

## Prevalence of Preventable Ear Disorders of Children in a Tertiary Care Hospital

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### ABSTRACT

**Background:** Significant research on the detrimental effects of hearing loss on children's linguistic, cognitive, emotional, social, and academic development has sparked an increase in support for the early identification and treatment of childhood hearing impairments.

**Objectives:** The aim of this study was to assess the prevalence of preventable ear disorders of children in a tertiary care hospital.

**Methods:** This cross-section observational study was carried out in the Department of Otolaryngology Zainul Haque Sikder Women's Medical College & Hospital, Dhaka, Bangladesh and TMSS Medical College, Bogura, Bangladesh. The duration of the period from July 2021 to July 2022. A total of 200 patients were participate in the study. Face to face interview was done to collect data with a semi-structured questionnaire. This was based on the World Health Organization's 'Ten question screening index for disabilities. After collection, the data were checked and cleaned, followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. Statistical evaluation of the results used to be obtained via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-24).

**Results:** Mean age of the children was  $2.5 \pm 3.0$  years. About 30% of the children were within the age group of 6 months to 1 year, 35% of the children were within the age group of 1-2 years, 25% of the children were within the age group of 2-4 years and 10% of the children were within the age group of 4-6 years. Mean age was  $2.5 \pm 3.0$  years. About 45% of the children were male and 55% were female. The prevalence of Impacted cerumen was 6.73%, AOM was 10.2%, OM with effusion was 4.09%, OE was 1.50%, FB was 1.2%, and Otomycosis was 0.9 respectively.

**Conclusion:** Children who have otitis media, whether acute or chronic, should be sent to an otolaryngologist for a specialised opinion. The burden of the disease can be lessened by raising public knowledge of the need for management of cases of otitis media and the hearing damage they cause.

**Keywords:** Otitis media, Acute otitis media; Otitis externa, Foreign body (in ear).

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### I. Introduction

Significant research on the detrimental effects of hearing loss on children's linguistic, cognitive, emotional, social, and academic development has sparked an increase in support for the early identification and treatment of childhood hearing impairments [1]. It has been noted that impacted cerumen is the most prevalent condition affecting the external auditory canal and the most frequent otological issue facing doctors in numerous nations [2]. Otitis media is an inflammation of the middle ear's mucous membrane, which covers the mastoid antrum, mastoid air cells, and Eustachian tube in addition to the middle ear cavity (also known as the tympanic cavity) [3]. Suppurative (or discharging) otitis media occurs when the inflammation is accompanied by a discharge from the ear through a rupture in the tympanic membrane. It could be chronic (more than 6 weeks) or acute (less than 6 weeks) [4]. Multiple regions of the world have reported different otitis media prevalence rates [5,6]. In suppurative or discharge-producing otitis media, bacteria continue to be the predominant etiological agents [7]. Antibiotic resistance is frequent, which increases the risk of problems in affected children [8]. The disease most commonly affects children between the ages of 6 and 36 months, with infants and young children having the highest chance of contracting it. It has been determined that a significant risk factor for otitis media is parental smoking [9]. Infections of the upper respiratory tract (nasopharyngitis, rhinitis). By permitting the migration of

harmful organisms from the nasopharynx into the middle ear via the Eustachian tube, rhinitis and nasopharyngitis typically pave the way for infection of the middle ear. Bacterial adhesion in the nasopharyngeal tissue has been demonstrated to increase in the presence of viral infection. Otitis media prevalence in developing nations has been connected to a considerable rise in the number of kids visiting creche facilities [10]. The symptoms of acute otitis media in newborns, the age group most susceptible to it, are non-specific and may include restlessness, agitation, fits of screams, anorexia, vomiting, fever, and occasionally convulsions [11]. With a peak incidence between 6 and 9 months, AOM most frequently manifests between the ages of 3 months and 3 years [12]. The most common pathogens causing AOM in children are *S. pneumoniae*, non-typeable *Haemophilus influenzae*, *Moraxella catarrhalis*, and Group A streptococci. These pathogens typically colonise the nasopharynx during the first few years of life, making them common causes of AOM. The respiratory syncytial virus, parainfluenza virus, rhinovirus, influenza virus, enterovirus, and adenovirus are the most frequent viruses isolated from AOM patients [13]. However, despite this, bacteria continue to be the main cause of AOM, with viruses only accounting for roughly 20% of cases [14]. One of the most prevalent ear conditions in children in underdeveloped nations is chronic otitis media. It has been described as a stage of ear illness in which there is chronic inflammation affecting the middle-ear cleft and may be accompanied by numerous clinical symptoms, including an aural cholesteatoma and a perforated tympanic membrane. The primary cause of hearing loss in developing nations is chronic otitis media, which places a significant strain on their already few resources. Hearing loss, which affects around one-third of these people, is thought to be the primary health problem that lowers quality of life [15]. Thus the aim of the study was to assess the prevalence of preventable ear disorders of children in a tertiary care hospital.

## II. Methodology

This cross-section observational study was carried out in the Department of Otolaryngology Zainul Haque Sikder Women's Medical College & Hospital, Dhaka, Bangladesh and TMSS Medical College, Bogura, Bangladesh. The duration of the period from July 2021 to July 2022. A total of 200 patients were participate in the study. Children who had different ear disease, visited the Otolaryngology department and the guardian gave consent to be included in the study. Severely ill children were excluded from the study. Face to face interview was done to collect data with a semi-structured questionnaire. This was based on the World Health Organization's 'Ten question screening index for disabilities [16]. After collection, the data were checked and cleaned, followed by editing, compiling, coding and categorizing according to the objectives and variable to detect errors and to maintain consistency, relevancy and quality control. Statistical evaluation of the results used to be obtained via the use of a window-based computer software program devised with Statistical Packages for Social Sciences (SPSS-25).

## III. Result

**Table-1: Distribution of the children by age group**

Age group	N=200	%
6 months to 1 year	60	30
1-2 years	70	35
2-4 years	50	25
4-6 years	20	10
Mean ± SD	2.5 ± 3.0	

Table-1 shows that 30% of the children were within the age group of 6 months to 1 year, 35% of the children were within the age group of 1-2 years, 25% of the children were within the age group of 2-4 years and 10% of the children were within the age group of 4-6 years. Mean age was 2.5 ± 3.0 years. About 45% of the children were male and 55% were female.

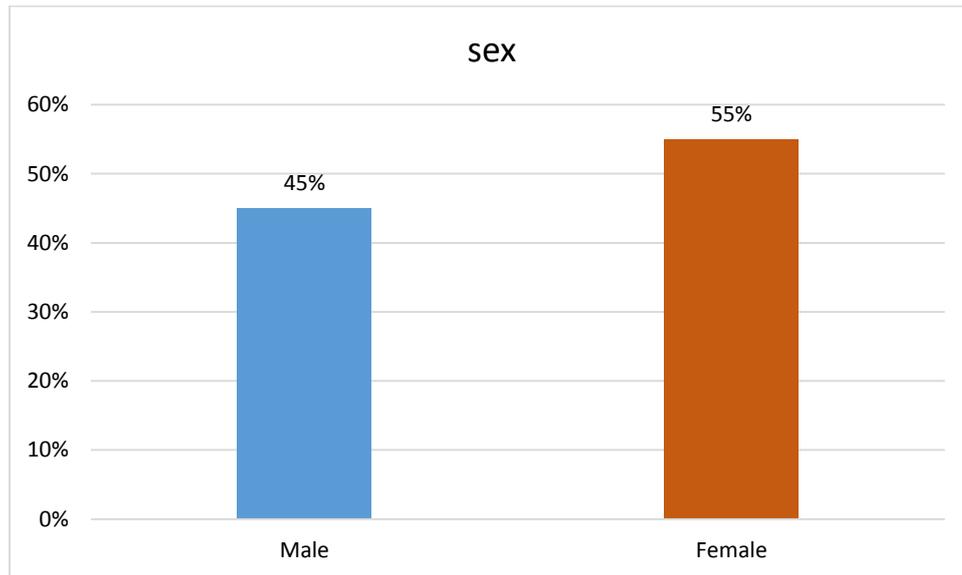


Figure-1: Distribution of the children by sex

Table-2: Questionnaire for ear disease screening

	N=200	%
Has the child ever had discharge from the ear	178	89
Does he or she have pain in the ear	190	95
Does the child have any difficulty in hearing properly	175	88
Does the child have problems in understanding speech	180	90
Is the child's speech in any way different from normal (not clear enough to be understood by people other than his or her immediate family)	160	80

About 89% of the children had discharge from the ear ever, 95% of the children had pain in the ear, 88% of the children had difficulty in hearing properly, 90% of the children had problems in understanding speech and 80% of the children's speech was not clear enough to be understood by people other than his or her immediate family.

Table-3: Prevalence of ear disorders

Conditions	N=200	%
Impacted cerumen	14	6.73
AOM	20	10.2
OM with effusion	8	4.09
OE	3	1.50
FB	2.4	1.2
Otomycosis	1.8	0.9

COM = chronic otitis media; chol = cholesteatoma; OM = otitis media; AOM = acute otitis media; OE = otitis externa; FB = foreign body (in ear)

The prevalence of Impacted cerumen was 6.73%, AOM was 10.2%, OM with effusion was 4.09%, OE was 1.50%, FB was 1.2%, and Otomycosis was 0.9 respectively.

#### IV. Discussion

Despite advancements in public health and medical care, ear illnesses like otitis media continue to be common worldwide. This cross-section observational study was carried out in the Department of Otolaryngology, ZH Sikder Women's Medical College & Hospital. The duration of the period from July 2021 to July 2022. A total of 200 patients were participate in the study.

Here, that 30% of the children were within the age group of 6 months to 1 year, 35% of the children were within the age group of 1-2 years, 25% of the children were within the age group of 2-4 years and 10% of the children were within the age group of 4-6 years. Mean age was  $2.5 \pm 3.0$  years. In a previous study childrens were aged between 6–30 months of age [17]. In our study, about 45% of the children were male and 55% were female. We revealed that, 89% of the children had discharge from the ear ever, 95% of the children had pain in the ear,

88% of the children had difficulty in hearing properly, 90% of the children had problems in understanding speech and 80% of the children's speech was not clear enough to be understood by people other than his or her immediate family.

In our study, The prevalence of Impacted cerumen was 6.73%, AOM was 10.2%, OM with effusion was 4.09%, OE was 1.50%, FB was 1.2%, and Otomycosis was 0.9 respectively. Children who had cerumen in their external auditory canal despite reasonable efforts to have it removed were classified as needing attention. Cerumen was thick and solid in consistency in these kids, and it filled the whole external auditory canal. Some of these kids also complained of otalgia and/or hearing loss [15]. A study by Godinho et al. (2001) reported the prevalence of impacted cerumen to be 12.3 per cent amongst schoolchildren in Brazil [18]. The point prevalence of otitis media with effusion (OME) varies between studies and is influenced by the population variables as well as the researcher's methodology [15].

## V. Conclusion

Children who have otitis media, whether acute or chronic, should be sent to an otolaryngologist for a specialised opinion. The burden of the disease can be lessened by raising public knowledge of the need for management of cases of otitis media and the hearing damage they cause.

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