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REVIEW ARTICLE

Knowledge and awareness of health-related students about epistaxis and its management in Saudi Arabia: a systematic review

Salah Bakry[1*], Mohannad Hemdi[2], Muhammad Irfanullah Siddiqui[3]

ABSTRACT

Epistaxis is hemorrhagic bleeding from the nose or nasal cavity. It is one of the most common crises seen in ear, nose, and throat clinics and accident and emergency departments worldwide. This systematic review aims to collect the current evidence regarding the Saudi health-related students' level of knowledge and awareness toward epistaxis and its management obtained from cross-sectional investigations. Data were obtained through searches in PubMed and Google Scholar from 2017 until December 2021. Altogether, five articles were reviewed, scrutinized, and critically appraised based on the eligibility criteria, and relevant articles were selected. The sample size was hugely variable among these studies, ranging between 57 and 1,872 participants. As per our findings, most of the included studies showed a high level of knowledge and positive attitude. Focused nationwide programs should be planned to increase the level of knowledge among the Saudi health-related population.

Keywords: Cross-sectional, epistaxis, first aid, knowledge, attitude, health population, Saudi Arabia.

Introduction

Epistaxis is a type of bleeding that occurs within the nose or nasal cavity. It is one of the most prevalent otorhinolaryngology emergencies seen in hospital emergency rooms worldwide [1,2]. According to reports, 10%- 60% of people have experienced at least 1 severe episode in their lifetime [1,3]. It is mainly observed when the blood drains from the nostrils [4,5]. There are two main types: the anterior (the most widespread) and the posterior (less common, more likely to require medical attention). Blood can even rise up the nasolacrimal duct and come out of the eye in more severe cases. Both fresh and clotted blood can enter the stomach and cause nausea and vomiting [4,6]. Nearly 60% of the people have experienced a nosebleed at some point in their lives, while approximately 10% of nosebleeds are severe [4,7]. Epistaxis is usually benign and self-limiting, and it can be treated at home by administering proper first aid. However, awareness and proper understanding are needed to do so [8]. On the other hand, severe epistaxis episodes may necessitate active intervention and even hospitalization. The vast majority of these people can manage their symptoms with simple first-aid measures [1,9]. However, several polls have found that patients do not understand the essential first-aid management of epistaxis and that their clinicians do not adequately communicate the principles [1,10].

Many studies published in Saudi Arabia have examined the levels of knowledge and awareness among schools and university students (Table 1). However, students' levels of knowledge and awareness vary, making current evidence ambiguous and difficult to comprehend. As a result, the present systematic review seeks to compile the most recent evidence from cross-sectional studies of health-related students' awareness and knowledge of epistaxis and its management in Saudi Arabia.

Correspondence to: Salah Bakry
*Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia.
Email: salah.m.bakry@gmail.com
Full list of author information is available at the end of the article.
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Table 1. Detailed results of the included studies' quality according to the modified Newcastle-Ottawa Scale (mNOS) for cross-sectional studies.

Authors	Year	Selection				Comparability	Outcome		Total score	Quality
		Representativenessof the sample	Sample size	Nonrespondents	Ascertainment of the exposure	The subjects in different outcome groups are comparable	Assessment of outcome	Statistical analysis		
(Albouq et al., 2017) [1]	2017	+	+		+	+	+		5	Satisfactory
(Alyahya et al., 2019) [12]	2019	+	+		+	+	+		5	Satisfactory
(Alzaidi et al., 2019) [13]	2019	+			+	+	+	+	5	Satisfactory
(Halawani et al., 2019) [14]	2019	+	+	+	+	+	+	+	7	Good
(Abu-Zaid et al., 2020) [15]	2020	+	+	+	+	+	+	+	7	Good

Methodology

Outcomes and inclusion and exclusion criteria

The primary outcome of the present study was to assess Saudi health-related students' levels of knowledge and awareness of epistaxis and its management. Accordingly, the inclusion criteria were formulated as follows: 1) cross-sectional studies; 2) studies that examined the awareness, knowledge, attitude, and practice toward epistaxis and its management; 3) studies conducted in Saudi Arabia; 4) studies that included undergraduate and intern students in health-related departments (e.g., medicine, dentistry, pharmacy, nursing, and applied medical sciences) aged 18 years old or older; and 5) human and English-language studies. Conversely, we excluded studies if they were editorial letters, reviews, theses, abstract-only articles, commentaries, or any other study design. The second and third criteria are not applicable, as these kinds of studies were automatically excluded under the inclusion criteria.

Search strategy

We started our search strategy in PubMed using the following search terms: (((((Epistaxis) OR (Kiesselbach's plexus)) OR (Nosebleeds)) AND ((((Awareness) OR (knowledge)) OR (practice)) OR (attitude))) AND (students)) AND ((Saudi Arabia) OR (KSA)). This was then adapted to suit the search strategy of the Google Scholar database to examine the references lists of the identified articles and papers quoting those identified articles. The search results were transferred into an EndNote library to find and exclude duplicates and moved into an Excel sheet for the next step.

Data extraction and quality assessment

Identifying relevant papers from which to extract important material for building evidence about our intended aims and results was a critical stage in this study. The search strategy's results were consolidated in a single document. After removing duplicates, the authors created a sheet to screen the imported citations, first by titles and abstracts, and then by full texts. Following the decision to include a definitive list of relevant studies, the next step was to pilot an extraction sheet used for all the included research to retrieve the relevant data. The modified Newcastle-Ottawa Scale (mNOS) for cross-sectional studies [11] was used to assess the risk of bias among the cross-sectional studies included and determine their quality. This tool was developed using three primary domains: assessment and compatibility, method quality, and outcomes.

Results

Figure 1 shows a summary of the search screening process and search results that passed the screening steps via PRISMA 2020. A total of 12 relevant citations were found in the screened databases (PubMed = 3 and Google Scholar = 9), all of which were exported into an EndNote library sheet to exclude duplicates. Five articles were retained in the final sample. In a separate section of this article, these investigations' baseline characteristics

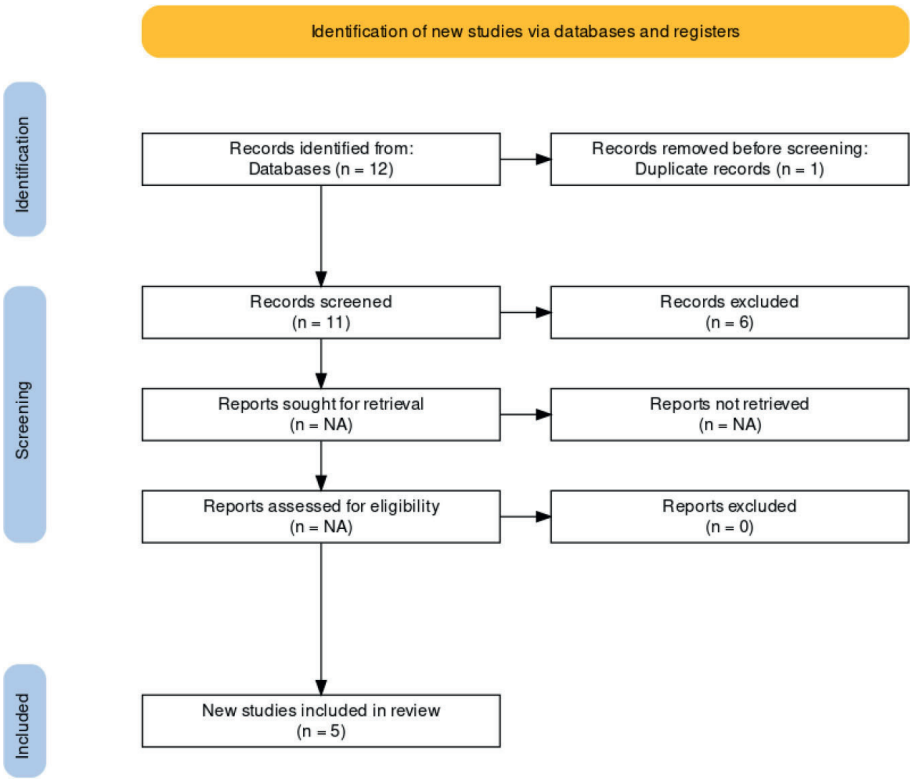

Figure 1. *PRISMA flowchart of the study selection and search strategy.*

and conclusions are carefully reviewed. According to the results of the mNOS assessment, three studies received a satisfactory rating, while two received a good rating. Table 1 shows the results of evaluating the risk of bias.

All five included studies were cross-sectional studies conducted in Saudi Arabia. All the studies were published between 2017 and 2021. The sample sizes varied hugely, ranging between 57 and 1,000 (1,872 individuals altogether). Among the included studies, only one included female populations. Table 2 presents the authors' conclusions and detailed characteristics of these studies.

Discussion

The current review aimed to raise Saudi health-related students' knowledge and awareness of epistaxis and its management. In this section, we discuss the included articles.

In Al-Madinah, a cross-sectional study conducted in 2016 [1] aimed to determine the levels of knowledge and attitude of the first-aid management of epistaxis among health-related students. Medical students comprised the largest proportion of respondents (66.2%) compared with other health specialties (33.8%). The majority of respondents (74.6%) thought that epistaxis is an emergency case; in addition, the majority (87.1%) responded that a bleeding disorder is the most typical cause. In terms of when to seek medical care during an attack, the majority stated after head trauma. At the same time, most expected first-aid measures to be known by respondents when patients were given anti-shock treatment.

The first-line management described in Albouq et al.'s [1] study was far from that in other studies [16-19]. Concerning students' attitude toward the first-aid management of epistaxis, 80.6% of the respondents stated the correct position, which is holding the head forward rather than backward, and 73.6% gave the correct duration of pinching the nose, as supported by a previous study [16].

Another study among medical students conducted in 2019 in Saudi Arabia [12] showed that 64% of the respondents consider epistaxis to be an emergency case, while 39.7% stated that fingernail trauma is the most typical cause. In terms of seeking medical care during an attack, the majority (75.3%) believed that a nosebleed that cannot be stopped after 10–20 minutes of direct nasal compression necessitates emergency care. About students' attitude toward the first-aid management of epistaxis, 71% of the respondents revealed the correct position, as described in a previous study [1].

The attitude toward the correct position for nasal compression, as reported by Alyahya et al. [12], was supported by Mugawe [16], but disagreed with by Strachan [20]. Furthermore, an additional investigation in 2019 [13] showed that 76.1% of the respondents stated that epistaxis is an emergency case, while 31.2% stated that a bleeding disorder is the most typical cause. The majority reported that first-aid measures are the same as in [1], while students' knowledge of seeking medical care was similar to that in [12]. However, students' attitude toward the first-aid management of epistaxis for the correct position was supported by Albouq et al. [1] and Alyahya et al. [12].

Table 2. Baseline characteristics of the included studies as well as the authors' conclusions.

Author(s)	Year	City	Sample size	Target students	Mean (SD)	Male (n. %)	Female (n. %)	Main outcome(s)
(Albouq et al., 2017) [1]	2017	Al-Madinah	201	Medical specialties	-	36.3	68.7	Students in health-related specialties have sufficient knowledge of standard epistaxis first-aid measures and a positive attitude toward providing first aid to patients with epistaxis.
(Alyahya et al., 2019) [12]	2019	Saudi Arabia	300	Medical students	-	24.3	75.7	Medical students in Saudi Arabia have sufficient knowledge about epistaxis and first-aid managements
(Alzaidi et al., 2019) [13]	2019	Saudi Arabia	314	Medical specialties	21.71 ± 1.56	65.3	34.7	Most students had a good level of knowledge and attitude toward epistaxis first-aid management. Students in health-related specialties are well versed in the standard first-aid measures for epistaxis.
(Halawani et al., 2019) [14]	2019	Riyadh	1000	Female university students of 15-participated colleges, 36.1% of the participants were enrolled in health colleges. [Medicine (14.65), pharmacy (5.8%), dentistry (2.8%), health rehabilitation (6.1%), nursing (4.9%), and physiotherapy (1.9%)].	mean age of 21	-	-	Prior first-aid training and enrollment in a health college were associated with a higher level of knowledge.
(Abu-Zaid et al., 2020) [15]	2020	Jeddah	57	Medical interns	25 ± 1.6	78.9	21.1	The interns surveyed had insufficient knowledge of epistaxis first aid.

An investigation in 2019 among Saudi female university students' understanding of first-aid skills, including the first-aid management of epistaxis, showed that 84.6% correctly answered the q*uestions* that aimed to assess knowledge level, while 15.4% incorrectly answered these q*uestions*. Conversely, this disagreed with an investigation among students at a medical college in southern India which found that 13.8% had a good knowledge of the first-aid management of epistaxis, 65.8% had a moderate level of knowledge, and 20.4% had a poor level [21]. Another study of intern students in Jeddah in 2020 revealed that 71.9% of the medical interns correctly identified fingernail trauma as the most common cause of epistaxis, concurring with Alyahya et al. [12]. In addition, 71.9% of the medical interns correctly answered that they should "sit with their heads tilted forward" and only 52.6% responded that they should "pinch the lower cartilage of the nose" as the correct management position for epistaxis in nosebleed patients. In addition, 73.7% of the medical interns surveyed would seek emergency care for "direct epistaxis - persistent nosebleed for 10-20 minutes or more."

The previously discussed studies focused on health-related students. Undoubtedly, these results and knowledge differ in patients, teachers, school students, and general populations. According to a study conducted among teachers in the Riyadh region, one-third had a good knowledge of epistaxis management, particularly those with previous knowledge of first aid [22]. Another study conducted among the general population of Tabuk, Saudi Arabia, found that a high percentage of participants suffer from nasal bleeding in Saudi Arabia. Furthermore, there is a general awareness of the causes of epistaxis and how to deal with epistaxis cases [23]. Furthermore, another study of the general population found that the overall knowledge among Saudi Arabians is high [24]. Additionally, Alshehri [25] reported that school students have a satisfactory knowledge of epistaxis management.

Strengths and limitations

To our knowledge, the current systematic review is the first that compares health-related students' levels of knowledge and awareness of epistaxis and its management in Saudi Arabia. However, our findings may be limited by the heterogeneity of the included studies in terms of reporting outcomes and methodology unification. Furthermore, the limited sample size is another limitation shared by many of the included studies. Therefore, although the results of the majority of the included studies appear to be conclusive, large-scale research nationwide is required with proper sampling and a low risk of bias.

Conclusion

According to the included studies, knowledge and awareness about epistaxis and its management in Saudi Arabia is relatively high among the included health-related populations. Although some studies reported positive results, educational campaigns for all populations are still encouraged to improve outcomes and raise levels of knowledge and awareness.

List of Abbreviations

KSA Kingdom of Saudi Arabia
mNOS The modified Newcastle-Ottawa Scale

Conflict of interests

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent to participate

Not applicable.

Ethical approval

Not applicable.

Author details

Salah Bakry[1], Mohannad Hemdi[2], Muhammad Irfanullah Siddiqui[3]

1. Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
2. Assistant Professor, Department of Surgery, Faculty of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
3. Department of Community Medicine and Pilgrims, Umm Al-Qura University, Makkah, Saudi Arabia

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