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Original Article

Knowledge on Complications of Recurrent Tonsillitis and its Surgical Management among Parents/Guardian of Paediatric Patients Receiving Services at the Otorhinolaryngology Department at BMC Mwanza Tanzania

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Knowledge, Recurrent Tonsillitis, Complications, Surgical Management.

ABSTRACT

Background: Tonsillitis refers to inflammation of the palatine tonsil and most often occurs in children. Recurrent tonsillitis is defined as more than seven attacks within one year, more than five attacks a year within a two-year period, or more than three attacks a year within a three-year period. The global incidence and prevalence of tonsillitis are not completely known, the research indicates that 15-30% of sore throats in children and 5-10% of sore throats in adults are bacterial tonsillitis. **Method:** This is a cross-sectional descriptive study with span from May 2024 to August 2024. **Results:** 385 participants were enrolled in the study; 60.8%of the participants were aged from 21 years to 30 years which was the majority. About 317(82.3%) parents/guardians responded that recurrent tonsillitis has an effect on the child's health, whereas 68 (17.7%) reported that recurrent tonsillitis has no effect on the child's health. Complications of recurrent tonsilitis reported to be known by parent /guardian were snoring (sleep apnoea) 111 (28.8%), ear problems like otitis media 2(0.5%), hearing loss 1(0.3%) heart problem (0.8%), renal problem 3(0.8%), affect the growth of the child 6 (1.6%), missing school 11 (2.9%). 183(47.5%) of the study participants reported that they don't know about any complications that their child may get after surgery, while other parents/guardians reported that the child can suffer pain after surgery 99(25.7%), intraoperative or postoperative bleeding 3(0.8%) others reported that the child can get pain during eating 8(2.1%).

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INTRODUCTION

Tonsillitis refers to inflammation of the pharyngeal tonsil and most often occurs in children, though rare in those less than 2 years, tonsillitis caused by streptococcus species typically occurs in children aged 5-15 years, while viral tonsillitis is more common in young children.

Tonsils are inductive sites for humoral and cell-mediated immune responses, they produce antibodies locally as well as B cells, which migrate to other sites around the pharynx and peri glandular lymphoid tissues to produce antibodies in contrast to lymph nodes, the tonsil has no afferent lymphatic; therefore, their specialized epithelium plays an important role in antigen presentation and processing. The enlarged tonsils cause obstruction to breathing and lead to snoring and distributed sleep, nightmares, bedwetting, mood change, excessive sleepiness and some cases sleep apnoea

Recurrent tonsillitis is defined as more than seven attacks within one year, more than five attacks a year within a two-year period, or more than three attacks a year within a three-year period.

Tonsillectomy is one of the most common surgical procedures performed in children by otolaryngologists and counts about 20% of all surgeries. The most common indication of tonsillectomy includes recurrent infection, peritonsillar abscess, hypertrophy of tonsils, sleep apnoea, hearing loss, and recurrent ear infection.

Tonsillectomy has been associated with morbidity like bleeding, prolonged throat pain anesthesia risk, subglottic stenosis, and rarely death.

Determinants for the increased risk of postoperative complications include young age (< 3 years), obesity, airway anomalies, genetic diseases such as Down syndrome, neuromuscular disease, and craniofacial abnormalities.

The global incidence and prevalence of tonsillitis are not completely known, the research indicates that 15-30% of sore throats in children and 5-10% of sore throats in adults are bacterial tonsillitis. (Gibson & Michael) and the research on Norwegian twins indicates recurrent tonsillitis prevalence of approximately 11,700 per 100,000 individuals.

In Tanzania, a study done at Muhimbili national hospital showed that the prevalence of tonsillitis was about 20.6% where most affected age was 1-10 about 42.6% were the majority of them had recurrent tonsillitis.

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Given that parents act as both decision-makers and caregivers in pediatric cases, it is therefore important to focus on their experiences in managing their child's complex postoperative recovery in order for healthcare providers to better understand and attend to unique patient/parent needs. Various studies have evaluated parents' awareness regarding tonsillectomy in children suffering from upper airway obstruction. This study was designed to evaluate the parents' awareness regarding tonsilitis and post-tonsillectomy complications in their children.

Literature review

Overview

Recurrent tonsillitis is a common condition affecting the pediatric population, often necessitating surgical intervention, as parents play a crucial role in understanding and managing their child's health.

Knowledge and complications of recurrent tonsillitis

A study done by K Sarojini and Dinesh Premavathy reported that among 100 mothers knowledge regarding tonsillitis and treatment reported that most mothers were aware of tonsillitis and its clinical outcome occurred in children.

A study done by Walaa A. Felemban reported about 43.2% of the study participants had poor knowledge of the complications of recurrent tonsillitis, university/postgraduate parents were more knowledgeable than lower-educated parents ($p<0.001$), participants with a family history of recurrent adenotonsillectomy were more knowledgeable than those who had no such history ($p<0.001$).

Studies done by Smith et al, 2018 highlight the increased risk of peritonsillar abscess in children with recurrent tonsillitis and emphasize the importance of parental awareness of early detection and intervention.

Research by Johnson et al, 2019, and wang and Kim 2021 underscore the link between recurrent tonsillitis and OSA in the pediatric patient, underlining the need for parental comprehension of the potential impact on their child's sleep pattern and overall health.

Investigation done by Miller and Davis, 2017, and Patel et al 2022, emphasize the association between recurrent tonsillitis and the risk of rheumatic fever and glomerulonephritis and emphasize the role of parental education in preventing serious complications.

A study conducted by Nor El Sham Osman Mohamed Mahmoud 2013, on 150 children and their mothers reported that 67% of children were absent from school due to tonsillitis with many complications like chest infection, ear infection, rheumatic fever, and its effect on the heart. Mothers had good knowledge about the disease but they didn't know the importance of benzathine penicillin.

A study conducted by Rayan M Alosaimi et al 2023 in Jeddah that included 146 participants reported that there is a low level of awareness and knowledge of pediatric sleep apnoea among the parents attending a pediatric clinic in Jeddah (Ray & Mohammed, 2023).

Surgical complication

A study done by Elliot Heward et al, 2020 on recurrent tonsillitis and parental perceptions of tonsillectomy during the COVID-19 pandemic reported viral exposure is the key factor for the pathophysiology of recurrent tonsillitis and social distancing measures can reduce the frequency however despite a reduction in tonsillitis frequency during lockdown period, the majority of parents wanted their child to have tonsillectomy which was about 70% of case

Elisabeth Foki, et al,2017 reported tonsillectomy is beneficial for patients with recurrent tonsillitis and carries less risk of postoperative complication than

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tonsillectomy (Foki, Seemann, Stelter, & Lill., 2017 Sept)

A study done by Turki Alder et al 2022, done to 713 on post-tonsillectomy bleeding children reported that age, sleep disorder, and longer hospital stay after tonsillectomy were significant factors for post-tonsillectomy bleeding.

A study done by Claire M. Lawlor et al 2018, reported that healthy children younger than 3 years may be at increased risk for complications following tonsillectomy, those children may have increased risk within 24 hours after surgery compared with 3 years older children.

In a prospective comparative study done by Osama Abdelnaby Wad including three groups of children with recurrent tonsillitis. Group 1: (100 patients) had no prophylactic treatment. Group 2 (100 patients) received [60 mg/kg] prophylactic dose of AZT divided as (10 mg/kg/day) over 6 consecutive days every month for 6 consecutive months. Group 3 (100 patients) received AZT as in group 2 plus commercially available Echinacea in a dose of 5 ml oral suspension; 3 times daily for 10 consecutive days every month for 6 consecutive months, reported that the group that used Echinacea with Azithromycin produced favorable outcome than Azithromycin alone in pediatric patients with recurrent tonsillitis.

A study on long-term complications after tonsil surgery done by Erik Odhagen (which included a total of 54,462 patients showed that about 6.9% of the study population reported one or more long-term complications, where about 1.9% of participants reported pain or discomfort in the mouth and throat, 0.8% reported a problem with throat secretion or throat clearing, about 0.6% reported dysphagia, and 0.6% reported problem with voice or speech.

Study area

The study was conducted at Bugando Medical Center.

Study design

It was a cross-sectional descriptive study involving parents and guardians of pediatric patients aged 1-14 years with tonsillitis scheduled to undergo tonsillectomy at BMC.

Study duration

The study took a duration of four months (May 2024- August 2024)

Study population

The study included parents /guardians of pediatric patients with tonsillitis who were admitted or attended the ENT department at BMC.

Inclusion criteria

- parents/guardians of a pediatric patient with tonsillitis scheduled to undergo tonsillectomy ENT department.

Exclusion criteria

- Parents/guardians of patients aged below one year and above 14 years with cleft palate, craniofacial anomalies, bleeding or coagulation defects, and congenital anomalies and syndromes features.

Data collection

A well-structured self-administered questionnaire was distributed to all participants. The questionnaire had two parts. The first part included questions regarding sociodemographic characteristics such as participant's age, sex, educational level, and family history of recurrent tonsillitis, while the second part included questions that measured the knowledge among parents on complications of recurrent tonsillitis and its surgical management, with the regarding the role of the tonsils in the body and their protective mechanisms, the nature of the disease, complications if neglected and left untreated, and the risks and complications of the surgery.

Questionnaires were distributed by the researcher and nurses at the admission office upon patient admission the day before the surgery during

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morning working hours and collected at the same setting by the researcher to increase the response rate and save time.

Data analysis

All data were verified by hand and then coded and entered into a personal computer using the double-entry method to decrease date-entry errors. Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 27.0 (Released 2023, IBM Corp., Armonk, New York). Categorical variables were described as frequencies and percentages, whereas numerical variables were described as mean and standard deviation. Regarding knowledge statements, correct answers were assigned a score of "1", whereas wrong answers were assigned a score of "0". The total score and its percentage were computed. Participants who scored below 50%, between 50% and 75% were considered as having "poor knowledge," "fair knowledge," and "good knowledge", respectively. The Chi-square test was used to determine the association between two categorical variables whereas one-way analysis of variance was utilized to determine differences in the mean of a continuous variable between more than two groups. Statistical significance was set at $p < 0.05$.

Ethical approval

Ethical clearance to perform this study was requested from the CUHAS/BMC ethical committee. All participants were recruited only after obtaining verbal informed consent during the interview. Patients were assured that their refusal to consent or withdraw from the study would not alter or jeopardize their access to medical care. Participants were assured that they had a right to withdraw from the study at any time they wished.

Limitations

1. Language and cultural barrier; if the study did not account for cultural and language differences among the study participants, this may lead to underestimation or overestimation of parent knowledge due to misinterpretation or lack of understanding.

2. Recall bias; parents may not accurately recall the information about past events or experiences, of the child being sick.

Results

Socio-demographic characteristics.

385 participants were enrolled in the study; 60.8%of the participants were aged from 21 years to 30 years which was the majority. Most of the participants had secondary education by 38.4% followed by primary education by 27.5%.

Table 1 Distribution of the participants according to social demographic factors.

Age of the Parents /Guardians	**Frequency**	**Percent**
21-30	234	60.8%
31-40	129	33.5%
41-50	16	4.155%
51-60	6	1.558%
Total	**385**	**100**
Level of Education of Parent/Guardian	**Frequencies**	**Percent**
Primary School	106	27.5%
Secondary School	148	38.4%
Advanced Level	12	3.1%
University /C0llage	107	27.9%
No Formal Education	12	3.1%
Total	**385**	**100**

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Knowledge of recurrent tonsillitis and its complications among parents/guardians of pediatric patients.

265 (68.8%) of the study participants reported they had heard about recurrent tonsillitis from different sources, whereas 163 (42.3%) of them reported they had heard from health professionals, 84 (21.8%) reported they heard from other people like relatives, 9 (2.3%) reported they heard from radio and television, and about 7(1.8%) they heard from social media and about 122 (31.7%) of the study participants had no idea about recurrent tonsillitis these results are well elaborated on table 2

Table 2 shows the different sources of information that parents reported hearing about recurrent tonsillitis

Source of Information of Recurrent Tonsilitis	Frequency	Percent
Health professionals	163	42.3%
People /relatives	84	21.8%
Radio and television	9	2.3%
Social media	7	1.8%
Never heard from anyone	122	37.1%

About 317(82.3%) parents/guardians responded that recurrent tonsillitis has an effect on the child's health, whereas 68 (17.7%) reported that recurrent tonsillitis has no effect on the child's health.

Table 3. Distribution of the participants according to the awareness of the impact of recurrent tonsillitis

Do The Recurrent Tonsilitis Affect the Childs Health	Frequency	Percent
YES	317	82.3%
NO	68	17.7%

Among complications of recurrent tonsillitis reported to be known by parent /guardian were snoring (sleep apnoea) 111 (28.8%) which was leading followed by snoring with associated complications by 21.6% others are kidney and heart problems by 0.8%; Nonclinical complications were missing school by 2.9%. As in table 4

Table 4 Distribution of the study participants with the known complications of recurrent tonsillitis

Complication of Recurrent Tonsilitis Reported to be Known by the Parent	Frequency	Percent
Snoring	111	28.8%
Affects the growth of the child	6	1.6%
Missing school session	11	2.9%
Kidney problem	3	0.8%
Heart problem	3	0.8%
Ear infections	2	0.5%
Hearing loss	1	0.3%
Snoring affects the growth of the child	83	21.6%
Heart problems, affect the growth of the child, snoring	1	0.3%
cause ear infections, cause heart problems, affect the growth of the child, cause snoring	1	0.3%
cause ear infections, hearing loss, heart problems, kidney problems, missing school sessions, affect the growth of the child, cause snoring	1	0.3%
cause ear infections, missing school sessions, affecting the growth of the child, cause snoring	1	0.3%

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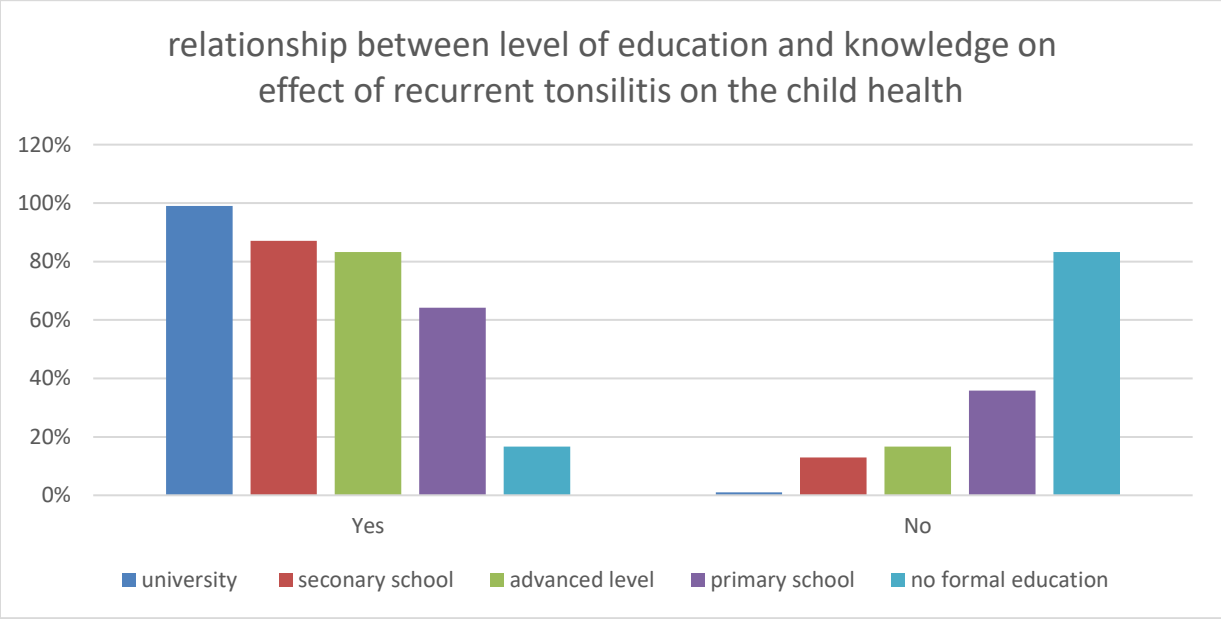
Complication of Recurrent Tonsilitis Reported to be Known by the Parent	Frequency	Percent
cause hearing loss, cause kidney problems, missing school sessions, affect the growth of the child, cause snoring	2	0.5%
cause kidney problems, missing school sessions, affecting the growth of the child, cause snoring	4	1%
missing school sessions, affect the growth of the child, cause snoring	80	20.8%
missing school sessions, cause snoring	37	9.6%
I don't know /none	37	9.6%

Relationship between the level of education of parents and knowledge on complications of recurrent tonsillitis were 129 out of 148(87.2%) with a secondary level of education; of the university about 106 out of 107(99%) parents/guardians who had university /collage level of education reported that recurrent tonsillitis has an effect on the child's health. Of the ones with no formal education only 2(16.7%) reported that recurrent tonsillitis can affect the child's health.

Figure 1 shows the relationship between the level of education of parents/guardians and their knowledge of complications of recurrent tonsillitis.

Table 5 Distribution of the response of parent/guardian on the mode of treatment of recurrent tonsillitis



The majority of the participants 181 (47%) reported that recurrent tonsillitis can be managed surgically but 5(1.3%) of participants reported that it can be treated by medication and 94 (24.4%) reported that they don't know the treatment method.

Mode of Treatment of Recurrent Tonsilitis	Frequency	Percent
Medication	5	1.3%
Surgery (Tonsillectomy)	181	47%
Surgery (Tonsillectomy) and M Education	105	27.3%
I Don't Know	94	24.4%
Total	**385**	**100**

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On the knowledge of post-surgical/ post-tonsillectomy complications, about 183(47.5%) of the study participants reported that they don't know about any complications that their child may get after surgery, while other parents/guardians reported that child can suffer pain after surgery 99(25.7%), intraoperative or postoperative bleeding 3(0.8%) others reported that the child can get pain during eating 8(2.1%), these results are described well on table 7 below.

Table 6 above indicates post-operative complications known by the parent

Postoperative complication Reported to be known by parent/guardian	**Frequency**	**Percent**
None/I don't know	183	47.5%
Postoperative pain	99	25.7%
Pain during eating	8	2.1%
Intraoperative bleeding and postoperative bleeding	3	0.8%
Post-operative pain, pain during eating, and Speaking problem	6	1.6%
Post-operative infections	1	0.3%
Post-operative pain and pain during eating	28	7.3%
pain during eating and speaking problem	3	0.8%
Postoperative pain and intra and post-operative bleeding	17	4.4%
Speaking problem	8	2.1%
Intraoperative and postoperative bleeding, pain during eating, speaking problem	1	0.3%
Intraoperative and postoperative bleeding, pain during eating, speaking problems, post-operative pain	5	1.3%
Post-operative pain, speaking problem	8	2.1%
Post-operative pain, I don't know	2	0.5%
Post-operative pain, intra-operative and post-operative bleeding, pain during eating	14	3.6%
Post-operative pain, intra-operative and post-operative bleeding, pain during eating, difficulty in speaking problem, post-operative infection	1	0.3%

Parents /guardians who had no formal report of not knowing of any complications were 91.7%, whereas 74.5% of parents/guardians were for primary level of education, 43.8% of parents/guardians were secondary school level of education, 24% of parents/guardians with university level of education.

Table 7. Relationships between the level of education of parents/ guardians and knowledge toward post tonsillectomy complication

post-operative complications reported to be known by the parent /guardian	**No formal education**	**Primary school**	**Secondary school**	**Advanced level**	**University**
Difficulty in speaking	0	0	2	0	2
I don't know	11	79	65	2	26
Intra-operative bleeding /postoperative bleeding	0	0	1	0	2
Intra/post-operative bleeding, pain during eating, difficulty in speaking	0	0	0	0	1
Postoperative pain	1	21	49	3	27

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post-operative complications reported to be known by the parent /guardian	No formal education	Primary school	Secondary school	Advanced level	University
Post-operative pain, difficulty in speaking	0	1	3	0	4
Pain, I don't know	0	0	0	0	2
Intra/Postoperative bleeding, post-operative pain	0	1	7	0	9
Intra/post-operative bleeding, pain during eating	0	3	2	1	8
Post-operative pain, intra/post-operative bleeding, pain during eating	0	0	1	1	3
Intra/Postoperative bleeding, pain during eating, post-operative infection, post-operative pain.	0	0	0	0	1
Pain during eating	0	0	2	4	2
Pain during eating, difficulty in speaking	0	0	2	0	1
Post-operative pain, pain during eating, speaking problems,	0	0	1	0	5
Postoperative infection	0	0	0	1	0
Post-operative pain, pain during eating	0	2	12	0	14

Discussion

Knowledge of complications of recurrent Tonsillitis and its surgical management among parents/guardians of pediatric patients receiving services at our health facility is one of the best components to look at. This shows how tells us how much the parent/guardian knows about the child's disease up to being operated on. The finding of the study showed that most parents/guardians have good knowledge regarding the complications of recurrent tonsillitis by 317(82.3%) which was almost the same with the study (11). Among the participants reported with recurrent tonsillitis affecting child health the most reported complication known by parent /guardian was snoring 111(28.8%), the same result has been observed in the study conducted in India among mothers with children with tonsillitis , however the deficiency in awareness was observed on the link between recurrent tonsillitis and heart disease 3(0.8%), kidney problem 3(0.8%), ear infection 2(0.5%).

The study revealed that the level of education of the parent or guardian had an influence on the ability of the parent to be aware of complications of recurrent tonsillitis as 87.2% of participants who have a secondary level of education reported that recurrent tonsillitis can affect the child's health, where about 16.7% who had no any formal education reported that recurrent tonsillitis had an effect on the child's health, also 99% parents/guardian who had university /collage level of education reported that recurrent tonsillitis has an effect on the child's health this is similar to the study done by Walaa A Felemban who reported fewer study participants to have had poor knowledge on the complication of recurrent tonsillitis, university/post-graduate parents were more knowledgeable than lower educated parents (12)

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The finding of the study showed about 11 (2.9%) parents/guardians of the participants reported that recurrent tonsillitis can cause the child to miss school sessions which was not similar to the study done by Nor El Sham Osman Mohamed Mahmoud 2013, on children and their mothers reported that 67% of children were absent at school due to tonsillitis(15) as our study the missing school number was less this can be due to the expertise of management of patient by surgeons, increase availability of antibiotics and ant pain.

In the study, most parents were not aware of the post-tonsillectomy complication as 99 (25.7%) parents/guardians reported that postoperative pain was one of the complications, and others reported that the child can get pain during eating 8(2.1.%), bleeding during the operation and after operation 3(0.8%), difficult in speaking 8(2.1%), and postoperative infection 1 (0.3%) which was similar to the study done by Erik Odhagen which most of complication reported by study participant were pain or discomfort in the mouth and throat(22).

Although tonsillectomy has an overall positive influence on the quality of life of pediatric patients, parents/guardians of children with recurrent tonsillitis who are candidates for tonsillectomy should be educated on the clinical benefits example the procedure decreases pharyngeal infection.

As expected, the level of education of parent/guardian has an influence on the knowledge of recurrent tonsillitis and its surgical management. However, this was a single-center study, so our result cannot be generalized to other populations.

Conclusion

A considerable number of parents /guardians of children scheduled to undergo tonsillectomy at Bugando Medical Center had good knowledge of recurrent tonsillitis and were slightly lower on the post-tonsillectomy complication.

Recommendation

In order to improve the knowledge of parents regarding complications of recurrent tonsilitis I recommend the following to the institution;

- Preoperative counseling; the attending doctors and nurses must provide comprehensive preoperative counseling to the parents whose children are scheduled to undergo a tonsillectomy, the counseling must address both potential risks and benefits of tonsillectomy in the treatment of recurrent tonsillitis, and this should include an explanation of clear indication of surgery and expected outcome.
- Community outreach programs; organizing community-based outreach programs to educate parents on the importance of early detection and treatment of recurrent tonsillitis to avoid complications.
- Collaboration with the primary care providers such as organising seminars with them in order to improve their understanding of tonsillitis, will ensure parents receive consistent information about tonsillitis and its management, also primary care providers can play a crucial role in identifying children at risk and referring them to the specialist.

Declaration:

I Olivia M Kimario declare that this is my work it has not been presented or copied anywhere as of the other journal. The study protocol was approved by the Ethics committee of the joint CUHAS/BUGANDO committee.

Ethical approval: All participants were recruited only after obtaining verbal informed consent during the interview. Patients were assured that their refusal to consent or withdraw from the study would not alter or jeopardize their access to medical care. Participants were assured that they had a right to withdraw from the study at any time they wished.

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Authors` Contributions

OMK-drafting the manuscript, data collection, and discussions.

EK-Literature search, discussion of the data

MM-Data collection and discussion of the results

PN-Results and discussion of the manuscript.

FM-Discussion of the results

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