

## Original Article

# Prevalence of preventable ear disorders of children in a tertiary care hospital

DOI: dx.doi.org

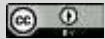
A S M Sayem<sup>1\*</sup>, Md Habibur Rahman<sup>2</sup>, Md Saiful Akram<sup>3</sup>

Received: 7 January 2024  
Accepted: 23 January 2024  
Published: 10 February 2024

Published by:  
Sher-E-Bangla Medical College,  
Barishal, Bangladesh

\*Corresponding Author

Editor: [Prof. Dr. HN Sarker](#)



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## ABSTRACT

**Introduction:** The paediatric population accounts for an important portion of the global population. Ear problems in children are a major public health issue in developing countries. If left ignored, it may lead to complications with numerous social and psychological problems for afflicted children and their families. **Aim of the study:** The purpose of this study is to investigate the prevalence of preventable ear problems in children. **Methods and Materials:** This study was a hospital-based cross-sectional study conducted in Saheed Ziaur Rahman Medical College & Hospital, Bogura, Bangladesh, from September 2018 to September 2019. The study included 100 patients aged 5 to 16 years who had ear disease and were visited to the study institution. All of the data was gathered, recorded into a Microsoft Excel work sheet, and then descriptive statistics were used in SPSS 11.5 for analysis. **Results:** The majority of the participants (53%) were male. Most of the participants (40%) were aged 8-10 years. Otoscopic examination shows that majority 65 (65%) of the participants had apparently normal tympanic membrane (shiny). Three (3%) had dull and retracted tympanic membrane whereas 02 (2%) had perforated tympanic membrane. Thirty nine (39%) of the study population had otologic diseases whereas 61 (61%) did not. Impacted wax was the most common otologic disorder observed in 28 (28%) followed by otitis media with effusion 4 (4%). Various forms of intervention were offered to the study participants with otologic disease. Majority of them (23%) had ear syringing, whereas the rest were treated with ciprofloxacin/candibiotic (Clotrimazole, Chloramphenicol, Beclomethasone, and Lidocaine) ear

(The Planet 2023; 7(1): 53-59)

1. Junior Consultant, Department of ENT, Saheed Ziaur Rahman Medical College, Bogura, Bangladesh.
2. Assistant Professor, Department of ENT, Saheed Ziaur Rahman Medical College, Bogura, Bangladesh.
3. Residential Surgeon, National Institute of ENT, Tejgao, Bangladesh.

*drops, amoxicillin, and pseudoephedrine/triprolidine (Actifed). One (1%) had foreign body removal.*  
**Conclusion:** *According to the results of this survey, preventable ear disorders are widespread among children. Periodic ear examinations and health education are required.*

**Keywords:** *Preventable, Ear disease, Paediatric, Chronic Suppurative Otitis Media (CSOM).*

## INTRODUCTION

Ear disease in children is a major public health issue in developing nations <sup>[1]</sup>. If left untreated, it can cause a variety of social and psychological issues for affected children and their families <sup>[2]</sup>. Ear infections are a common yet curable source of morbidity in children among all ear illnesses. In untreated cases, long-term implications of recurrent severe ear infection might include speech development difficulties, poor intellectual and educational development, and a reduced overall quality of life <sup>[3]</sup>. Hearing loss affects around 42 million people globally. Otitis media is the most prevalent cause of hearing loss in children, coming in second only to the common cold as a source of infection. Children typically have respiratory tract symptoms such as cough, sore throat, and earache <sup>[4, 5]</sup>. Chronic Suppurative Otitis Media (CSOM) is one of the most common clinical conditions. Given our large population, the disease burden in our country is far too high. The global prevalence of CSOM is estimated to be 65-330 million each year. Southeast Asia, the Western Pacific, and Africa bear the lion's share of the global CSOM load. One of the most prevalent CSOM consequences is hearing loss <sup>[6]</sup>. According to the WHO, more than 1% of children have CSOM, which is an unnecessary burden that can be addressed in the normal healthcare environment, and more than 4% have a huge public health problem that requires immediate attention <sup>[7]</sup>. Other otologic

conditions that can be visible in the pupils include foreign bodies, otitis externa, and otomycosis. In Bangladesh, around 16% of the population over the age of 5 suffers from otitis media. More over 55% of these cases involve school-aged children, the majority of whom come from low-income families <sup>[8]</sup>. There are very few studies that compare the ear diseases of children from high versus low socioeconomic classes, despite the high prevalence rates of otologic diseases among paediatric age groups and the potential consequences for these children's psychosocial development. The majority of these studies, if not all of them, were conducted in Asia, and none of them appear to have been conducted from the Northern part of the country <sup>[9, 10]</sup>. The current study's primary purpose was to investigate the prevalence of ear problems among children in this subcontinent.

## METHODS & MATERIALS

This study was a hospital-based cross-sectional study conducted in Saheed Ziaur Rahman Medical College & Hospital, Bogura, Bangladesh, from September 2018 to September 2019. The study included 100 patients aged 5 to 16 years who had ear disease and were visited to the study institution. The study included all patients aged 16 and under who presented with ear disorders to the hospital's ENT clinic and were evaluated by ENT surgeons. The information included demographic data such as age, gender, and a history of ear illness, as well as a physical examination. HEINE MINI

3000 OTOSCOPE XHL (D-001.70.210) was used for the examination. Chronic suppurative otitis media denotes a chronic pars tensa or pars flaccida abnormality. Acute otitis media was identified based on a history of earache, fever, poor hearing, or otorrhoea, as well as an inspection of the tympanic membrane, which was highly red, bulging, or perforated. All of the data was gathered, recorded into a Microsoft Excel work sheet, and then descriptive statistics were used in SPSS 11.5 for analysis.

## RESULT

**Table I** Shows that this study included 100 participants, of which 53 (53%) and 47 (47%) were males and females, respectively.

**Table I: Sex of the participants (N=100)**

Sex	Frequency	Percent
Male	53	53
Female	47	47
<b>Total</b>	<b>100</b>	<b>100</b>

**Table II: Age of the participants (N=100)**

**Table II** Shows that the mean age and standard deviation were 8 and 2.51 years, respectively. The age group with the highest number of participants was 8–10 years while that with the lowest was 5–7 years.

Age in years	Frequency	Percent
5-7	13	13
8-10	40	40
11-13	32	32
14-16	15	15
Total	100	100

**Table III** shows that Otosopic examination shows that majority 65 (65%) of the participants had apparently normal tympanic membrane (shiny). Three (3%) had dull and retracted tympanic membrane whereas 02 (2%) had perforated tympanic membrane.

**Table III: Results on the tympanic membrane (N=100)**

Tympanic membrane	Frequency	Percent
<b>Visualized</b>		
Shiny	65	65
Dull and retracted	03	03
Perforated	02	02
Hyperaemic	01	01
<b>Not visualized</b>		
Impacted wax	28	28
Foreign body	01	01
<b>Total</b>	<b>100</b>	<b>100</b>

**Table IV** shows that thirty-nine (39%) of the study population had otologic diseases whereas 61 (61%) did not. Impacted wax was the most common otologic disorder observed in 28 (28%) followed by otitis media with effusion 4 (4%).

**Table IV: Distribution of otologic conditions found by otoscopy (N=100)**

Otologic disease	Frequency	Percent
Normal	61	61
Impacted wax	28	28
OME	04	04
Otomycosis	02	02
CSOM	01	01
Preauricular sinus	01	01
Otitis externa	01	01
Foreign body	01	01
AOM	01	01
<b>Total</b>	<b>100</b>	<b>100</b>

*Table V* shows that various forms of intervention were offered to the study participants with otologic disease. Majority of them (23%) had ear syringing, whereas the rest were treated with ciprofloxacin/candibiotic (Clotrimazole, Chloramphenicol, Beclomethasone, and Lidocaine) ear drops, amoxicillin, and pseudoephedrine/triprolidine (Actifed). One (1%) had foreign body removal.

**Table V: Intervention types provided to the study participant (N=100)**

Treatment	Frequency	Percent
Nil	70	70
Ear syringing	23	23
Drugs	06	06
FB removal	01	01

<b>Total</b>	<b>100</b>	<b>100</b>
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## DISCUSSION

This study was a hospital-based cross-sectional study conducted in Saheed Ziaur Rahman Medical College & Hospital, Bogura, Bangladesh, from September 2018 to September 2019. The study included 100 patients aged 5 to 16 years who had ear disease and were visited to the study institution. The purpose of this study is to investigate the prevalence of preventable ear problems in children. According to this study, these kids frequently had otologic disorders. The most prevalent otologic condition in this study, affecting 28% of the children, was impacted wax. This is in good agreement with the results of Adhikari et al. [1] and Ahmed et al. [11]. The removal of impacted wax can enhance hearing and may be linked to hearing impairment. Even mild hearing loss may have an influence on academic performance, according to Khair et al. [12], even if the majority of students with impacted wax may not complain of hearing loss. Wax production and impaction are influenced by temperature, humidity, and ethnic variations [13]. According to reports, children's conductive hearing loss is most frequently caused by otitis media with effusion (OME) [14]. It can happen as an inflammatory reaction to AOM, usually between the ages of 6 months and 4 years, or it can happen spontaneously during an upper respiratory illness due to impaired eustachian tube function [15]. According to this study, 4 people (4%) out of the sample population had OME. This is in line with the results of related investigations conducted by Ahmed et al., Shuaibu et al., Adhikari et al. [1], and Ahmed et al. [11]. Due to OME's general lack of symptoms, many episodes-

including those in kids with hearing loss or poor academic performance-go undiagnosed [16]. A fungal infection of the external auditory canal is called otomycosis. It has been proposed that the heat and humidity of the tropical environment make otomycosis a common infection [17]. In this study, 2 (2%) of the pupils had otomycosis. This agrees with the results of Adhikari et al. [1] and Ozturk et al. [18], who reported that the prevalence of otomycosis was 1.2% and 0.5%, respectively. The most prevalent type of ear infection, known as chronic nonintact tympanic membrane disease (CSOM), is characterised by recurring or continuous purulent leakage from the middle ear through the membrane [19]. If CSOM is not treated promptly and appropriately, it can lead to a range of mild to severe problems, including intratemporal and intracranial ones. In this investigation, 1% of the study population had CSOM. This agrees with other research findings [11,18]. In comparable studies including the general population, other researchers found a higher prevalence [20–22]. The low population of children under the age of five, where ear discharge is more common, could be the cause of the low prevalence in this study. According to a local study by Afolabi et al., ciprofloxacin is the most effective antibiotic for the isolated organisms, hence ciprofloxacin ear drops were utilised to treat the kids with CSOM in this investigation [23]. A common congenital defect, the preauricular sinus typically manifests as a little aperture next to the external ear. Most often, it is found when doing a basic ear examination. Preauricular sinus was detected in 1% of the participants in this investigation. This supported the 1% results of a related study by Adhikari et al. [1]. Preauricular sinus is

typically asymptomatic and doesn't need to be treated if infections aren't coming back [24]. The least common otologic conditions in this study were acute otitis media, foreign substances in the ears, and otitis externa. In their study, Adhikari et al. [1] determined that the least common otologic illnesses were myringitis, foreign bodies in the ears.

### LIMITATION OF THE STUDY

This study used modest sample sizes and a single focal point. It is therefore probable that the study's conclusions do not fully reflect the circumstances as a whole.

### CONCLUSION & RECOMMENDATION

The prevalence of ear infections in children is demonstrated by this study. In this investigation, the most prevalent otologic conditions were impacted wax and otitis media with effusion. There were also signs of acute otitis media, otomycosis, otitis externa, foreign body, and CSOM. The incidence of preventable ear illnesses and related morbidities can be significantly decreased by offering frequent awareness lectures on ear care as well as otoscopic examinations on a regular basis.

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