

Knowledge and Awareness of Epistaxis among School Teachers in Saudi Arabia at 2021

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Abstract:

Background: Epistaxis is one of the most common otorhinolaryngology emergencies occurring in pediatric population due to school injuries and traumas, predisposing them to require basic yet important first-aid management. This study was done to assess the knowledge and practices of teachers regarding the first-aid management and control of epistaxis inside schools. Methodology: Totally, 530 teachers were evaluated at different grades in schools of Saudi Arabia. Results: This study revealed that nearly half of the teachers' aged from 36-45 years, receive information about epistaxis first aid from first aid courses, internet and minister of health brochures. Two thirds of them have poor level knowledge and more than two thirds of them ranged between weak and average practices. There was a significant difference between teachers' knowledge in relation to age.

Conclusion: two-third of teachers had weak knowledge regarding epistaxis knowledge, one thirds of them have weak practices of epistaxis first aid.

Keywords: Epistaxis, school teachers, knowledge, practices.

Introduction:

Epistaxis or nose bleeding is considered as a one of the most conjoint medical emergencies linked with ear, nose, and throat (ENT) region reported in emergency rooms. The rupture of a blood vessel inside nasal mucosa can result in epistaxis. Epistaxis can arise in two forms including anterior and posterior epistaxis. The anterior epistaxis is more commonly perceived and occurs due to vessel rupture in anterior part of the nasal cavity. Unlike, posterior epistaxis is less commonly observed and is accompanying with rupture of a blood vessel in posterior section of nasal cavity (Al-Kubaisy et al., 2019; Elsoud et al., 2018; Lie& Ali., 2019).

A numerous factors including local, systemic, medicinal, and environmental factors can lead to epistaxis. Epistaxis is generally considered as a non-fatal medical condition; though, it could lead to life-threatening situation in some rare circumstances. Care for epistaxis is majorly dependent upon the type of nose bleed being encountered. In routine practice, first-aid management of epistaxis is performed to stop the bleeding. Additional management approaches involve medical interventions, conservative therapies, or surgical interventions (Al-Kubaisy et al., 2019; Ameya et al., 2021).

Epistaxis is considered as a very common medical condition and it is estimated that 60% of the United States (US) population might encounter this problem at least once in lifetime. Moreover, only 6% of the affected population tends to seek medical help for this problem (Tunkel et al., 2020;).

In US, a study reported that majority of epistaxis cases could be treated successfully with first aid management. However, there was a general lack of knowledge regarding first-aid management of epistaxis in the population despite its frequent occurrence. In Saudi Arabia, a study done by Mohammad et al., 2020 and found that the knowledge and practices of the general public population is considered as adequate. Around 78% of the respondents have correctly answered more than 75% of the questionnaire. And another study by Al-Kubaisy et al., 2019 who revealed that One-third of teachers had good knowledge regarding epistaxis management, especially those who had previous information regarding epistaxis first aid. However, more attention should be paid to improve teachers' awareness regarding

this area through health education sessions besides better training to apply epistaxis management.

Based on the sensitivity and liability of school children to epistaxis, the researcher found it necessary to assess the knowledge and practice of school teachers in Saudi Arabia, regarding the first-aid management and control of epistaxis.

Aim of the study:

To assess the level of knowledge and awareness regarding first aid management of epistaxis among school teachers in Saudi Arabia

Materials and methods:

Cross section research design was used

Subjects:

A number of 530 school teachers at Saudi Arabia who willing to participate in the study were included.

Data collection:

The data needed for this study will be collected using self-administered questionnaire to assess school teacher's knowledge and practices regarding epistaxis (nose bleeding) in Saudi Arabia. A validated questionnaire was adapted from Alshehri et al 2018, Furthermore, a valuable questions linked to nose bleeding was added to the research study (Mohamad et al., 2018; Elsoud et al., 2018).

All schools in Saudi Arabia region will be approached. Male and Female teachers from all grades (primary, intermediate and secondary) schools will be allowed to fill in the questionnaire after fill in the consent form prior joining the study.

Ethical consideration

1. Permission of the education director was obtained.
2. Permission of the school headmasters was granted.
3. A written consent form was obtained from participants before taking part in the study.

Statistical analysis:

After data was extracted, it was revised, coded, and fed to statistical software IBM SPSS version 22. All statistical analysis was conducted using two-tailed tests and an alpha error of 0.05. A *p*-value less than or equal to 0.05 was considered as statistically significant. Regarding the scoring of knowledge items, each correct answer was given a one point score. Then, all discrete scores for the different knowledge and practice items were summed and categorized into poor for those who had score <60% of the maximum, average for more than

60-80 and high for those who had score more than 80%. Descriptive analysis, including frequency and percent distribution, was done for all the variables, including teachers' demographic and individual awareness data. Uni variant relations between the teachers' personal data and awareness level were tested using with Pearson chi square test.

Results:

Table I: frequency distribution of teachers' socio demographic characters:

Tis table showed that half of teachers (50.4%)aged from 36-45 years, divided equally between male and female (50.2%, 49.8%). More than half were non Saudi (58.7%), and teaching at primary schools (44.3%).

	N	%
Age		
Under 25	46	8.7
26 – 35	96	18.1
36 – 45	267	50.4
Above 46	121	22.8
Gender		
Female	264	49.8
Male	266	50.2
Nationality		
Saudi	219	41.3
Non-Saudi	311	58.7
Teaching level		
Primary school	235	44.3
Intermediate school	83	15.7
Secondary school	79	14.9
Other	133	25.1

Table II: frequency distribution of teachers' knowledge about first aid of epistaxis:

Tis table revealed that majority of teachers (94%) received information about first aid to stop nose bleeding or epistaxis from different sources as First aid courses (30.7%), Internet (social media) (28.7%), and Ministry of Health brochures (19.5%). Less than half of teachers (45.5%)agreed that hard work may cause nose bleeding and reported that nose bleeding

consider emergency if the bleeding lasts more than 10 minutes (41.7%). Approximately half of teachers (50.6%) reported that no association between repeated nose bleeding and hot drinks. Two thirds of them (64.3%) think that rhinitis or nose injuries have a link with repeated nose bleeding or epistaxis. Only one fifth (21.7 %) of them think that smoking has a link with repeated nose bleeding. Only one third (36.4 %) of them think that low temperature have a link with nose bleeding. More than half of teachers (51.9%) agreed that heavy exercise may cause nose bleeding, and the best technique to deliver information about first aid on nose bleeding is first aid courses (54%).

	N	%
Have you ever received information about first aid to stop nose bleeding or epistaxis?		
No	32	6.0
Yes	498	94.0
What are the sources from which you received information about first aid on nose bleeding?		
Internet (social media)	143	28.7
First aid courses	153	30.7
School health advisor	50	10.0
TV and Radio	55	11.0
Ministry of Health brochures	97	19.5
Do you think that her hard work is due to repeated nosebleeds (nosebleeds)?		
No	135	25.5
I don't know	154	29.1
Yes	241	45.5
When do you think you should refer a nose bleeding case to the emergency?		
I don't know.	93	17.5
I do not think it needs an emergency.	42	7.9
If the bleeding lasts more than 10 minutes.	221	41.7
If the bleeding lasts more than 30 minutes.	126	23.8

If the bleeding lasts more than 60 minutes.	48	9.1
Do you think hot drinks have a link with repeated nose bleeding or epistaxis cases?		
No	268	50.6
I don't know	212	40.0
Yes	50	9.4
Do you think Rhinitis or nose injuries have a link with repeated nose bleeding or epistaxis?		
No	55	10.4
I don't know	134	25.3
Yes	341	64.3
Do you think smoking has a link with repeated nose bleeding or epistaxis?		
No	180	34.0
I don't know	235	44.3
Yes	115	21.7
Do you think high places with low temperature have a link with nose bleeding or epistaxis?		
No	132	24.9
I don't know	205	38.7
Yes	193	36.4
What do you think are the best technique to deliver information about first aid on nose bleeding or epistaxis?		
Ministry of Health brochures	88	16.6
First aid courses	286	54.0
TV and Radio	19	3.6
Internet (social media)	137	25.8
Do you think heavy exercise have a link with repeated nose bleeding or epistaxis?		
No	100	18.9
I don't know	155	29.2
Yes	275	51.9

Do you think that sneezing is related to frequent nosebleeds (nosebleeds):		
No	252	47.5
I don't know	200	37.7
Yes	78	14.7

Table III: frequency distribution of teachers' practices about first aid of epistaxis:

This table showed that majority of teachers (72.6%) has no previous epistaxis, less than half of them (41.9%) dealing with epistaxis before. Most of them (97.3%) dealing with about 5-10 cases. Regarding first aid of epistaxis, the teachers reported that they till head forward (50.9%), apply pressure over upper part of the nose (70%), for Less than 2 minutes (45.5%), fill the nose with a tissue or gauze (54.5%), and put ice on the head or the nose (59.6%)

	N	%
Have you ever suffered from a nose bleeding or epistaxis?		
No	385	72.6
Yes	145	27.4
Had you ever deal with a nose bleeding or epistaxis cases in your school?		
No	308	58.1
Yes	222	41.9
How many epistaxis cases have you ever deal with in the last ten years?		
5 – 10 cases	216	97.3
10 – 15 cases	4	1.8
More than 15 cases	2	0.9
How do you change the head position?		
Till it forward.	270	50.9
Till it backward.	260	49.1
If you experience bleeding, will you try to stop bleeding by applying pressure on the nose?		
No	213	40.2
Yes	317	59.8
where exactly is the pressure?		
Upper part of the nose.	371	70.0

Lower part of the nose.	159	30.0
How long will you press the nose?		
Less than 2 minutes.	241	45.5
5 minutes.	211	39.8
10 minutes.	63	11.9
20 minutes.	10	1.9
More than 20 minutes.	5	0.9
Will you try to fill the nose with a tissue or gauze?		
No	241	45.5
Yes	289	54.5
Will you try to put ice on the head or the nose?		
No	214	40.4
Yes	316	59.6

Table IV and figure I, II, III: frequency distribution of total teachers' knowledge and practices level about first aid of epistaxis:

This table showed that more than half of teachers (66.0%) had weak level of knowledge and less than half (48.1%) experienced a weak level of practices regarding first aid of epistaxis

	N	%	Range	Mean±SD
Knowledge				
Weak	350	66.0	0-10	4.624±2.099
Average	162	30.6		
High	18	3.4		
Practices				
Weak	255	48.1	0-7	3.639±1.569
Average	206	38.9		
High	69	13.0		

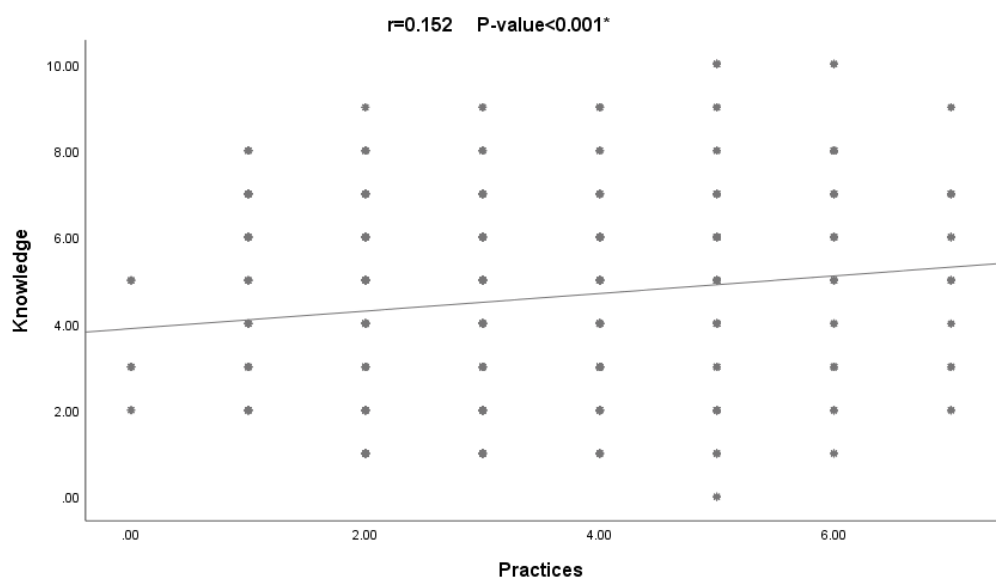
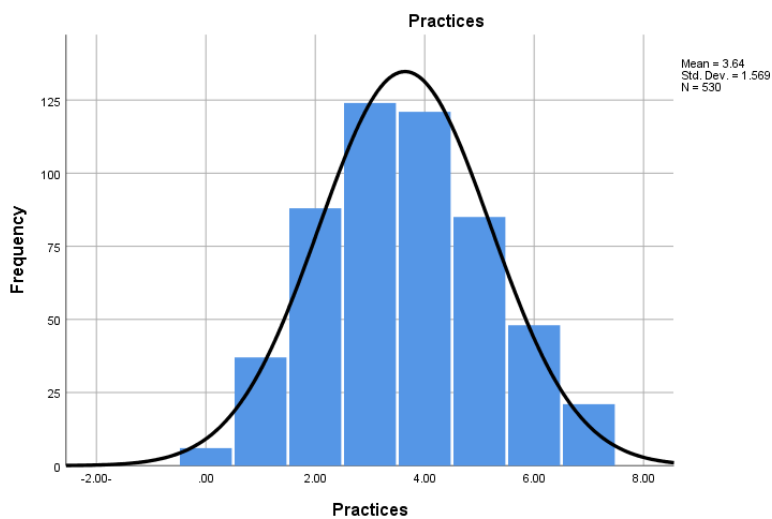
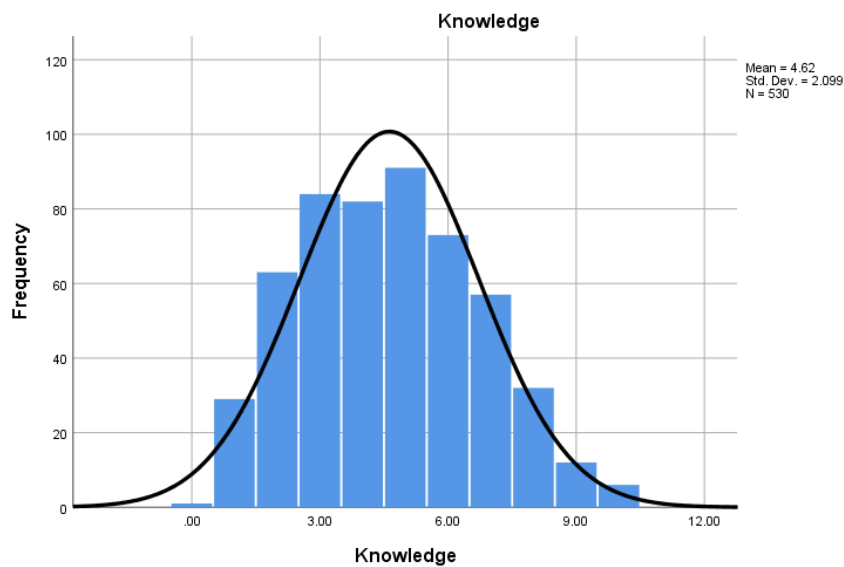


Table V: significance difference between total Knowledge and demographic data:

There was statistical significant difference between the teachers regarding knowledge about first aid of epistaxis, in relation to age, for a benefit of under 25 years.

Demographic data		N	Knowledge		F or T	ANOVA or T-test	
			Mean	± SD		Test value	P-value
Age	Under 25	46	5.6087	± 2.12371	F	4.181	0.006*
	26 – 35	96	4.6875	± 2.32747			
	36 – 45	267	4.5468	± 2.02258			
	Above 46	121	4.3719	± 1.97961			
Gender	Female	264	4.7121	± 2.01149	T	0.957	0.339
	Male	266	4.5376	± 2.18237			
Nationality	Saudi	219	4.7078	± 2.10427	T	0.766	0.444
	Non-Saudi	311	4.5659	± 2.09639			
Teaching level	Primary school	235	4.4553	± 2.09015	F	1.397	0.243
	Intermediate school	83	4.8193	± 2.01908			
	Secondary school	79	4.5190	± 2.07464			
	Other	133	4.8647	± 2.16649			

Table VI: significance difference between total practice level and demographic data:

There was no statistical significant difference between the teachers regarding practices about first aid of epistaxis, in relation to their socio demographic characters

Demographic data		N	Practices		F or T	ANOVA or T-test	
			Mean	± SD		Test value	P-value
Age	Under 25	46	3.7391	± 1.76930	F	0.182	0.908
	26 – 35	96	3.6146	± 1.46086			
	36 – 45	267	3.6030	± 1.58934			
	Above 46	121	3.7025	± 1.54189			
Gender	Female	264	3.6667	± 1.53374	T	0.395	0.693

	Male	266	3.6128 ± 1.60555			
Nationality	Saudi	219	3.5479 ± 1.75343	T	-	0.259
	Non-Saudi	311	3.7042 ± 1.42420			
Teaching level	Primary school	235	3.5915 ± 1.57543	F	0.525	0.665
	Intermediate school	83	3.7349 ± 1.66077			
	Secondary school	79	3.7975 ± 1.60432			
	Other	133	3.5714 ± 1.48368			

Discussion:

Epistaxis is one of the conjoint presenting symptoms to ENT physicians as well as to family and emergency physicians (Alshehri et al., 2018). First-aid is commonly defined as the “immediate assistance given at the time of injury or sudden illness by a stander or other layperson before the arrival of expert medical aid” (Taklualet al., 2020; Alhajjaj et al., 2021). School children are a very sensitive group that often monitored and managed through school teachers. Therefore, knowledge and practices of school teachers' regarding first aid of epistaxis is a very important issue to prevent epistaxis complications.

This study revealed that nearly half of the teachers' aged from 36- 45 years, receive information about epistaxis first aid from first aid courses, internet and minster of health brochures. Two thirds of them have poor level knowledge and more than two thirds of them ranged between weak and average practices. There was a significant difference between teachers' knowledge in relation to age.

In this respect, a study done by Taklualet al., 2020 to assess the determinant factors of first aid knowledge and basic practice among elementary school teachers in Debre Tabor, Ethiopia. The study revealed that School teachers have low knowledge of first aid. Educational status, service year, previous first aid training and information on first aid were the predictors of first aid knowledge. They recommended that Introducing essential first aid training in the curriculum during teachers’ training shall be beneficial.

In Jedda, Saudi Arabia, study was done to assess the level of awareness regarding primary home management of epistaxis among highand middleschool students and their teachers. The study results showed that awareness of firstaid management of epistaxis was fair (Alshehri et al., 2019). Moreover, study was conducted in Basra Governorate (on a group of schools in Basra Governorate) found that there were a lack of awareness in dealing correctly with different cases of epistaxis (ALI et al., 2021).

Assessing kindergarten teachers showed that teachers had poor knowledge, poor practice and negative attitude towards first aid in the studied area. So, all concerned bodies should collaborate to create awareness about first aid, its importance and application (Anmut et al., 2019).

study aims to explore the primary school teachers' knowledge toward first aid at primary school was done by Faris et al., 2018 and conclude that about half of primary school teachers' did have low level of knowledge concerning first aid, most of the primary school teachers not participant in any training program about first aid, and difference in gender has effect on their knowledge.

On the other hand, a study done by Suliman et al., 2020 showed that the overall total knowledge score was good among Saudi Arabian population. Being exposed to previous nasal bleeding affected the total score of attitude and practice of exposed participants but did not affect the knowledge. We recommend that the knowledge of how to deal with epistaxis is important, and therefore raising public awareness is needed.

Conclusion:

The findings of this study showed that there was weak knowledge, practice of first aid in the studied area. A statistical significant differences was found between teachers level of knowledge in relation to age and teaching district

References:

1. Alhajjaj, F., Alseleem, H. Y., Alghebaiwi, R., Alqutaymi, A., Almatrouk, G., & Alshamikh, W. Knowledge, misconceptions, and practice about first aid measures among mothers in Al Qassim.
2. ALI, W. D. A., SHIHAB, L. A., & ABDULRAZAQ, M. A. ASSESSMENT OF TEACHERS' KNOWLEDGE ABOUT FIRST AID SOME BASRAH CITY SCHOOLS. *Education*, 15(75), 26-4.
3. Al-Kubaisy, Y., Suwayyid, W. K., Al-Shakhs, A. A., Addar, L. M., Alshammeri, M. D., Ba, M. Y., & Mhraz, A. M. A. (2019). Teachers' awareness regarding first-aid management and control of epistaxis inside schools in Riyadh region, Saudi Arabia. *International Journal of Medicine in Developing Countries*, 3(12), 1135-1139.
4. Alshehri, F., Alluwaim, F., & Alyahya, K. (2018). Teachers' awareness regarding emergency management of epistaxis inside the school; alahssa, Saudi Arabia. *Open Journal of Preventive Medicine*, 8(2), 44-55.

5. Alshehri, K. A., Alqulayti, W. M., Saggaf, O. M., Enani, M. Z., Bahatheq, A. K., Abdalwassie, L. K., & Marzouki, H. Z. (2019). Awareness of first-aid management of epistaxis among school students in Jeddah, Saudi Arabia. *Saudi Surgical Journal*, 7(3), 108.
6. Ameya, G., Biresaw, G., Mohammed, H., Chebud, A., Meskele, M., Hussein, M., & Endris, M. (2021). Epistaxis and Its Associated Factors Among Precollege Students in Southern Ethiopia. *Journal of blood medicine*, 12, 1.
7. Anmut, W., Mesele, M., & Tekalign, T. (2019). Knowledge, attitude and practice towards first aid among kindergarten teachers of Jimma town, south west, Ethiopia, 2017. *J Emerg Med Prim Care RD-EMP*, 2019, 10008.
8. Elsoud, M. S. A., Ahmed, H. A. H., Ahmed, A. M. A. W., & Farg, H. K. (2018). Assessment knowledge of primary schools teachers about first aid at Ismailia City.
9. Faris, S. H., Alzeyadi, S., & Athbi, H. A. (2019). Assessment of Knowledge Regarding First Aid among Primary School Teachers. *Indian Journal of Forensic Medicine & Toxicology*, 13(2).
10. Lie, M., & Ali, S. (2019). Impact of Health Education on Epistaxis First Aid Knowledge among Primary School Teacher in Penjarangan District. *MITRA: Jurnal Pemberdayaan Masyarakat*, 3(2), 120-129.
11. Mohamad, S., Mohamad, A., & Ahmed, S. (2018). First aid program for nursery school teachers. *IOSR Journal of Nursing and Health Science*, 4, 01-09.
12. Mohammad, S. M., Alsharidah, A. A., Alshehri, M. M., Al Asim, F. S., Alotaibi, A. S., Alghamdi, E. A., ... & Alramih, A. A. Knowledge and practice of epistaxis first aid among adult population in Riyadh, Saudi Arabia.
13. Suliman, O. A. A., Fallatah, E. A., Al-Mosa, W. H., Karsou, L. S., & Al-Junaidy, Z. Z. (2020). Assessment of knowledge, attitude and practice of epistaxis among the population in different regions in Saudi Arabia. *Medical Science*, 24(106), 4798-4807.
14. Taklual, W., Mekie, M., & Yenew, C. (2020). Determinants of first aid knowledge and basic practice among elementary school teachers in Debre Tabor Town, Northcentral Ethiopia. *The Open Public Health Journal*, 13(1).
15. Tunkel, D. E., Anne, S., Payne, S. C., Ishman, S. L., Rosenfeld, R. M., Abramson, P. J., ... & Monjur, T. M. (2020). Clinical practice guideline: nosebleed (epistaxis). *Otolaryngology–Head and Neck Surgery*, 162(1_suppl), S1-S38.

16. Tunkel, D. E., Anne, S., Payne, S. C., Ishman, S. L., Rosenfeld, R. M., Abramson, P. J., ... & Monjur, T. M. (2020). Clinical practice guideline: nosebleed (epistaxis) executive summary. *Otolaryngology–Head and Neck Surgery*, 162(1), 8-25.