Original Article

Knowledge and Awareness of Aetiological and Risk Factors as Determinants of Health-Seeking Pattern of Parents of Children with Epistaxis in a Tertiary Health Institution: A 7-Year Prospective Study

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Abstract

Aim: This prospective study aimed to assess the knowledge and awareness of aetiological and risk factors as determinants of the health-seeking pattern of parents of children with epistaxis in a tertiary health institution. **Materials and Methods:** This was a 7-year cross-sectional prospective study where copies of the questionnaire were distributed to consenting parents whose children presented to our institution with epistaxis between January 2015 and December 2021. A total of 570 parents were enrolled in the study in the research time period. **Results:** Out of 570 patients, majority (39%) were aged between 11 and 15 years, followed by 35% aged between 6 and 10 years, 17% aged between 1 and 5 years and 11% aged between 16 and 18 years. Three hundred and eighty (66.67%) were male and 190 (33.33%) were female. Two hundred and ninety-five (51.75%) patients had primary education, followed by 189 (33.16%) patients with secondary education and 86 (15.09%) patients with preschool education. Three hundred and seventy-three (65.44%) patients had anterior bleeding and 107 (18.77%) patients had posterior bleeding while 90 (15.79%) patients had both anterior and posterior bleeding. The majority of the parents, 399 (70%), were aware about the epistaxis while 171 (30%) parents were unaware about the epistaxis. **Conclusion:** A significant number of parents are unaware of the epistaxis and also unaware of the various aetiological and risk factors of the epistaxis and these issues need a more nuanced analysis in light of Africa's rich cultural diversity.

Keywords: Epistaxis, health-seeking attitude, parents' awareness

Introduction

Epistaxis, usually called as nosebleed, is a common ear, nose and throat (ENT) ailment seen by emergency clinicians. Epistaxis is a frequent sign of a variety of conditions and it may manifest as moderate repeated bleeding or as a serious rhinological emergency, posing a challenge for even the most expert otolaryngologist.[1] Epistaxis has a mean prevalence of 21.7% worldwide,[2] and it is considered to have a lifetime frequency of 60% in the general public, with only 6% of cases requiring medical intervention.[3] More than 54% of episodes of epistaxis are reported in patients with age below 18 years.[2] Epistaxis has a bimodal distribution, with the majority of cases occurring before the age of 10 and then a second peak occurring between the ages of 45 and 65.[4,5] The majority of nosebleeds are harmless, self-limiting and sudden; however, some might be recurring in nature. Epistaxis is not life-threatening yet troubling for parents of young children.[6]

Epistaxis is most typically divided into two categories: anterior bleeds and posterior bleeds with anterior bleeds being more prevalent amongst young patients and, anatomically, this partition is located near the piriform opening. In the anterior nasal septum, which is fed by Kiesselbach's plexus, a region

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known as the Little's area, more than 90% of episodes of epistaxis are observed.[7,8] Kiesselbach's plexus is positioned on the anterior cartilaginous septum of the nose, and it is an anastomotic complex of veins which gets blood from both the internal and external carotid arteries. The dryness of the nasal mucosa, caused by heating systems during winters, increases the risk of irritation and bleeding in all age groups, rendering anterior epistaxis more likely.[8,9]

Posterior bleeds account for around 10% of all episodes of epistaxis, and the most prevalent source of posterior bleeds is an artery rupture. The risk of airway obstruction, aspiration and difficulties in managing the haemorrhage is increased in case of posterior bleeds.[2] Epistaxis may be further subdivided into primary and secondary forms. Eighty-five per cent of episodes are caused by primary causes, which are idiopathic, spontaneous bleeding that occurs without any obvious trigger. If there is a clear and definitive explanation for the bleeding, it is classified as secondary bleeding such as due to trauma or use of anticoagulant.[10]

Epistaxis may have a variety of causes, including local, systemic, atmospheric, pharmaceutical or idiopathic in nature. Humidity and pollutants in the air must be taken into account as well.[11,12] There are several medications that may induce epistaxis, including anticoagulants, and non-steroidal anti-inflammatory drugs (NSAIDs). An 'idiopathic' diagnosis is given to patients in the vast majority of cases ranging from 80% to 90%.[13]

Self-induced trauma from nasal picking can result in anterior septal mucosal ulceration and bleeding. This is frequently seen in young children where nasal foreign bodies cause direct local trauma to the nasal mucosa. Mucosal irritation often results from prolonged exposure to low humidity, thus epistaxis is more prevalent in dry climates and during cold weather as a result of dehumidification of the nasal mucosa by home heating systems.[11,12] Direct application of topical nasal drugs such as antihistamines and corticosteroids, to the nasal mucosal and septum, may cause mild anterior epistaxis. Medications such as NSAIDs are also frequently implicated.[11,12]

Bacterial, viral and allergic rhinosinusitis causes mucosal inflammation and may result in epistaxis. Bleeding is usually minor and frequently manifests as blood-streaked nasal discharge in these cases.

Granulomatosis diseases such as sarcoidosis, Wegener granulomatosis, tuberculosis, syphilis and rhinoscleroma often lead to crusting and friable mucosa and may be a cause of recurrent epistaxis.

Benign and malignant tumours can manifest as epistaxis with preceding signs and symptoms of nasal obstruction and rhinosinusitis, often unilateral. Congenital coagulopathies should be suspected in individuals with bleeding from easy bruises or prolonged bleeding from minor trauma/surgery, and positive family history of coagulopathies. Examples include haemophilia and von Willebrand disease.[11-13]

As epistaxis is more common in children, the knowledge and awareness of parents about epistaxis, and aetiological and risk factors associated with it, have vital importance in its prompt management. The knowledge and awareness of parents about epistaxis determine the measures that parents adopt to manage its sudden episodes in children. The current prospective study aimed to assess the knowledge and awareness of aetiological and risk factors as determinants of health-seeking pattern of parents of children with epistaxis in a tertiary health institution.

Materials and Methods

This was a 7-year cross-sectional prospective study where copies of questionnaire were distributed to consenting parents whose children presented to our institution (Federal Teaching Hospital, Ido-Ekiti) with epistaxis between January 2015 and December 2021. A total of 570 parents were enrolled in the study in the research time period.

These patients were managed in ENT clinic, accident and emergency department, paediatric emergency unit and then hospital wards. In most cases, anterior bleeding is clinically obvious in the patients, whereas posterior bleeding may be asymptomatic or may present insidiously as nausea, haematemesis, anaemia, haemoptysis or melaena. Endoscopy assists in locating the site or point of the epistaxis, especially in nonsevere cases, and after the patient have been stabilised. The landmark is the maxillary sinus ostium.

The haemodynamic status, type and severity of the epistaxis were initially assed in each patient. Those who had excessive blood loss and/or were in a state of shock or coma were stabilised by controlling the epistaxis in all of them. Subsequently, all the consented and stable patients underwent a detailed history (given by patients/and parents) taking with thorough general and otorhinolaryngological, head-and-neck examination. Necessary relevant investigations were requested which included haematological and radiological investigations. In this study, the diagnosis was based on clinical findings and investigations. All patients were managed by observation and conservative and surgical intervention as indicated.

There was no pre-existing validated questionnaire available, hence a new invalidated questionnaire was designed by the corresponding author following review of literature and inputs from some colleagues. Copies of questionnaire were distributed to consenting and parents and where necessary were guided for interpretation of the questions. It was ensured that no one completed the questionnaire more than once. The completed questionnaire was collected immediately for proper documentation. Ethical clearance for the study was sought for and obtained from the Health Research Ethics Committee of Federal Teaching Hospital, Ido-Ekiti. Consents from the subjects were obtained. Those that declined consent were excluded from the study and not enrolled. The data entry and analysis were performed using the Statistical Package for the

Social Sciences software version 20 (SPSS Inc., Chicago, Illinois, USA) and the results were presented as percentages and tables.

Results

A total of 570 parents were enrolled in the study in a 7-year time period. Majority of the children (39%) were aged between 11 and 15 years, followed by 35% aged between 6 and 10 years, 17% aged between 1 and 5 years and 11% aged between 16 and 18 years, as shown in Figure 1.

Out of 570 patients, 380 (66.67%) were male and 190 (33.33%) were female. Two hundred and ninety-five (51.75%) patients had primary education, followed by 189 (33.16%) patients with secondary education and 86 (15.09%) patients with preschool education. Out of 570 patients, 361 (63.33%) belonged to rural areas while 209 (36.67%) belonged to urban areas. One hundred and sixty-two (28.42%) parents of patients were farmers, 140 (24.56%) were teachers, 135 (23.16%) were businessmen, 81 (14.21%) and 52 (9.12%) parents were health workers. The sociodemographic characteristics of patients are summarised in Table 1.

Out of 570 parents, majority of the parents, 129 (22.63%), were aged between 66 and 75 years, followed by 123 (21.58%) patients aged between 76 and 85 years, 117 (20.53%) parents aged between 46 and 55 years, 96 (16.84%) parents aged between 56 and 65 years, 75 (13.16%) parents aged between 36 and 45 years and 30 (5.26%) parents aged between 86 and 95 years. Majority of the parents, 306 (56.68%), were female and 264 (46.32%) parents were male. Majority of the parents,

Table 1: Sociodemographic features of patients with epistaxis

Sociodemographic features	Frequency, *n* (%)
Sex	
Male	380 (66.67)
Female	190 (33.33)
Education level	
Preschool	86 (15.09)
Primary	295 (51.75)
Secondary	189 (33.16)
Residential	
Rural	361 (63.33)
Urban	209 (36.67)
Occupation of parents	
Business	135 (23.16)
Teaching	140 (24.56)
Industrial worker	81 (14.21)
Farming	162 (28.42)
Health worker	52 (9.12)

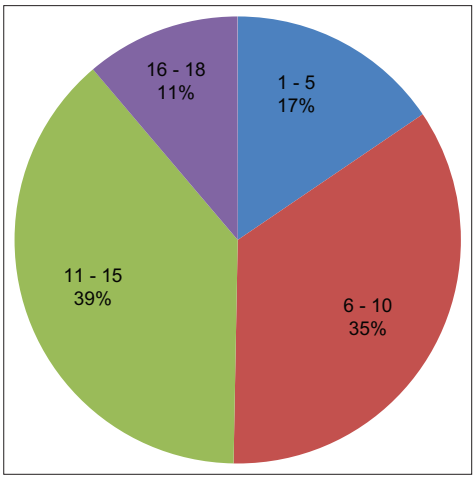


Figure 1: Age group distribution of the patients with epistaxis

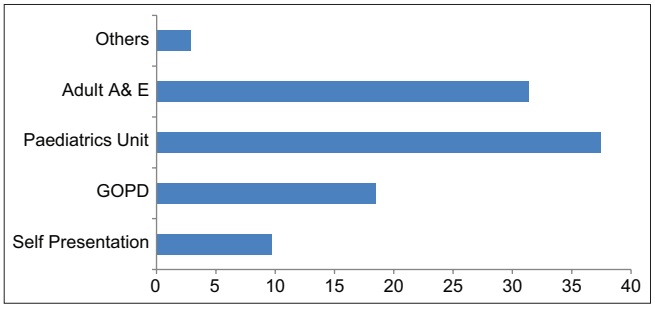


Figure 2: Sources of patients' referral with epistaxis

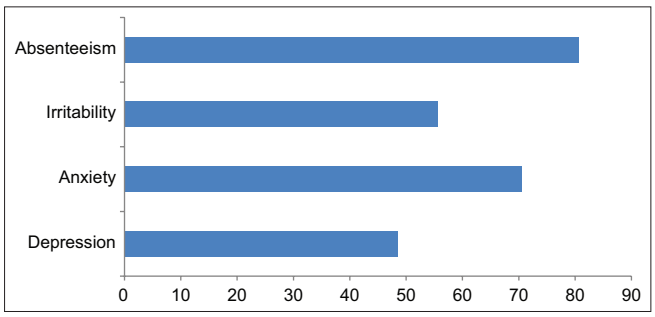


Figure 3: Quality of life amongst patients with epistaxis

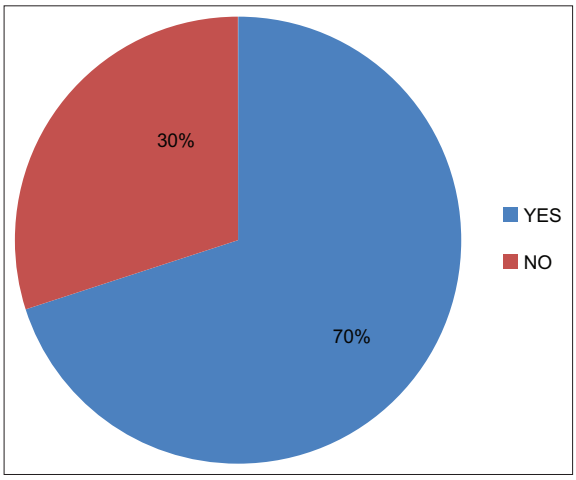


Figure 4: Awareness of epistaxis by parents

294 (51.58%), were married, followed by 198 (34.74%) widowed and 78 (13.68%) separated/divorced. Majority of the parents were Christians (396, 69.47%) and belonged to Yoruba tribe (501, 87.89%) while majority of the patients, 384 (67.37%), were unemployed, followed by 176 (30.88%) employed and 10 (1.75%) retired. These sociodemographic characteristics are summarised in Table 2.

Out of 570 patients, 373 (65.44%) patients had anterior bleeding and 107 (18.77%) patients had posterior bleeding while 90 (15.79%) patients had both anterior and posterior bleeding. Out of these 570 patients, 451 (79.12%) patients had only single episode of epistaxis and 119 (30.88%) patients had multiple episodes of epistaxis. In 391 (68.60%) patients, the duration of epistaxis was acute (<3/12), while in 179 (31.40%) patients, the duration of epistaxis was chronic (>3/12). The laterality of the epistaxis was observed on right in 210 (36.84%) patients, on left in 170 (29.82%) patients and bilateral in 190 (33.34%) patients. The characteristics of epistaxis are summarised in Table 3.

Table 2: Sociodemographic characteristics of the parents

Variable	Frequency, *n* (%)
Age (years)	
36-45	75 (13.16)
46-55	117 (20.53)
56-65	96 (16.84)
66-75	129 (22.63)
76-85	123 (21.58)
86-95	30 (5.26)
Gender	
Male	264 (46.32)
Female	306 (56.68)
Marital status	
Married	294 (51.58)
Separated/divorced	78 (13.68)
Widowed	198 (34.74)
Religion	
Christian	396 (69.47)
Muslim	116 (20.35)
Traditionalist	58 (10.18)
Tribe	
Yoruba	501 (87.89)
Others	69 (12.11)
Employment status	
Employed	176 (30.88)
Unemployed	384 (67.37)
Retired	10 (1.75)

Table 3: Characteristics of epistaxis amongst the patients

Characteristics	Frequency, *n* (%)
Area of bleeding	
Anterior	373 (65.44)
Posterior	107 (18.77)
Both	90 (15.79)
Recurrence	
Single episode	451 (79.12)
Multiple episodes (recurrent)	119 (30.88)
Duration	
Acute (<3/12)	391 (68.60)
Chronic (>3/12)	179 (31.40)
Laterality	
Right	210 (36.84)
Left	170 (29.82)
Bilateral	190 (33.34)

Out of 570 cases of epistaxis, 208 (36.49%) cases had an aetiology of trauma, 96 (16.84%) cases were due to foreign body, 82 (14.39%) cases were due to allergic rhinitis, 124 (21.75%) cases were due to infective rhinitis, 22 (3.86%) cases had an aetiology of septicaemia, 11 (1.93%) cases has an aetiology of sickle cell anaemia, while 18 (3.16%) cases had an idiopathic aetiology. Aetiology and risk factors are summarised in Table 4.

The major source of referral was paediatric unit, 210 (37.5%) cases, followed by adult accident and emergency in 176 (31.4%) cases, GOPD in 104 (18.5%) cases and self-presentation in 54 (9.7%) cases, as shown in Figure 2.

Episodes of epistaxis resulted in absenteeism in 263 (80.7%) cases, followed by anxiety in 229 (70.5%) cases, irritability in 181 (55.7%) cases and depression in 158 (48.5%) cases (patients), as shown in Figure 3.

The majority of the parents, 399 (70%), were aware about the epistaxis while 171 (30%) parents were unaware about the epistaxis, as shown in Figure 4.

When asked about the awareness about the aetiological/risk factors of paediatric epistaxis, out of 570, 550 (96.49%) parents were aware about trauma, 450 (78.95%) parents were aware about foreign body, 172 (30.18%) parents were aware about allergic rhinitis, 380 (66.67%) parents were aware about infective rhinitis, 100 (17.54%) parents were aware about septicaemia, only 10 (1.75%) parents were aware about sickle cell anaemia, 450 (78.94%) parents were aware about hot climate, 460 (80.70%) parents were aware about high climate, 105 (18.42%) parents were aware about liver disease and 507 (88.95%) parents were aware about idiopathic cause as aetiological/risk factor for epistaxis in children, as summarised in Table 5.

When parents were asked about the steps they took to treat the epistaxis in their children, 510 (89.47) responded that they did nothing and waited for spontaneous resolution, 154 (27.02) self medicated their children, 450 (78.95) used local herb extracts, 570 (100) used nose pressure/packing, 410 (71.93) used cold bath, 500 (87.72) parents prayed or sought supernatural healing, 430 (75.44) consulted patent medical store, while 250 (43.86) parents consulted the healthcare facility. These results are summarised in Table 6.

When asked about the treatments patterns, 350 (61.40%) cases of epistaxis presented to ENT clinic/ward, 210 (36.84%) cases presented to paediatric emergency ward, 120 (21.05%) cases

Table 4: Aetiology/risk factors of epistaxis amongst the patients

Aetiology	Frequency, *n* (%)
Trauma	208 (36.49)
Foreign body	96 (16.84)
Allergic rhinitis	82 (14.39)
Infective rhinitis	124 (21.75)
Septicaemia	22 (3.86)
Sickle cell diseases	11 (1.93)
Idiopathic	18 (3.16)
Others	9 (1.58)
Total	570 (100)

Table 5: Parents' awareness of aetiological/risk factors of paediatric epistaxis

Aetiology	Frequency (*n*=570), *n* (%)
Trauma	
Yes	550 (96.49)
No	20 (3.51)
Foreign body	
Yes	450 (78.95)
No	120 (21.05)
Allergic rhinitis	
Yes	172 (30.18)
No	398 (69.82)
Infective rhinitis	
Yes	380 (66.67)
No	190 (33.33)
Septicaemia	
Yes	100 (17.54)
No	470 (82.46)
Sickle cell diseases	
Yes	10 (1.75)
No	560 (98.25)
Hot climate	
Yes	450 (78.94)
No	120 (21.05)
High climate	
Yes	460 (80.70)
No	110 (19.30)
Liver disease	
Yes	105 (18.42)
No	465 (81.58)
Idiopathic	
Yes	507 (88.95)
No	63 (11.05)

**Multiple responses allowed

presented to accident and emergency ward and 79 (13.86%) cases presented to more than one place. In 25 (4.39%) cases only observation technique was adopted for treatment while nasal packing was done in 370 (64.91%) cases. Blood transfusion was done in 57 (10%) cases and other conservative technique was adopted in 58 (10.18%) case. More than one technique was used in 60 (10.53%) cases. In 471 (82.63%) cases, good recovery was observed within few days while prolonged hospital stay was observed in 99 (17.37%) cases. Patients' satisfaction was observed in 510 (89.47%) cases. These outcomes are summarised in Table 7.

When asked about the factors which hindered the respondents from seeking orthodox care, then the cost of healthcare hindered 370 (64.71%) cases, beliefs hindered 107 (18.77%) cases, accessibility to health facility hindered 313 (54.91%) cases, length of time before consultation hindered 232 (40.70%) cases, confidentiality issues hindered 58 (10.18%) cases, while lack of support from relatives hindered 210 (36.84%) cases for seeking orthodox care in case of epistaxis in children, as summarised in Table 8.

The association between perceived factors (determinants) for seeking orthodox care amongst the parents for their children and health-seeking behavioural practices is summarised in Table 9. The cost of healthcare as perceived factor was observed in 471 (82.63%) cases while accessibility of health facility, beliefs, length of time before consultation, knowledge of the disease and confidentiality issues were observed as perceived factors in 230 (40.35%), 181 (31.75%), 320 (56.14%), 110 (19.30%) and 57 (10%) cases, respectively. These outcomes are summarised in Table 9.

Discussion

The failure to provide timely access to biomedical therapy results in millions of children suffering each year from illnesses that are preventable and curable – mostly in low-to-middle-income nations.[14] The cognitive and psychological functioning of children, who overcome early severe illness, has been demonstrated to be impaired and this impairment may last for years, having a profound effect on the children, the home and the society.[15,16] In resource-poor countries, unavailability of early and efficient medical treatment is a major factor to deaths and illnesses. Getting to medical facilities takes longer when people lack sufficient financial resources and the medical system is underfunded.[17] The lack of use of effective treatment patterns might be largely attributed to these two fundamental issues.[18] Poor accessibility of health facility was observed as a perceived factor in 230 (40.35%) of cases in our study and this in some cases resulted in patients presenting late or outright refusal to present for better and definitive treatments.

This lag in accessing medical treatment for children could be due to a variety of different reasons, such as women's poor standing in society, traditions and the understanding of the aetiology of disease.[19-21] According to research, parents who believe that their child's condition is unconnected to biological factors are less likely to seek biomedical treatment or, at the very least, are more likely to postpone seeking treatment. Socio-cultural variables have an important impact in influencing health-seeking behaviour.[18]

The outcome of the current study on a common disease in children also indicates that 30% of the parents are unaware

Table 6: Distribution of parents' health-seeking behaviour to their children's illness (epistaxis)

Variable	Yes, *n* (%)	No, *n* (%)
Has your child ever had nose bleed? (*n*=570)	570 (100)	0
What was done to treat the illness (*n*=570)		
Nothing (spontaneous resolution)	510 (89.47)	60 (10.53)
Self-medicate (drugs)	154 (27.02)	416 (72.98)
Local herbs extracts	450 (78.95)	120 (21.05)
Nose pressure/packing	570 (100)	0
Cold bath	410 (71.93)	160 (28.07)
Pray, seek, supernatural healing	500 (87.72)	70 (12.28)
Patent medicine store	430 (75.44)	140 (24.56)
Consult the doctor in the healthcare facility	250 (43.86)	320 (56.14)

**Multiple responses allowed

Table 7: Treatment pattern amongst the patients with epistaxis

Treatment patterns	Frequency (*n*=570), *n* (%)
Location of treatment	
ENT clinic/ward	350 (61.40)
Paediatric emergency wards	210 (36.84)
Accident and emergency ward	120 (21.05)
More than one place	79 (13.86)
Treatment technique	
Observation alone	25 (4.39)
Nasal packing	370 (64.91)
Other conservative therapy	58 (10.18)
Blood transfusion	57 (10.00)
More than one technique	60 (10.53)
Outcome of treatment	
Good recovery in few days	471 (82.63)
Prolonged hospital stay	99 (17.37)
Patients' satisfaction	
Satisfactory	510 (89.47)
Unsatisfactory	60 (10.53)

ENT: Ear, nose and throat

Table 8: Factors that hindered respondents from seeking orthodox care

Variable	Yes (*n*=570), *n* (%)
Factors that hinders from seeking for orthodox care	
The cost of healthcare	370 (64.71)
Beliefs (traditional/religious)	107 (18.77)
Accessibility of health facility	313 (54.91)
Length of time before consultation	232 (40.70)
Confidentiality issues	58 (10.18)
Lack of support from relations	210 (36.84)

**Multiple responses allowed

about the epistaxis. Majority of the parents, ranging from 60% to 96%, were aware about the risk factors including trauma, foreign body, infective rhinitis, hot climate, high climate and also about the idiopathic cause of epistaxis while only 1%–30% of parents were aware about other risk factors including sickle cell anaemia, septicaemia, allergic rhinitis and liver disease. The outcomes revealed that the majority of the parents did nothing in case of epistaxis and less than half of the total parents, enrolled in the study, consulted a doctor in case of epistaxis in their children. The use of local herbs and self-medication without knowing the cause of epistaxis was observed to be practiced by the parents of children in rural places. However, we also observed that some of the parents in the urban population seek hospital attention more urgently than those in rural settings. On the other hand, majority of the parents consulted ENT clinic/ward where the nasal packing was observed as a common technique adopted to treat the epistaxis and the blood transfusion was also observed in 10% of cases. The good recovery rate within few days was observed to be more than 80% after the treatment and around 89% of patients satisfied with the treatment provided in healthcare facilities.

The major factor that hindered the parents from seeking healthcare was the cost at the healthcare facility, followed by the accessibility to the healthcare facilities. The waiting time before the consultation was the third major factor that hindered the parents from seeking healthcare for their children in case of epistaxis. All of these major factors that hindered patients from seeking health are directly related to the healthcare system of the country.

The outcomes of the current study indicated that more than 2/3rd patients were male and similar is reported that epistaxis seems to affect men more often than women.[22,23] A possible reason for the disparity is that men are more likely to engage in outdoor activities such as sports and assault.[24] Furthermore, more than 70% of the children represented to tertiary healthcare institution were aged between 6 and 15 years and majority of these were from rural areas where the healthcare facilities are comparatively lesser than urban areas. The outcomes of the study also showed that anterior bleeds were more common as compared to the posterior bleeds and this may be because the anterior area is fed by Kiesselbach's plexus,[7,8] and majority of the cases were with acute and single episodes of epistaxis.

Previous studies in Africa looked at how parents perceive the causes of various ailments and how they go about getting healthcare for their children, but socio-cultural influences on health-seeking attitudes have been studied in relation to a variety of health disorders including malaria, malnutrition and seizures,[25-31] but to best of our knowledge, no study assessed the knowledge and awareness of aetiological and risk factors as determinants of health-seeking pattern of parents of children with epistaxis.

Conclusion

A significant number of parents are unaware of the epistaxis and also unaware about the various aetiological and risk

Table 9: Association between perceived factors (determinants) for seeking orthodox care amongst the parents for their children and health-seeking behavioural practices

Perceived factors	*n* (%) (*n*=570)
The cost of healthcare	
Yes	471 (82.63)
No	99 (17.37)
Accessibility to health facility	
Yes	230 (40.35)
No	340 (59.65)
Belief (traditional/religious)	
Yes	181 (31.75)
No	389 (68.25)
Length of time before consultation	
Yes	320 (56.14)
No	250 (43.86)
Knowledge of the disease	
Yes	110 (19.30)
No	460 (80.70)
Confidentiality issues	
Yes	57 (10)
No	513 (90)

factors of the epistaxis and these issues need a more nuanced analysis in light of Africa's rich cultural diversity. Majority of the parents do not consult the doctor in case of epistaxis, and various factors hinder the parents for this including the cost at healthcare facility, accessibility to the healthcare facility and longer waiting time before consultation at healthcare facilities. In order to encourage safe and effective health-seeking behaviour, behavioural change messaging must engage the prevalent local beliefs regarding epistaxis as well as the socio-economic obstacles that prevent people from seeking healthcare services.

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Conflicts of interest

There are no conflicts of interest.

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