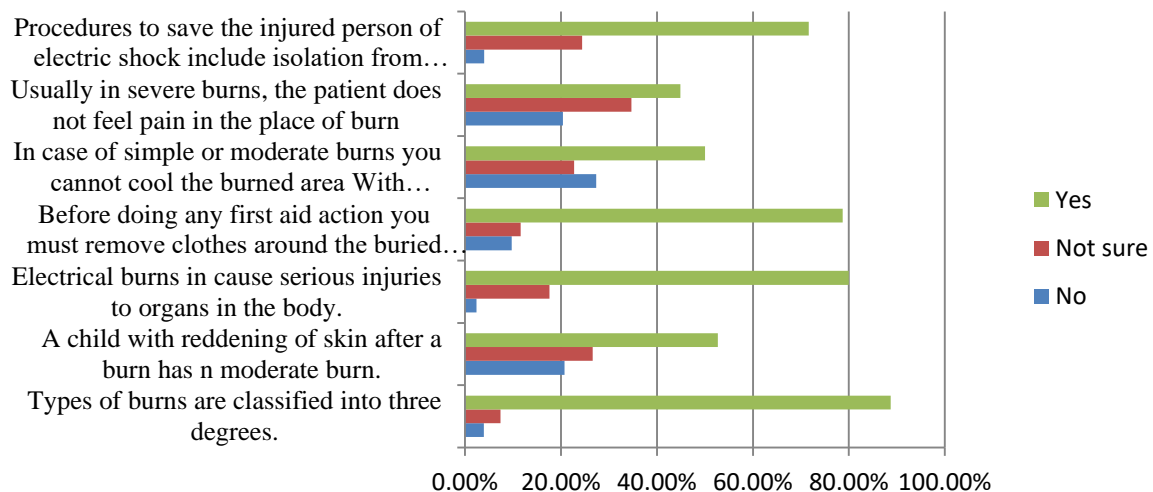


Figure 1: Participants' knowledge regarding Burns ((n=700)

Descriptive analysis of Bites and stings:

As shown in Figure (2) Bites and stings was measured using Yes, not sure and No answer, so the chi square test was used to test the significance among participated. 3 Statements of the Bites and stings reported (Yes) answer, the percentages ranged between 71 % and 53.7 %, and one answer reported (No) with 53% the chi square (X²) values were significant (p<0.01).

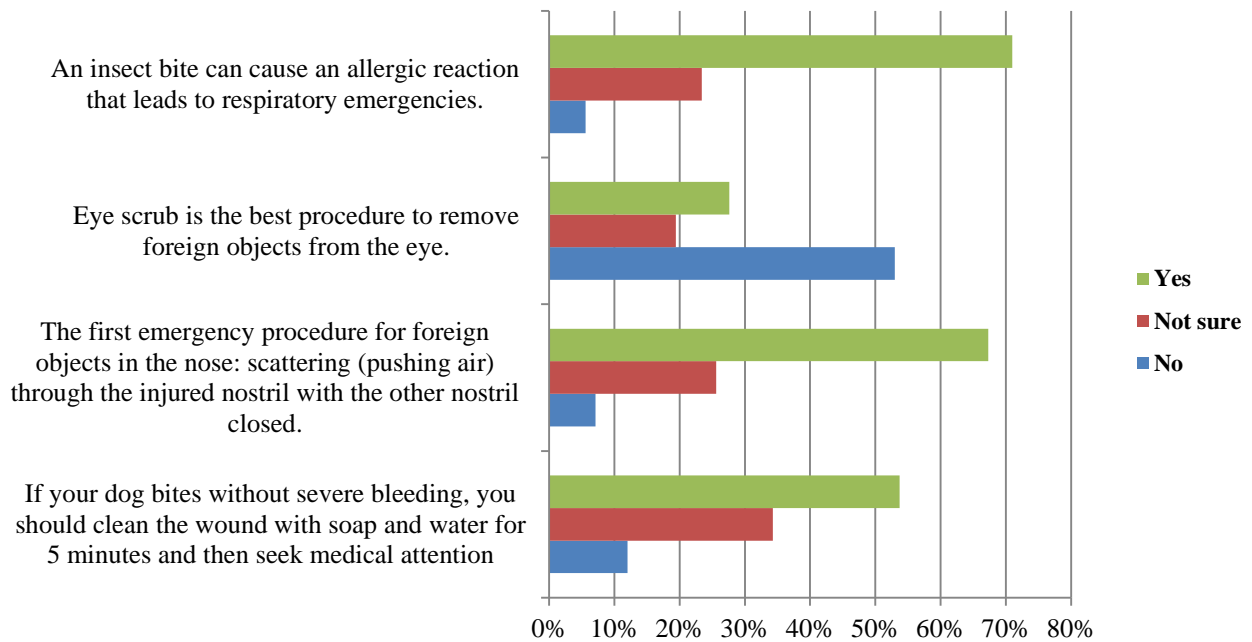


Figure 2: Participants' knowledge regarding Bites and stings ((n=700)

Descriptive analysis of Evaluate teacher's attitude toward first aid:

As shown in Table (7) the Evaluate teacher's attitude toward first aid scale contains a 3-point liker scale (Agree =3 to disagree =1). The Cronbach's alpha coefficient achieved acceptable results ($\alpha=0.72$). The mean score for scales varied from (M=2.11, SD=1.06) to (M=0.27, SD=0.68), and the overall was (M=2.41±0.31).

Table 7: Descriptive analysis of Evaluate teacher's attitude toward first aid (n=700)

Statement	N/%	Agree	Not sure	Disagree
I think it's important to learn first aid in everyday life.	N	683	5	12
	%	97.6%	0.7%	1.7%
I think learning first aid is a very difficult and complicated process.	N	122	252	326
	%	17.4%	36%	46.6%
I believe that first aid should only be done by experienced health care workers.	N	196	185	319
	%	28%	26.4%	45.6%
I think that training teachers to provide first aid is useful and important	N	656	27	17
	%	93.7%	3.9%	2.4%
I tend to watch TV shows about emergencies and first aid.	N	518	128	54
	%	74%	18.3%	7.7%
I feel uncomfortable to see injuries or blood in front of my eyes.	N	431	143	126
	%	61.6%	20.4%	18%
I think it's very important to have a first aid kit at school.	N	669	15	16
	%	95.6%	2.1%	2.3%
As a child teacher, I refuse to accept epilepsy in my class.	N	181	249	270
	%	25.9%	35.6%	38.6%
I think teachers and their students should be taught first aid.	N	660	22	18
	%	94.3%	3.1%	2.6%
If I have an emergency in my class, I would rather ask other teachers for help, instead of me	N	279	227	194
	%	39.9%	32.4%	27.7%

I think a child with asthma or diabetes should be isolated with children with special needs	N	144	222	334
	%	20.6%	31.7%	47.7%
If I have the knowledge and skills about first aid I will perform it for the child who needs it.	N	646	34	20
	%	92.3%	4.9%	2.9%
Over all mean±SD= 2.41±0.31				
Cronbach alpha (α)=0.72				

4. DISCUSSION

Children represent a large segment of the population in Saudi Arabia and during school hours teachers are the primary caregivers, thus, all teachers are responsible for basic first aid especially if there are critical situations that occur in day-to-day life (General Authority of statistics, 2016). According to Almutairi (2018), the role of early childhood teachers is not limited to communicating information to children, but it also involves different roles with many features. Several studies from around the world show varying levels of first aid awareness, including 32% in the United Kingdom, 9.6% in Nigeria, 40% in Germany, 41% in Saudi Arabia, and 82% in Australia (Bitter & Erickson, 2016; Schiefer et al., 2020; Nduagubam et al., 2021; Alomar et al., 2016). Teachers should be taught about first aid to reduce mortality and morbidity rates at schools. The present study assessed schoolteacher's knowledge and attitudes regarding first aid in Qassim region. More than half of participants reported receiving information towards first aid and the two greatest sources of knowledge were experience and the internet (Tables 2). The results of the current study revealed that general information respondents demonstrated a high percentage, 87.6%, of good knowledge. This is in contrast with a study that conducted in Riyadh city among male schoolteachers who felt their awareness of first aid was unsatisfactory. In that study, 84.1% of the teachers demonstrated a lack of knowledge regarding first aid (Al-Kubaisy et al., 2019; AlYahya et al., 2021). Regarding wounds and bleeding at school, our study found that participants demonstrated the highest area of knowledge about the purpose of wound care and how to control bleeding. Elementary school teachers are dealing with children at younger ages who need intense monitoring. A good aspect of the current study is that most of teachers understood that the most common type of bleeding is from tooth loss and this is important because it promotes the speed of first aid application by the teacher. In addition, regarding the question about the correct position of the head if there is bleeding with a head wound, unfortunately, most teachers did not know correct information. This result is in contrast to a study by Al-Kubaisy et al., 2019, who found that most teachers know that injured people should bend slightly forward during bleeding. It is important to know the correct position during bleeding to avoid blood regurgitation. Regarding bone and joint injuries at school, our study found that teachers showed the highest level of knowledge about how to deal with first aid for these injuries. Three-quarters of the research participants had knowledge of medical situations and how to deal with them. The largest number of wrong answers in this table involved medical questions such as what the correct way is to help a kid exposed to food poisoning, but nevertheless, the percentage of correct answers remains greater than incorrect answers. The present results shows that participants' knowledge about burns is high, where only a quarter of respondents answered incorrectly. These findings are consistent with research carried out in Abha city, Saudi Arabia which found that 63.1% of respondents knew how to care for a scald burn, and 70.1% knew correctly how to care for a child on fire (Alatreez et al., 2021). In Madinah, Saudi Arabia a group of researchers investigated "the prevalence of first-aid knowledge among school instructors," and that their results showed that 44.76% was the percentage of good first-aid knowledge of overall school instructors. They also revealed that 60.5% (n = 341) of school instructors have a positive attitude toward first-aid training (Al-Robaiaay, 2013), which is consistent with the results of the current study.

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