

# Teachers' awareness regarding first-aid management and control of epistaxis inside schools in Taif region, Saudi Arabia

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## Abstract

**Background:** Epistaxis is one of the commonest ENT emergencies worldwide and awareness of the first aid is important especially among teachers inside school as students easily get injured during school activities. This study aimed to assess the level of awareness regarding first-aid management and control of epistaxis among teachers inside schools in Taif region, Saudi Arabia.

**Methods:** Based on a review of the literature on awareness regarding first-aid management and control of epistaxis a cross sectional study was conducted with an online survey which was distributed to all schoolteachers in Taif city. Responders were selected randomly and the predesigned questionnaire was sent to them.

**Results:** The study revealed that teachers have fair knowledge about epistaxis control. Most of them were aware of changing the head position; almost (80.1%) of the teachers will try to stop bleeding by applying pressure on the nose and about one third of them will do it on the lower part of the nose, while 17% of the teachers reported that they will use other methods where most of them reported that they will seek health care or call for emergency assistance.

**Conclusion:** Sixty-three percent of the teachers have fair knowledge regarding the control of epistaxis, especially those who have had previous experience with it. However, more attention should be paid to improve the awareness regarding epistaxis management in the area through health training and educational sessions.

**Key words:** Teachers, awareness, first-aid, epistaxis, schools, Taif

## Introduction

Epistaxis is defined as bleeding from the nose or nasopharynx. It is one of the commonest ENT emergencies faced in the emergency departments in the world (1). Knowledge of first aid is important for everyone, therefore teaching it is mandatory, especially in schools. The best way to deal with an emergency is as soon as possible. As a result, having a strong foundation in first-aid skills and practices could save a student's life (2).

Most of the time, the causes of epistaxis are unknown and can be divided into two categories: local causes involving the nose, paranasal sinuses, and the nasopharynx, and systemic causes (i.e., hypertension, blood dyscrasias, and use of anticoagulant medications) (3). In the pediatric population, trauma is the most common cause of epistaxis (4).

About 66% of the population suffer from epistaxis during their life. More than half of children aged 6 to 10 years had at least one episode of epistaxis (2). It doesn't only impact hemodynamic stability; it can cause their parents great anxiety (5). Epistaxis typically stops spontaneously or can be controlled conservatively at home with measures like application of direct pressure to the septal area, tilting the head forward and putting cold water on the face. However, some cases can be extremely serious and life-threatening (5), requiring active intervention and hospitalization. Since the prevalence of epistaxis is high, but poorly understood, first-aid measures with sufficient expertise are needed for the management of acute epistaxis in the absence of hospital facilities (4,6).

In the Kingdom of Saudi Arabia (KSA), a study was done in 2018 to assess teachers' awareness regarding emergency management of epistaxis inside the School in Alahssa region. According to the report, 54 percent of teachers obtained information about how to control nose bleeding and 67 percent of students had previously experienced epistaxis. 15% said they would not attempt to stop the bleeding, 25% said they would apply pressure on the cartilaginous region of the nose, and 57% knew they should lean their head forward (1).

Another study was done in 2019 in Riyadh city, KSA and found that approximately one-third of 1,073 teachers had good knowledge of epistaxis management and about 68.1% of the teachers had experienced at least one case of epistaxis in their schools. However, the site and duration of nasal pressure awareness were poor, Nose pressure as a method to control of epistaxis was recorded by 76.5%, 23% mentioned the lower part as the area for pressure, while 12.8% told about pressing for 6–10 minutes (4).

There was another study done in 2019 in Jeddah (7), The study included 706 individuals, The knowledge scores obtained in this study were a good score of 57.5% and an excellent score of 3.5%. Most participants selected that a first-aid course would be the best source of information to increase their awareness regarding epistaxis, as reported in other studies (8).

Another research, including 540 participants, was done in Tabuk (9). The findings showed that in Saudi Arabia, a high percentage of the participants suffered from epistaxis. There was also a clear understanding of the causes of epistaxis and how to manage epistaxis occurrences. Epistaxis prevalence was found in 45.2% of the participants. In the majority of cases, 89.6% said that first aid measures are necessary, and 85.9% said that public knowledge about epistaxis first aid measures is insufficient (9).

During the year 2021, a study was performed in the Hail area to assess male school teachers' awareness, attitude, and practice of first aid. According to the report, 90.9 percent of teachers were aware of first aid, 58.28% had not received first aid training, and 87.9% needed to learn first aid concepts. Age, sex, and marital status all had a major effect on first-aid awareness (10).

Knowledge of first aid and basic life support is important for everyone, therefore teaching them should be mandatory especially in schools (11). As schools do not typically have trained health care suppliers on site, it is important for teachers to be trained in first aid and need to be updated periodically in their skills and information (12). Early on is the safest time to deal with an emergency. As a result, having a strong foundation in first-aid skills and knowledge could save a student's life (2).

There has been no study done in Taif City and thus our study was undertaken to assess the awareness regarding practices of first aid and epistaxis among school teachers in Taif city, Saudi Arabia.

## Methods

**Study design and time frame:** a cross sectional study was conducted to assess awareness regarding first-aid management and control of epistaxis among teachers inside schools at Taif city, KSA in September 2020 to April 2021.

**Study participants:** teachers in Taif city, KSA. The study included school teachers of both sexes, all ages and all nationalities, where those who were not working in Taif city were excluded.

**Sample size:** the study sample was 377 participants calculated by the Raosoft calculator and selected randomly.

To collect data, an online survey with a pre-designed questionnaire was used as the study instrument. The questionnaire included items to collect demographic data and evaluation of the teachers' knowledge about control of epistaxis inside schools. The questionnaire included ten questions that assessed participants' previous information about first aid to stop nose bleeding or epistaxis and their knowledge about epistaxis control. For every right answer a score of "1" was given and for a wrong answer a score of "0" was given leaving a total score of 10. Participants

who got < 50% of the total score were classified as having poor knowledge, those who had 50-75% of the total score were classified as having fair knowledge and those who got > 75% of the total score were classified as having good knowledge.

**Ethical considerations:** all participants were informed about the aim of the study, and online consent was obtained from every participant.

The results were analyzed using SPSS statistical software version 25 (IBM SPSS Statistics for Windows, Version 21.0). IBM Corp., Armonk, NY.). The Chi-squared test ( $\chi^2$ ) was used to test the relationship between variables and qualitative data was expressed as frequencies and percentages. The mean and standard deviation (Mean  $\pm$  SD) were used to represent quantitative data. A significance level was set at a p- value of < 0.05.

## Results

Table 1 shows that 49.1% of the participants had an age that ranged from 36-45 years, 66.8% were male and 99.7% had Saudi nationality. Most of the participants (95.2%) were working in governmental schools, 39.8% were working in primary schools and 55.7% had a scientific specialty.

Figure 1 shows that 66.6% of the participants had students or school staff who had suffered nose bleeding or epistaxis. Figure 2 shows that 56% of teachers reported receiving previous information about first aid to stop nose bleeding or epistaxis.

**Figure 1. Percentage distribution of teachers according to having any student or school staff ever suffered a nose bleeding or epistaxis**

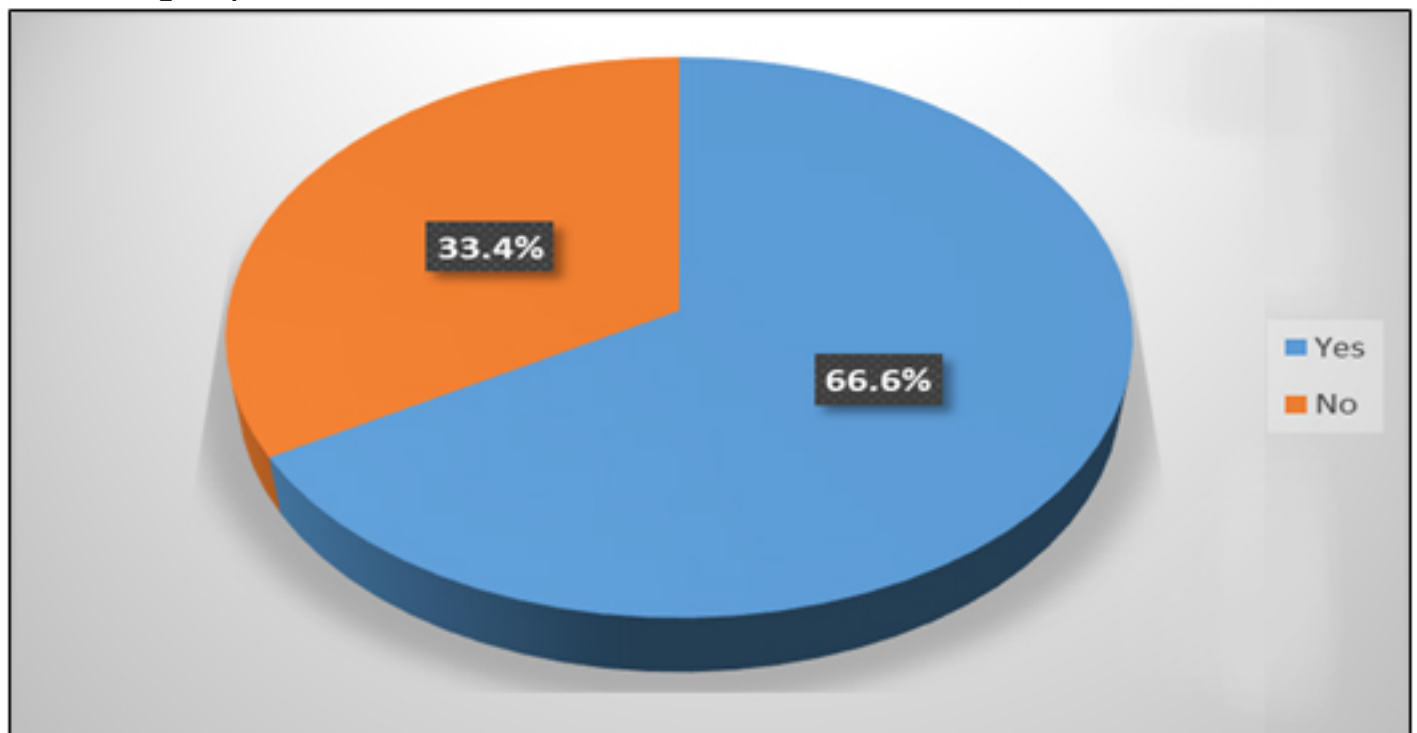


Table 2 shows that most of studied teachers answered correctly that: if they experience bleeding, they will try to stop bleeding by applying pressure on the nose (80.1%), they will apply pressure on the lower part of the nose (29.1%), 10.1% reported that they will press for 6-10 minutes and 61.3% reported that they will not try to fill the nose with a tissue or gauze. Of studied teachers, 81.9% answered correctly that they will try to stop bleeding by changing the head position, 49.9% reported that they will change the head position by tilling it forward and 57.8% reported that they will try to put ice on the head or the nose. Only 17% of the teachers reported that they will try other methods where most of them reported that they will seek health care or call the emergency services. About 32% (32.6%) of them reported correctly that they will go to the emergency centre if bleeding lasts more than 30 minutes.

The mean knowledge score was  $5.39 \pm 1.37$ . Figure 3 shows that the percentage of poor, fair and good knowledge about epistaxis control among teachers was 28.9%, 63.7% and 7.4% respectively.

Figures 4 and 5 show that male teachers have better knowledge than female teachers about controlling epistaxis and most of those who had fair to good knowledge about control of epistaxis received previous information.

Table 3 shows that a non-significant relationship was found between teachers' age, nationality, school type, teaching level and specialty and their knowledge level about epistaxis control ( $p > 0.05$ ).

**Table 1. Distribution of studied teachers according to their age, nationality, school type, teaching level and specialty (No. 377)**

Variable	No. (%)
Age	
Under 25	22 (5.8)
26 - 35	47 (12.5)
36 - 45	185 (49.1)
Above 46	123 (32.6)
Gender	
Male	252 (66.8)
Female	125 (33.2)
Nationality	
Saudi	376 (99.7)
Non-Saudi	1 (0.3)
School type	
Governmental	359 (95.2)
Special	18 (4.8)
Teaching level	
Kindergarten	20 (5.3)
Primary school	150 (39.8)
Intermediate school	73 (19.4)
Secondary school	134 (35.5)
Teacher specialty	
Scientific	210 (55.7)
Literature	167 (44.3)

**Figure 2. Percentage distribution of teachers according to receiving previous information about first aid to stop nose bleeding or epistaxis**

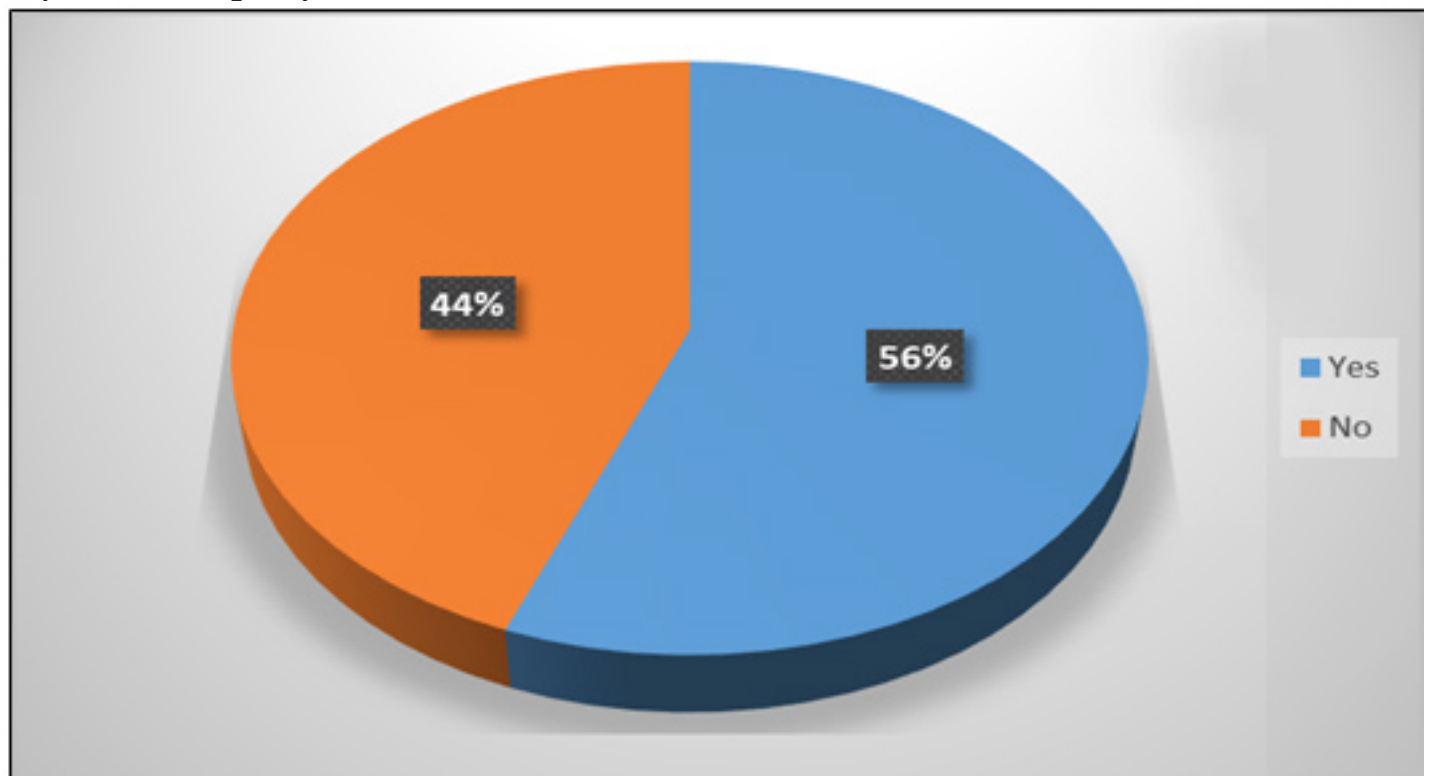


Table 2. Distribution of studied teachers according to their knowledge about epistaxis control (No. 377)

Variable	No. (%)
If you experience bleeding, will you try to stop bleeding by applying pressure on the nose?	
Yes (correct answer)	302 (80.1)
No	75 (19.9)
If yes, where exactly is the pressure?	
Upper part of the nose	214 (70.9)
Lower part of the nose (correct answer)	88 (29.1)
For how long will you press the nose?	
Less than 2 minutes	171 (45.4)
2 - 5 minutes	154 (40.8)
6 - 10 minutes (correct answer)	38 (10.1)
11 - 20 minutes	9 (2.4)
More than 20 minutes.	5 (1.3)
Will you try to fill the nose with a tissue or gauze?	
Yes	146 (38.7)
No (correct answer)	231 (61.3)
Will you try to stop bleeding by changing the head position?	
Yes (correct answer)	320 (84.9)
No	57 (15.1)
How do you change the head position?	
Tilt it forward (correct answer)	188 (49.9)
Tilt it backward	189 (50.1)
Will you try to put ice on the head or the nose?	
Yes (correct answer)	218(57.8)
No	159 (42.2)
Will you use other methods?	
Yes	64 (17)
No (correct answer)	313 (83)
If yes, what are these methods:	
Seek health care or call the emergency	23 (6.1)
Herbal medicine	1 (0.3)
Inhale cold water	11 (2.9)
Wash the nose with cold water	5 (1.3)
Washing the head with cold water	14 (3.7)
Fill the nostril with cotton	3 (0.8)
Sit in a chair with your back straight and your head elevated	2 (0.5)
Smell perfume	3 (0.8)
Sleeping on the back	2 (0.5)
When do you think you should go to the emergency?	
I do not think it needs an emergency visit	29 (7.7)
If the bleeding lasts more than 10 minutes	166 (44)
If the bleeding lasts more than 30 minutes (correct answer)	123 (32.6)
If the bleeding lasts more than 60 minutes	23 (6.1)
I don't know	36 (9.5)

Figure 3. Percentage distribution of teachers according to their knowledge level about epistaxis control

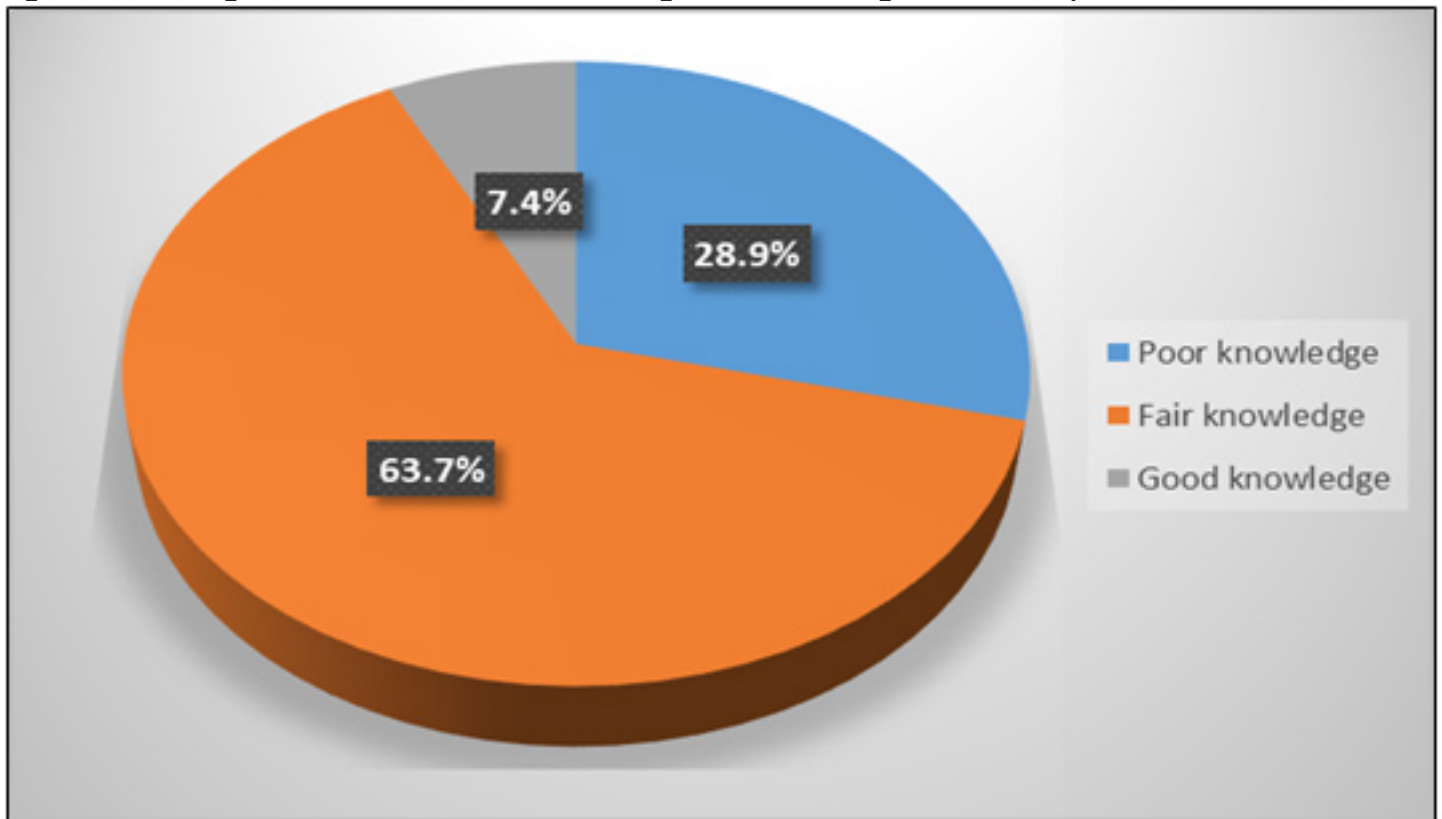
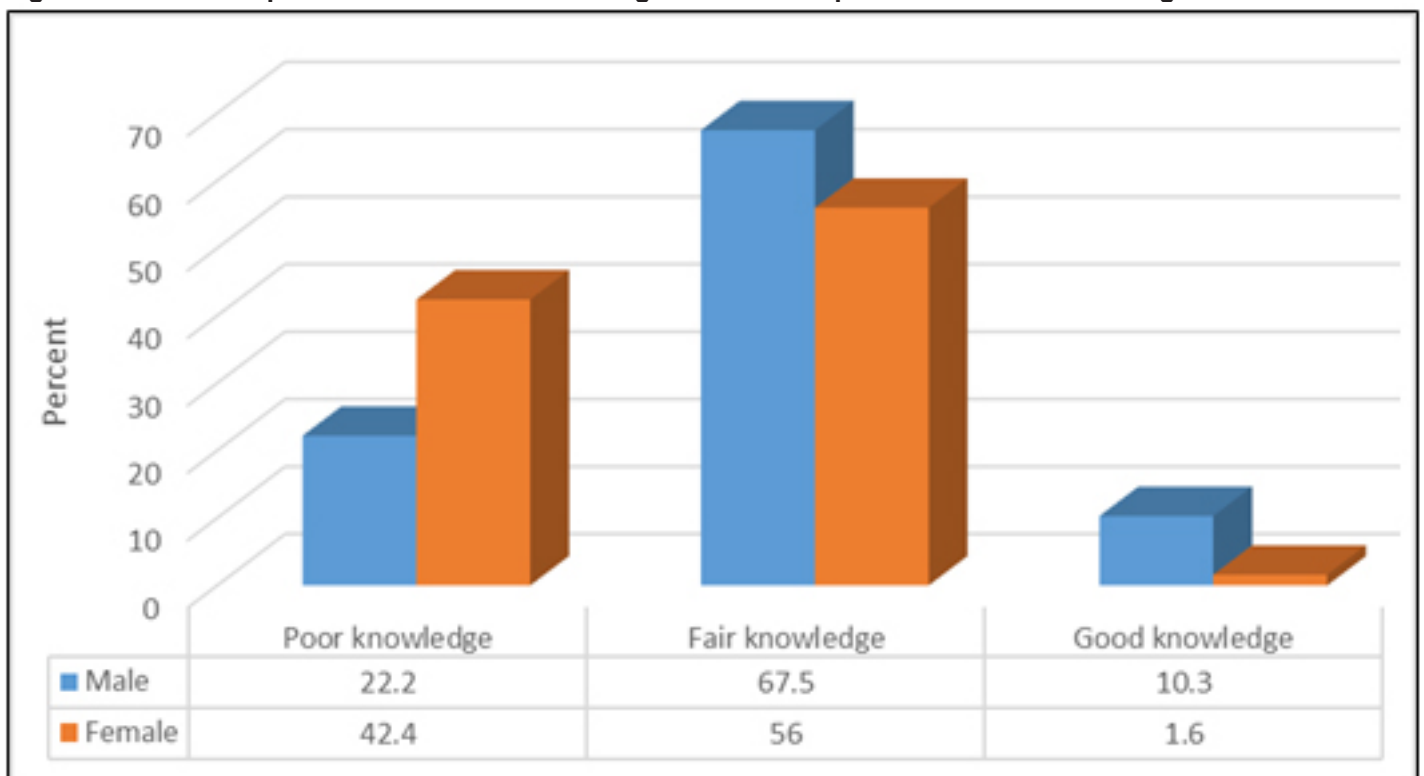
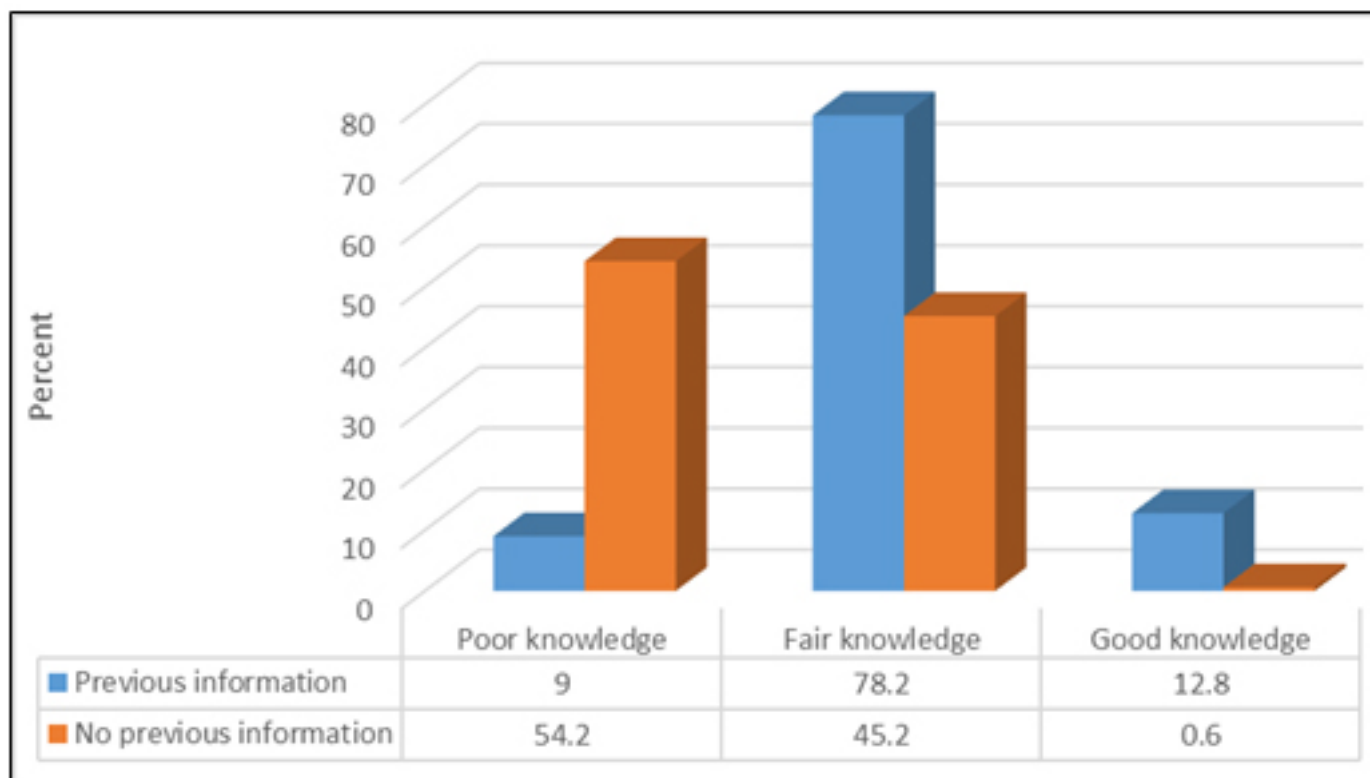


Figure 4. Relationship between teachers' knowledge level about epistaxis control and their gender



N.B.: ( $\chi^2= 22.03$ , p-value = < 0.001)

Figure 5. Relationship between teachers' knowledge level about epistaxis control and receiving previous information



N.B.: ( $\chi^2 = 100.19$ ,  $p\text{-value} = < 0.001$ )

Table 3. Distribution of studied teachers according to their characteristics (No. 377)

Variable	Knowledge level			$\chi^2$	p-value
	Poor No. (%)	Fair No. (%)	Good No. (%)		
Age				3.93	0.686
Under 25	8 (36.4)	12 (54.5)	2 (9.1)		
26 - 35	17 (36.2)	26 (55.3)	4 (5.5)		
36 - 45	53 (28.6)	121 (65.4)	11 (5.9)		
Above 46	31 (25.2)	81 (65.9)	11 (8.9)		
Nationality				0.57	0.751
Saudi	109 (29)	239 (63.6)	28 (7.4)		
Non-Saudi	0 (0.0)	1 (100)	0 (0.0)		
School type				1.63	0.443
Governmental	104 (29)	227 (63.2)	28 (7.3)		
Special	5 (27.8)	13 (72.2)	0 (0.0)		
Teaching level				10.38	0.109
Kindergarten	3 (15)	15 (75)	2 (10)		
Primary school	36 (24)	104 (69.3)	10 (6.7)		
Intermediate school	20 (27.4)	49n (67.1)	4 (5.5)		
Secondary school	50 (37.3)	72 (53.7)	12 (9)		
Teacher specialty				1.72	0.422
Scientific	58 (27.6)	139 (66.2)	13 (6.2)		
Literature	51 (30.5)	101 (60.5)	15 (9)		

## Discussion

The current research examined teachers' knowledge of first-aid management and epistaxis regulation in the classroom. Most of the participants are teachers in Taif schools with age ranging from 36 to 45 years.

Results of the present study showed that the majority of teachers had fair awareness regarding epistaxis and the measures for its management. The highest level of awareness was about the importance of changing the head position, putting ice on the nose and not filling the nose with a tissue or gauze.

Teachers' awareness was poor regarding the correct site and duration of nasal compression. This low awareness was recorded irrespective of the fact that the majority of the teachers claimed that they had information regarding epistaxis first aid.

In addition, teachers' awareness was relatively better among those who claimed that they had received information regarding epistaxis management and first aid.

In our research we found that epistaxis was a common accident that occurs in schools as 66.6% of the participants had students or school staff who had suffered from epistaxis. This result agrees with that revealed from a previous study done in Saudi Arabia which found that 67% of teachers had students who had experienced epistaxis before (1). In this study, epistaxis was the most common disorder due to sports or playing (1).

In this work, it was found that the mean knowledge score about epistaxis control among teachers was  $5.39 \pm 1.37$  and most of them had fair knowledge. The percentage of poor, fair and good knowledge about epistaxis control were 28.9%, 63.7% and 7.4% respectively. A previous study done in India found that 39.7% of teachers had poor knowledge about Epistaxis (13).

The present study illustrated that teachers who had previous knowledge about epistaxis had a significantly higher level of those who had good knowledge about epistaxis control. In comparison with a study done in Ethiopia, good knowledge towards first aid was significantly related to the training and experience due to exposure to children who need first aid epistaxis control (14). Another research conducted in Saudi Arabia found no substantial relationship between educational level and awareness of the causes and control of epistaxis cases (9).

## Limitations

The small sample size of this study was one of its limitations; another limitation was that these findings were limited to one region, making them unrepresentative of the entire Saudi population and the limited time of the study is another limitation.

## Conclusion

Teachers' awareness regarding first-aid management and control of epistaxis inside the schools in Taif was fair. However more attention should be paid to improve students and teacher's awareness regarding first aid management of epistaxis. Improving health education about first aid management and control of epistaxis is an important step towards avoiding the complications. Further media efforts are needed to raise awareness of first aid management and control of epistaxis among the population. This includes providing free first aid courses for teachers and students inside schools.

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