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ORIGINAL RESEARCH

Assessment of Preparedness for Sport Injuries by Primary School Teachers: A Nation-Wide Survey in Saudi Arabia

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Background: This study aimed to assess the level of readiness among primary school teachers to handle sports injuries in Saudi Arabia.

Methods: A structured questionnaire was applied to collect information on teachers, training, knowledge, attitudes, and perceived barriers in managing common sports injuries. Descriptive analysis was performed for demographics and baseline information. Pearson's Chi-squared test and Fisher's exact test were used to assess the determinants of first-aid attitude. Multiple logistic regression was also used to evaluate the determinants of first-aid knowledge.

Results: A total number of 535 teachers participated in this study. Most teachers (64.3%) reported an occurrence of sports injury once per month. Only 373 (67.72%) perceived the first aid kit to be readily accessible. The majority (95.89%) of teachers reported familiarity with conducting first aid and 87.38% expressed interest and willingness to learn. Social media was the primary resource of first aid knowledge (57.94%). Logistic regression showed that male sex (OR: 0.51, 95% CI: 0.26, 0.95; p-value = 0.036) and experiencing sports injuries once per month (OR: 0.39, 95% CI: 0.16, 0.84; p-value = 0.024) were associated with negative attitude toward first aid. However, having 10–20 years of experience (OR: 2.46, 95% CI: 1.09, 5.62; p-value = 0.031) or more than 20 years of experience was associated with more positive attitude toward first aid (OR: 6.47, 95% CI: 2.18, 19.8; p-value \leq 0.001). Furthermore, accessing first aid information from digital media and healthcare professionals compared to books was significantly associated with increased knowledge about first aid. Easy accessibility to first aid was also significantly associated with increased knowledge about first aid.

Conclusion: While many teachers feel prepared, the primary source of their first aid knowledge is unattributed social media content rather than certified training. Certified first aid training programs are needed to help in ensuring the quality emergency management of sports injuries.

Keywords: injury prevention, first aid, trauma, knowledge, school

Background

School injuries are intentional or unintentional injuries that cause physical harm and have occurred on a school field, most commonly during sports or other physical activities.¹ Performing such activities among the young generation is associated with numerous physiological, psychological, and social benefits. However, they carry a risk of injuries, which can lead to adverse outcomes such as physical disability. According to the American Academy of Pediatrics, some of the most common sports injuries in children include sprains and strains, fractures, contusions, and concussions.² One

© 2024 Alharthy et al. This work is published and licensed by Dove Medical Press Limited. The full terms of this license are available at https://www.dovepress.com/terms work you hereby accept the Terms. Non-commercial uses of the work are permitted without any further permission from Dove Medical Press Limited, provided the work is properly attributed. For permission for commercial use of this work, please see paragraphs A2 and 5 of our Terms (https://www.dovepress.com/terms.php). example of school sports that is associated with high risk of injury is football games, as a study from the United Kingdom reported that around 30% of all football-related injuries requiring attendance at the emergency department occurred at schools.³ Evidence from Saudi Arabia showed that school-related injuries resulted in significant morbidity rates.⁴

School teachers play a vital role in ensuring the safety and well-being of their students, especially in situations that involve physical activities, including sports. One critical aspect of handling traumatic injuries that teachers should be prepared for is the ability to identify signs/symptoms of different injuries and how to provide first aid for each traumatic injury. Available literature recommended that teachers be trained to evaluate the situation quickly, determine whether emergency medical attention is needed, and perform first aid techniques.⁵ First aid techniques include, but are not limited to, the application of bandages, splints, and other medical supplies properly and the performance of chest compressions and rescue breathing during a cardiac arrest.⁶ Another crucial aspect that teachers should be prepared for in case of any traumatic injury emergencies is effective communication with students, their relatives, and healthcare personnel.

First aid training for primary schoolteachers, as they are heavily involved with curricular and extracurricular activities that more often involve physical activities, seems like a requirement that should be taken and regularly monitored and updated. Children spend most of their daytime at schools, which could increase their chance of being accidentally injured at schools.⁷ Furthermore, their developmental, physical, behavioral characteristics make them more susceptible to emergency situations such as accidental injuries at schools,^{8,9} potentially requiring first aid interventions. Therefore, international organizations worldwide including the World Health Organization emphasized the need to have trained personnel to establish clear plan for systemized emergencies occurring at schools in addition to dealing with life-threatening conditions potentially occurring at schools.^{7,10} Schoolteachers could play a significant role in this matter.

Several studies have been conducted in recent years to assess the preparedness of schoolteachers to deal with student traumatic incidents, such as sports injuries, in schools. A study by the National Athletic Trainers, Association in the United States of America (USA) found that only 37% of high schools in the USA have a full-time athletic trainer on staff, leaving many teachers responsible for managing injuries.¹¹ Another study from the USA found that only 27% of high school coaches had received formal concussion management training.¹² A recent study published in 2019 from India showed that many teachers lacked the training and resources needed to respond to traumatic incidents in schools. The study surveyed over 150 teachers and found that only 30% had received specialized training in dealing with traumatic incidents. Additionally, only 40% of teachers reported having access to first aid kits or other emergency supplies in their classrooms.¹³ The findings from these studies highlight the need for increased training and education for schoolteachers to ensure they are equipped to handle sports injuries and ensure the safety and well-being of students at schools.

In Saudi Arabia, a few studies have focused on the preparedness of schoolteachers to deal with student sports injuries in schools. A recent study conducted by Mansour AE et al (2020) aimed to assess first-aid knowledge among school-teachers in the Al-Qassim region. The study found that less than half of the participating teachers had adequate knowledge of first aid and highlighted the need for formal training and education about first aid for teachers.¹⁴ Another study investigated the level of preparedness among schoolteachers in the Western Province of Saudi Arabia on how to deal with school emergencies. The findings showed that although most participating teachers had received some form of informal first aid education, very few were trained on how to handle emergencies such as sports injuries. The study recommended that more specialized training be provided to teachers to equip them better to handle such situations.¹⁵

The findings from studies conducted in Saudi Arabia highlighted the need for further assessment and investigation of schoolteachers, preparedness to handle emergencies, including sports injuries, at the national level.

Materials and Methods

Study Settings and Design

This is a cross-sectional study design, where an online survey was administered and distributed to primary school teachers across different regions in Saudi Arabia. Institutional Review Board (IRB) approval was obtained from King Abdullah International Medical Research Center (KAIMRC) (IRB approval no.: IRB/2098/23). Informed consent was obtained from all participants prior to completing the survey.

Data Collection Process and Study Participants

The inclusion criteria of this study were to involve any primary school teachers in Saudi Arabia from different regions (Central, Southern, Eastern, Western, and North). While any schoolteacher in secondary and tertiary school, teachers refusing to participate or incomplete data were excluded from the study. An online structured questionnaire was conducted to target primary school teachers, and they were reached through assigned data collectors. Each data collector was given instructions about the targeted population, the study's aim, and the collection methods. The data collector duration was started for a month after obtaining the IRB approval in August 2023. Data collectors were final year medical students and medical interns. The criteria for choosing data collectors included showing interest in the research and topic willingness to collect data from the teachers in their region, whether physically or via online platforms. There was also a preference for those with prior expertise or experience in the relevant field, as candidates with background knowledge or skills related to research and data collection were viewed favorably. Ultimately, we were able to recruit around six data collectors who met these requirements. Throughout the data collection process, we made a concerted effort to regularly follow up with the data collectors. This close oversight was crucial to ensure the accuracy and quality of the data being collected by them.

For the data collection process, the survey was conducted using an online platform to collect responses from primary school teachers. School selection was random at all regions. Data collectors had the choice of contacting the primary school teachers at the selected schools in their region whether by physically visiting primary schools and asking teachers to participate and complete the survey and/or by distributing the survey online in teachers, social media groups that each school usually have such as WhatsApp or Telegram groups. The study was not focused on physical education teachers only, as schoolteachers should be trained to provide first and respond to sport injuries, not only limited to physical education sector, to prevent responses from others outside the intended target audience. Based on calculations using the Raosoft sample size calculator, the minimum representative sample size required was determined to be 385. The questionnaire was distributed both physically and online. We are not sure of how many we reach with the questionnaire and, therefore, we cannot calculate the response rate. However, we know for sure that we collected responses more than the minimum required sample size (535 completed questionnaire). The researchers ensured no incentives were provided to teachers completing the online survey as part of the study in order to protect the voluntary and coercion-free nature of participation by clearly communicating this during the informed consent process. Most invited teachers were voluntarily active to participate and complete our survey.

Data was collected from primary school teachers 1 month after the start of a new academic year in August 2023. The aim of choosing this time period is that teachers usually take required training courses and make necessary preparations at their schools to start their new academic year. This makes this time period the best time to survey the teachers about their preparedness to respond to sport injuries at their schools. We edited the methods section accordingly to make this point clear.

The Questionnaire

Content validity was applied to evaluate the clarity of the questionnaire elements and their relevance to the primary objectives of this study. Thus, several individuals, experts in emergency medicine specialty and non-experts such as those who are English teachers in the college of medicine, were contacted, and the questionnaire was sent to them for feedback and appropriate suggestions on the elements of the survey as well as language modifications were all taken into consideration. Moreover, a limited similar targeted population was reached and given the questionnaire as a part of the pilot study. Their feedback was taken, and the questionnaire was modified accordingly.

At the beginning of the questionnaire, an informed consent form was attached. It included details regarding the study, such as aim, title, rights to withdraw, and agreement to participate. Participants who refused to participate were excluded and could not continue completing the survey.

No identifiable information was collected from the participants. For the purpose of this research, we collected general demographic information including, for example, age, experience level, and other related attributes, which does not

directly identify any of the participants in the study and ensured the anonymity of their participation when completing the online survey. This approach protected confidentiality while meeting analytical needs, focusing only on variables pertinent to the study's questions in an ethical way.

The structure of the questionnaire consists mainly of three parts. In the first part, demographic information the participants include, for example, age, sex, qualification, and specialization are required to complete. The second part asks the participants if they had heard about first aid, where they got information about it, and their interest in learning it. The third and last part asks the participants how frequently do they see emergency injuries in their schools, whether they take parents, consent to allow students to be part of school activities, and the importance of having parents, phone numbers (refer to supplementary file 1 for more details on the questionnaire).

Statistical Analysis

The analysis was done using R software version 4.2.2. Categorical variables were presented as numbers and percentages. The use of Pearson chi-square or Fisher's exact test were predetermined in the study protocol for use in the statistical analyses to determine the significant association of first-aid attitude among primary school teachers with other collected variables. The Fisher's exact test was added in the study protocol for use in case of small sample size as it would be more appropriate. However, as we had sufficient sample size, we used the Pearson chi-square test only. In contrast, multiple logistic regression with 95% confidence interval were used to evaluate the determinants of first-aid knowledge. A p-value less than 0.05 was set as the level of significance in the study.

Results

Five hundred and thirty-five participated in the study. Approximately 287 were males (53.64%), 345 were aged 40 years and above (64.49%), 194 had more than 20 years of experience (36.26%), and 468 had bachelor's degrees (87.48%), 168 were language teachers (31.4%), 209 resided in the western region (39.07%), and 461 worked in governmental schools (86.33%) (see Table 1).

Five hundred and thirteen educators (95.89%) were familiar with first aid, with 310 (57.94%) acquiring this knowledge through social media. Nevertheless, 501 knew the emergency number (93.64%), and 373 perceived the first aid kit as readily accessible (69.72%). With regard to student sports injuries, 344 teachers (64.3%) reported an occurrence once per month, while 110 (20.56%) indicated a weekly frequency (see Table 2).

-	
Characteristic	N = 535 ^A
Sex	
Female	248 (46.36%)
Male	287 (53.64%)
Age	
20–29	53 (9.91%)
30–39	137 (25.61%)
40 and above	345 (64.49%)
Year of experience	
I–10 years	152 (28.41%)
10–20 years	189 (35.33%)
More than 20 years	194 (36.26%)
Qualification	
Bachelor's degree	468 (87.48%)
Diploma	42 (7.85%)
Master	21 (3.93%)
PhD	4 (0.75%)

Table	I	Demographic	Characteristics	of	the
Particip	bar	nts			

(Continued)

Table I (Continued).

Characteristic	N = 535 ^A
specialization	
Islamic	75 (14.02%)
Language	168 (31.40%)
mathematics	75 (14.02%)
Science	50 (9.35%)
Social studies	37 (6.92%)
Others	130 (24.30%)
Area of residence	
Northern region	32 (5.98%)
Southern region	66 (12.34%)
Western region	209 (39.07%)
Eastern region	153 (28.60%)
Central region	75 (14.02%)
Type of school you work in it	
Governmental	461 (86.33%)
Private	73 (13.67%)
Unknown	I

Note: ^An (%)

Characteristic	N = 535 ^A
Heard about first aid	
No	22 (4.11%)
Yes	513 (95.89%)
Sources of information	
Books	41 (7.66%)
Digital media	310 (57.94%)
Health care professionals	184 (34.39%)
Do you know the emergency call number	
No	34 (6.36%)
Yes	501 (93.64%)
Frequency of sport injuries	
Once a month	344 (64.30%)
Once a week	110 (20.56%)
Once in a fortnight	81 (15.14%)
Accessibility to first aid kit	
Difficult to access	38 (7.10%)
Easily accessible	373 (69.72%)
Takes time to be accessed	124 (23.18%)

 Table 2
 Knowledge of First Aid Among Primary School

 Teachers
 First Aid Among Primary School

Note: ^An (%)

Concerning the attitudes of primary school teachers towards first aid, 468 expressed an interest (87.48%), and 463 (86.54%) reported willingness to pursue first aid education in higher learning. In comparison, 455 (83.18%) were open to providing first-aid training to students. Approximately 314 (58.69%), 89 (16.64%), and 118 (22.06%) believed in the necessity of first aid training annually, every 2 years, and every 3 years, respectively. However, 474 (88.6%) emphasized the need for skilled first-aid responders.

Regarding the perceived importance of sports, 473 (88.41%) acknowledged its significance, with 327 (61.12%) consistently obtaining parental consent before involving students in sports activities. About 232 (43.36%) supported every six-month examination of the expiry date of first aid kits. Notably, 271 (50.65%) reported that their schools offer first aid training, 331 (61.87%) confirmed the display of emergency contact numbers in schools, and 478 (89.35%) indicated that their schools maintain documentation on the health status of students (see Table 3).

Logistic regression was used to determinate the first aid attitude among primary school teachers. Males had a negative attitude toward first aid compared to females (OR: 0.51, 95% CI: 0.26, 0.95; p-value= 0.036). Teachers with 10–20 years

Table 3 Attitude of Primary School Teachers Towards First Aid

Characteristic	N = 535 ^A
Are you interested in first aid?	
No	67 (12.52%)
Yes	468 (87.48%)
Willing to learn first aid in higher education	
No	72 (13.46%)
Yes	463 (86.54%)
First aid training required	
Every three years	118 (22.06%)
Every two years	89 (16.64%)
Every year	314 (58.69%)
Not required	14 (2.62%)
Skilled first aider	
Always needed	474 (88.60%)
Never needed	5 (0.93%)
Sometimes needed	56 (10.47%)
Importance of sports	
Sports activities always important	473 (88.41%)
Sports are sometimes important	62 (11.59%)
Do you take parental consent to engage children in sports	
Always	327 (61.12%)
Never	37 (6.92%)
Sometimes	171 (31.96%)
Need to collect the contact number of parents	
No	47 (8.79%)
Yes	488 (91.21%)
Can you provide training to enhance students first aid skills in schools	
No, not interested	90 (16.82%)
Yes, will provide training to students	445 (83.18%)
Expiry date of first aid kit	
Checked once a month	143 (26.73%)
Checked once a year	160 (29.91%)
Checked once in six months	232 (43.36%)
School provides first aid training	
No	264 (49.35%)
Yes	271 (50.65%)
Display emergency call number	
No	204 (38.13%)
Yes	331 (61.87%)
Disease status documented in schools	
No	57 (10.65%)
Yes	478 (89.35%)

Note: ^An (%)

of experience (OR: 2.46, 95% CI: 1.09, 5.62; p-value= 0.031) or more than 20 years of experience (OR: 6.47, 95% CI: 2.18, 19.8; p-value= <0.001) demonstrated a more positive attitude compared to teachers with less experience. Conversely, teachers whose students experienced sports injuries once per month (OR: 0.39, 95% CI: 0.16, 0.84; p-value= 0.024) exhibited a less favorable attitude towards first aid than those whose students had sports injuries once weekly (Table 4).

Primary school teachers demonstrated higher knowledge of first aid when obtaining information from digital media (OR: 4.01, 95% CI: 1.17, 12.3; p-value = 0.018) and healthcare professionals (OR: 6.04, 95% CI: 1.46, 26.4; p-value = 0.012). Moreover, the availability of easily accessible (OR: 7.28, 95% CI: 2.13, 23.9; p-value = 0.001) and moderately accessible (OR: 4.72, 95% CI: 1.29, 18.3; p-value = 0.019) first aid kits at school were associated with an enhanced knowledge of first aid among primary school teachers (see Table 5).

The chi-square test results ($\chi^2(2) = 5.33$, p = 0.07) indicate no significant association overall between the perceived need for a skilled first-aider and the provision of first-aid training by schools (Figure 1). However, 100% of teachers who perceived that skilled first aiders are "Never needed" indicated that their schools do not provide first-aid training. For those who believe that a skilled first aider is "Always needed" 1% report that their school provides first-aid training, while for those who believe a skilled first aider is "Sometimes needed", 54% state that their school provides training (Figure 1).

Characteristic	OR ^A	95% CI ^A	p-value
Sex			
Female	—	—	
Male	0.51	0.26, 0.95	0.036
Age			
20–29	—	—	
30–39	0.83	0.32, 2.04	0.7
40 and above	1.03	0.35, 3.00	>0.9
Year of experience			
I–10 years	—	—	
10–20 years	2.46	1.09, 5.62	0.031
More than 20 years	6.47	2.18, 19.8	<0.001
Qualification			
Diploma	—	—	
Bachelor degree	2.22	0.76, 5.72	0.11
Master	4.73	0.67, 96.4	0.2
PhD	0.65	0.05, 17.1	0.8
Display emergency call number			
No	—	—	
Yes	1.45	0.47, 3.86	0.5
Frequency of sport injuries			
Once a week	—	—	
Once a month	0.39	0.16, 0.84	0.024
Once in a fortnight	1.30	0.37, 5.24	0.7
Accessibility of first aid kit			
Easily accessible	—	—	
Difficult to access	0.53	0.21, 1.44	0.2
Takes time to access	0.60	0.32, 1.16	0.12

 Table 4
 Determinant of First Aid Attitude Among Primary

 Schoolteachers
 Primary

Abbreviations: ^AOR = Odds Ratio, CI = Confidence Interval, logistic regression

Characteristic	OR ^A	95% CI ^A	p-value
Sex			
Female	_	—	
Male	0.76	0.30, 1.86	0.6
Sources of information about first aid			
Books	—	_	
Digital media	4.01	1.17, 12.3	0.018
Health care professionals	6.04	1.46, 26.4	0.012
Display emergency call number			
No	—	—	
Yes	2.08	0.49, 7.28	0.3
Accessibility to first aid kit			
Difficult to access	—	_	
Easily accessible	7.28	2.13, 23.9	0.001
Takes time to be accessed	4.72	1.29, 18.3	0.019
Expiry date of first aid kit			
Checked once a month	—	_	
Checked once a year	1.65	0.43, 6.30	0.5
Checked once in six months	0.93	0.28, 2.75	>0.9

Table 5 Determinants of Knowledge of First Aid Among PrimarySchool Teachers

Abbreviations: ^AOR = Odds Ratio, CI = Confidence Interval, logistic regression

Discussion

Up to our knowledge, this study is the first to nationally assess schoolteachers, knowledge and preparedness in handling sports-related injuries in Saudi Arabia. The findings from this study are that 344 teachers (64.30%) reported an occurrence of sports injury once per month, while 110 (20.56%) indicated a weekly frequency. Almost 70% perceived the first aid kit as readily accessible. Most (95.89%) teachers reported familiarity with first aid. Almost 88% of all participants expressed interest and willingness to obtain formal first aid teaching and training. Social media was the primary resource for first aid knowledge, as 310 (57.94%) reported acquiring their skills through social media platforms.

Although our study showed that most primary schoolteachers were familiar with first aid (96%), we did not know what the level of their knowledge was. Studies conducted in Saudi Arabia showed that schoolteachers had poor knowledge about first aid and how to respond to common emergencies that could occur at schools.^{4,16} Schoolteachers who had prior first aid training were more likely to correctly respond to common emergency scenarios that could happen at school.¹⁶ However, most schoolteachers in Saudi Arabia did not have formal first aid training, potentially leading to poor knowledge and inappropriate response to common emergency scenarios.¹⁶ Other international literature from India, China, Ethiopia, and Iraq reported poor knowledge of schoolteachers about first aid.^{17–20} As mentioned earlier that children spend most of their daytime at school and have developmental, physical, and psychological characteristics that make them more prone to accidental injuries, schoolteachers must be prepared to handle such emergencies. This does not seem to be the case as schoolteachers were shown to have poor knowledge regarding first aid and few had formal first aid training. All of which highlights the need for more emphasis on first aid training for schoolteachers to enhance the safety of children at school and promote their well-being.

The understanding and preparedness for first aid among schoolteachers differ worldwide. Primary schools in developed countries have better resources and trained medical staff available on campus for first aid. In contrast, primary school staff in developing Asian countries generally need a greater understanding of basic first aid concepts. A study conducted in the USA revealed that a mere 37% of high schools have full-time athletic trainers, leaving many teachers to handle injuries on their own.¹¹ Another study found that only 27% of high school coaches had received training on managing concussions.¹² A study conducted in Saudi Arabia's discovered that less than half of the participating schoolteachers possessed adequate first-aid knowledge, demonstrating a significant need for additional training and



Figure I Association between the perceived need for a skilled first aider and the provision of first aid training by schools.

education.¹⁴ Another study, also from Saudi Arabia, showed that although most participants had received some form of first aid training, very few had received training related to emergencies like sports injuries.¹⁵ Our findings were similar as almost 96% were familiar with first aid. However, 88% of the participants are willing to obtain formal first aid teaching and training, meaning that most are officially trained in first aid rather than just information they obtain about first aid, mainly from social media (58%).

With regard to the perceived value of first aid, an earlier study in southwestern Saudi Arabia in 2017 showed that 81% of schoolteachers believe that first aid is always necessary, while 16% believe it is occasionally needed, and 4% do not believe that it is necessary.⁴ This is consistent with our findings showing that most participants believe first aid is always necessary (89%), followed by 11% and 1%, respectively. These findings could be affected by the fact that some teachers may encounter situations where they need first aid, so their perception of the value of first aid is affected. Other factors could be the feeling of responsibility that they need to ensure students' safety and well-being.

This study has assessed the determinants of first-aid attitudes from demographic and baseline information. Male sex (OR: 0.51, 95% CI: 0.26, 0.95; p-value= 0.036) and frequency of sport injuries once per month (OR: 0.39, 95% CI: 0.16, 0.84; p-value= 0.024) were significantly associated with negative attitude towards first aid. However, Teachers with 10–20 years of experience (OR: 2.46, 95% CI: 1.09, 5.62; p-value= 0.031) or more than 20 years of experience (OR: 6.47, 95% CI: 2.18, 19.8; p-value= <0.001) demonstrated a more positive attitude compared to teachers with less experience. Other variables including age, qualification, display emergency number, and accessibility of first aid kit were not found to be determinants of first aid attitudes. With regard to age, the findings of our study are consistent with the findings from another study in the southeast region of Saudi Arabia showing no significant association between the ages and the awareness of the importance of first aid.⁴ However, the findings from a study conducted in Khamis Mushayt city, Saudi Arabia, reported that increasing age is significantly associated with increased level of knowledge about first aid (p-value = 0.003).²¹

As increased teaching experience was shown in our study to be significantly associated with positive first aid attribute, other national and international literature showed similar findings. A study conducted in Khamis Mushayt city, Saudi Arabia, showed that more experienced teachers had significantly higher level of first aid knowledge (p-value = 0.001).²¹ Furthermore, a study conducted in India, which showed that teachers who had been the field for more than 10 years, had far more knowledge about first aid (p-value = 0.001).²² However, another study conducted in India showed no significant association between teaching experience and level of knowledge about first aid.²³

Our findings showed that the frequency of sport injuries once per month was significantly associated with negative first aid attitude. This finding is not consistent with other findings from a study conducted in the southwestern region of Saudi Arabia, showing no significant association between frequency of sport injuries and first aid attitudes.⁴ This inconsistency could be attributed to the fact that our study has a higher proportion of teachers facing sport injuries more frequently (110 (21%) teachers see a case weekly) compared to the other study (75 (16%) teachers see a case weekly).⁴

Primary school teachers demonstrated higher knowledge of first aid when they obtained information from digital media (OR = 4.01, 95% Confidence Interval (CI): 1.17–12.3). They also showed higher knowledge when they obtained information from healthcare professionals (OR = 6.04, 95% CI: 1.46–26.4). The availability of easily accessible first aid kits at school was associated with enhanced knowledge of first aid among primary school teachers (OR = 7.28, 95% CI: 2.13–23.9). Similarly, the availability of moderately accessible first aid kits was also associated with improved first aid knowledge (OR = 4.72, 95% CI: 1.29–18.3). Overall, these results suggest that primary school teachers' knowledge of first aid is positively influenced by obtaining information from digital media and healthcare professionals, as well as the availability of accessible first aid kits at their schools. The accessibility of the necessary medical supplies can be a significant barrier, even for those who have received prior first aid training. If teachers do not have ready access to well-stocked first aid kits in their classrooms, it can greatly hinder their ability to provide timely and effective care in the event of an emergency. Literature supported the implantation of sports injury adequate treatment as well as prevention strategies is a crucial element in the school settings.²⁴

This study has several significant implications. It is, up to our knowledge, the first nation-wide in Saudi Arabia to assess schoolteachers, level of understanding and readiness in managing sports-related injuries. It has described the knowledge and attitude of schoolteachers toward first aid for sport injuries. It also determined the factors associated with increased awareness about first aid and increased level of knowledge about first aid. These findings could provide valuable information nationally and internationally to guide current and future first aid and injury prevention programs at schools. Nevertheless, the study has some evident limitations that need to be highlighted. The cross-sectional design of this study could limit the design could limit the generalizability of the study's findings. Furthermore, the participants in this study were primary school teachers only, so the findings might not be applicable to secondary and high school teachers. The study also did not involve other stakeholders in schools, including, but not limited to, social workers, administrative staff, and students, which represents another limitation. Therefore, further national studies with larger sample size, targeting teachers at different levels of schools (primary, secondary, and high schools), and involving other stakeholders who should provide first aid at schools are needed. Moreover, the convenient sampling represents another limitation as it resulted in a heavy distribution of the participant populations in the Western and Eastern regions, which may introduce a risk of bias to the results. Therefore, a national study with random sampling is recommended.

Conclusion

This study, to our knowledge, is the first to nationally assess schoolteachers, knowledge and preparedness in handling sports-related injuries. Primary school teachers expressed themselves to be familiar with first aid for sport injuries. However, most of them believed they needed to be prepared to handle such an emergency, as most information regarding first aid was obtained via unattributed social media content rather than certified teaching and training. Therefore, it is highly necessary to provide formal first aid training to primary school teachers to enhance the safety and well-being of students in schools during sports and physical activities.

Abbreviations

USA, United States of America; OR, Odds Ratio; CI, Confidence Interval.

Data Sharing Statement

The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics Approval and Informed Consent

Ethical approval was obtained from King Abdullah International Medical Research Center (KAIMRC) (IRB approval no.: IRB/2098/23). Informed consent was obtained from all participants prior to completing the survey.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests.

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