

Pattern of Otolological Disorders Among Patients Attending the ENT Outpatient Department of BIRDEM General Hospital, Dhaka: A six month Retrospective Descriptive Study

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ABSTRACT

Introduction: Otolological disorders constitute an important component of ear, nose, and throat (ENT) outpatient practice and include middle ear, external ear, inner ear, vestibular, and referred conditions. Describing their current clinical pattern can provide useful information for service planning and comparison with earlier local observations. **Aim of the study:** To describe the pattern and age distribution of otological disorders among patients attending the ENT outpatient department of BIRDEM General Hospital, Dhaka. **Methods & Materials:** This retrospective descriptive study reviewed clinical records of patients personally examined by the investigator in the Department of Otolaryngology & Head-Neck Surgery, BIRDEM General Hospital & Ibrahim Medical College, Dhaka, Bangladesh between July 2025 and December 2025. Among 1,234 patients presenting with ear, nose, or throat-related conditions, 643 unique patients had ear-related complaints and constituted the study population. Because individual patients could have multiple otological conditions, 819 diagnoses were recorded. Diagnoses were grouped into middle ear and Eustachian tube, external ear and ear canal, inner ear and vestibulocochlear, and structural or miscellaneous categories. Data were summarized using frequencies and percentages. **Results:** Among 819 recorded diagnoses, middle ear and Eustachian tube disorders were most frequent, accounting for 345 (42.1%), followed by external ear and ear canal disorders, 217 (26.5%), inner ear and vestibulocochlear disorders, 184 (22.5%), and structural or miscellaneous conditions, 73 (8.9%). Among the 643 patients, chronic suppurative otitis media was the most frequently recorded individual diagnosis, 206 (32.0%), followed by presbycusis, 106 (16.5%), temporomandibular joint neuralgia or strain, 66 (10.3%), and acute suppurative otitis media, 63 (9.8%). Across diagnosis records, 483 of 819 (59.0%) occurred within the 40–69-year age bands. Presbycusis was concentrated at older ages, with 39 of 106 cases (36.8%) occurring at 60–69 years and 35 (33.0%) at 70–79 years. **Conclusion:** Within this two-year outpatient series, middle ear disorders, particularly chronic suppurative otitis media, formed the predominant otological pattern, while presbycusis contributed prominently among older age groups. The findings provide a contemporary description of the otological caseload observed at BIRDEM General Hospital.

Keywords: Otolological Disorders; Chronic Suppurative Otitis Media; Presbycusis; ENT Outpatient; Bangladesh

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INTRODUCTION

Across clinical and population settings, otological disorders encompass infectious, inflammatory, obstructive, sensorineural, vestibular, and referred conditions that contribute substantially to outpatient ear, nose, and throat practice and hearing-related morbidity. Globally, hearing loss affected an estimated 1.57 billion people in 2019, representing 20.3% of the population, while 62.1% of people with hearing impairment were older than 50 years; these findings were generated from the Global Burden of Disease 2019 analysis using population-representative hearing surveys [1]. Among middle-ear disorders, a persistent global burden has also been documented, with otitis media showing its highest incidence in early childhood and with higher disability-adjusted life-year rates in settings with lower sociodemographic development [2]. In a recent systematic review of community-based studies, the global prevalence of chronic suppurative otitis media (CSOM) was estimated at 3.8%, corresponding to approximately 297 million people, with

about 85% of estimated cases occurring in low- and middle-income countries [3]. Beyond middle-ear disease, substantial burdens have been reported for other common otological conditions. In a systematic review and meta-analysis by Jarach et al., any tinnitus was estimated to affect 14.4% of adults, with prevalence increasing from 9.7% among adults aged 18–44 years to 23.6% among those aged 65 years or older [4]. In a nationally representative United States analysis by Tolan et al., cerumen impaction was identified in 18.6% of individuals aged 12 years or older and in 32.4% of those aged 70 years or older [5]. Similarly, in a Korean national survey by Kim et al., hearing impairment was shown to increase markedly with advancing age, particularly from 65 years onward [6]. Within Bangladesh, a substantial otological burden has also been documented at the population level. In a nationally representative survey of 4,260 participants by Tarafder et al., disabling hearing loss was identified in 9.6%, while impacted wax, CSOM, otitis

media with effusion, and otitis externa were among the ear conditions detected on examination; age, socioeconomic deprivation, impacted wax, CSOM, otitis media with effusion, and otitis externa were also identified as significant predictors of disabling hearing loss [7]. Within hospital-based Bangladeshi data, heterogeneity in ENT case patterns has also been observed. At BIRDEM General Hospital, ear diseases were reported as the most frequent anatomical group among registered ENT outpatients, accounting for 41.1%, while acute and chronic suppurative otitis media together represented 25.5% of registered cases in a 2017 study [8]. In another Dhaka tertiary hospital series, CSOM was reported as the most frequent diagnosis, followed by chronic tonsillitis, acute otitis media, otitis externa, deviated nasal septum, and otitis media with effusion among the leading conditions [9]. In a separate tertiary-care review from Bangladesh, CSOM/COM, otitis media with effusion, and otitis externa were also listed among commonly encountered ENT disorders [10]. In a

microbiological study from Rajshahi Medical College Hospital, patients with clinically suspected CSOM formed a defined tertiary ENT outpatient population requiring bacteriological evaluation, reflecting the continuing clinical presence of chronic middle-ear infection in Bangladesh ^[11]. Across nearby South Asian settings, variation by age and service population has also been evident; in a paediatric ENT outpatient study from western Nepal, ear disorders accounted for 77.3% of paediatric ENT conditions, with chronic otitis media and wax among the main ear disorders ^[12]. Across these studies, otological case mix varied by age, setting, and population served, while middle-ear disease, hearing-related disorders, cerumen impaction, and other external and inner-ear conditions were repeatedly represented in ENT practice. Against this background, an updated description of the spectrum and age distribution of otological disorders among patients attending the ENT outpatient department of BIRDEM General Hospital can provide a contemporary institutional profile for comparison with earlier local and regional observations.

METHODS & MATERIALS

A retrospective descriptive study was conducted at the ENT outpatient Department of Otolaryngology & Head-Neck Surgery, BIRDEM General Hospital & Ibrahim Medical College, Dhaka, Bangladesh, using the clinical records of patients personally examined by the investigator between January 2024 and December 2025. During this two-year period, 1,234 patients presenting with ear, nose, or throat-related conditions were examined and recorded by the investigator, and these consecutive cases formed the sampling frame for the present analysis. Patients attending the ENT outpatient department who were seen by other clinicians were not included; the figures reported here therefore represent the investigator's own caseload rather than the total attendance of the department. Patients presenting with ear-related complaints were identified from these records, and 643 unique patients constituted the study population. Patients presenting exclusively with nasal or throat complaints were not included in the otological cohort. The records were maintained as age-group-specific and diagnosis-specific aggregate counts rather than individual patient-level data. Multiple otological diagnoses could be recorded for the same patient; therefore, the

total number of diagnoses exceeded the number of unique patients, with 819 diagnoses documented among the 643 study participants. Diagnoses were classified into four broad clinical categories: middle ear and Eustachian tube disorders, external ear and ear canal disorders, inner ear and vestibulocochlear disorders, and structural or miscellaneous conditions. Age was grouped into nine categories, 1–9, 10–19, 20–29, 30–39, 40–49, 50–59, 60–69, 70–79, and 80–89 years. Data were summarized using frequencies, percentages, and diagnosis-to-patient ratios. Diagnosis-specific proportions were calculated using the 643 unique patients as the denominator, while the distribution of diagnostic categories and age-stratified diagnosis records was calculated using the 819 recorded diagnoses as the denominator.

RESULTS

Among the 1,234 patients examined by the investigator during the study period, 643, 52.1%, presented with ear-related complaints. Within this study population, a total of 819 otological diagnoses were recorded, corresponding to a diagnosis-to-patient ratio of 1.27 diagnoses per patient (*Table I*).

Table I
Study population and recorded otological diagnoses during 2024–2025.

Characteristic	n	Percentage/ratio
Total patients examined by the investigator	1,234	100.0%
Patients with ear-related complaints	643	52.1%

Among the 819 recorded diagnoses, middle ear and Eustachian tube disorders were the most common category, accounting for 345, 42.1%. External ear and ear canal disorders comprised 217, 26.5%, while inner ear and vestibulocochlear disorders accounted for 184, 22.5%. Structural and miscellaneous conditions constituted the remaining 73 diagnoses, 8.9% (*Table II*).

Table II
Distribution of otological diagnoses by major clinical category, 2024–2025.

Clinical category	Diagnosis records, n	Percentage of all diagnoses (%)
Middle ear and Eustachian tube disorders	345	42.1
External ear and ear canal disorders	217	26.5
Inner ear and vestibulocochlear disorders	184	22.5
Structural and miscellaneous conditions	73	8.9
Total	819	100.0

Among the individual otological conditions, CSOM was the most frequently recorded diagnosis, occurring in 206 patients, 32.0% of the study population. Presbycusis was recorded in 106 patients, 16.5%, followed by temporomandibular joint neuralgia/strain in 66, 10.3%, ASOM in 63, 9.8%, impacted wax in 52, 8.1%, and seborrheic dermatitis of the external auditory meatus in 51, 7.9%. Other frequently recorded conditions included ETD in 45 patients, 7.0%, otomycosis in 42, 6.5%, SSNHL in 37, 5.8%, and OME in 30, 4.7%. Tinnitus was documented in 24 patients, 3.7%, otitis externa in 25, 3.9%, BPPV/dizziness in 16, 2.5%, and malignant otitis externa in 12, 1.9% (*Table III*).

Table III
Frequency of individual otological diagnoses among the study population, 2024–2025.

Clinical category and diagnosis	n	Percentage of study population, %*
Middle ear and Eustachian tube disorders		
Chronic suppurative otitis media, CSOM	206	32.0
Acute suppurative otitis media, ASOM	63	9.8
Eustachian tube dysfunction, ETD	45	7.0
Otitis media with effusion, OME	30	4.7
Mastoiditis	1	0.2
External ear and ear canal disorders		
Impacted wax	52	8.1
Seborrheic dermatitis of external auditory meatus	51	7.9
Otomycosis	42	6.5
Otitis externa	25	3.9
Malignant otitis externa	12	1.9
Other external ear pathologies	35	5.4
Inner ear and vestibulocochlear disorders		
Presbycusis	106	16.5
Sudden sensorineural hearing loss, SSNHL	37	5.8
Tinnitus	24	3.7
BPPV/dizziness	16	2.5
Ototoxicity	1	0.2
Structural and miscellaneous conditions		
Temporomandibular joint neuralgia/strain	66	10.3
Routine follow-up	4	0.6
Earache	2	0.3
Herpes zoster oticus	1	0.2

Percentages were calculated using the 643 unique patients as the denominator. Individual patients could have more than one diagnosis; therefore, diagnosis-specific percentages are non-mutually exclusive and do not sum to 100%.

Across the age groups, the highest number of diagnoses was recorded among patients aged 40–49 years, 172 diagnoses, 21.0%, followed by the 50–59-year group, 159, 19.4%, and the 60–69-year group, 152, 18.6%. Together, patients aged 40–69 years accounted for 483 of the 819 recorded diagnoses, 59.0%. Middle ear and Eustachian tube disorders were most frequent in the 40–49-year group, with 93 of 345 diagnoses, 27.0%, while external ear

and canal disorders were most frequent in the 50–59-year group, with 47 of 217, 21.7%. Inner ear and vestibulocochlear disorders showed a greater concentration at older ages, reaching their highest frequency among patients aged 60–69 years, with 60 of 184 diagnoses, 32.6%. Within individual diagnoses, CSOM occurred most frequently in the 40–49-year group, 55 of 206 cases, 26.7%. Presbycusis demonstrated a predominantly older-age distribution, with

39 of 106 cases, 36.8%, occurring among patients aged 60–69 years and 35, 33.0%, among those aged 70–79 years. Sudden sensorineural hearing loss was most frequent in the 40–49-year group, with 13 of 37 cases, 35.1%, while temporomandibular joint neuralgia/strain occurred most frequently among patients aged 60–69 years, with 21 of 66 cases, 31.8% (Table IV).

Table IV
Age distribution of recorded otological diagnoses, 2024–2025.

Clinical category and diagnosis	1–9	10–19	20–29	30–39	40–49	50–59	60–69	70–79	80–89	Total
Middle ear and Eustachian tube disorders	9	26	44	54	93	64	37	18	0	345
CSOM	3	11	16	38	55	38	29	16	0	206
ASOM	4	8	11	7	18	13	1	1	0	63
Eustachian tube dysfunction	1	2	13	8	15	3	3	0	0	45
Otitis media with effusion	1	5	4	1	4	10	4	1	0	30
Other middle ear pathology ¹	0	0	0	0	1	0	0	0	0	1
External ear and ear canal disorders	16	19	22	19	41	47	33	20	0	217
Seborrheic dermatitis of EAM	4	2	4	4	11	17	7	2	0	51
Impacted wax	4	5	8	1	6	8	11	9	0	52
Otomycosis	2	6	7	4	9	4	6	4	0	42
Otitis externa	4	3	1	6	5	2	2	2	0	25
Other external ear pathologies ²	2	3	2	4	10	16	7	3	0	47
Inner ear and vestibulocochlear disorders	0	0	8	7	23	28	60	38	20	184
Presbycusis	0	0	0	0	0	14	39	35	18	106
Sudden SNHL	0	0	6	5	13	8	4	1	0	37
Other inner ear/vestibular disorders ³	0	0	2	2	10	6	17	2	2	41
Structural and miscellaneous conditions	0	0	5	3	15	20	22	6	2	73
TM joint neuralgia/strain	0	0	4	3	12	18	21	6	2	66
Routine follow-up	0	0	1	0	2	1	0	0	0	4
Other structural/miscellaneous conditions ⁴	0	0	0	0	1	1	1	0	0	3
Total diagnosis records	25	45	79	83	172	159	152	82	22	819
Percentage of all diagnoses, %	3.1	5.5	9.6	10.1	21.0	19.4	18.6	10.0	2.7	100.0

¹ Includes mastoiditis.
² Includes malignant otitis externa and other external ear conditions.
³ Includes tinnitus, BPPV/dizziness, and ototoxicity.
⁴ Includes earache and herpes zoster oticus.
EAM, external auditory meatus; SNHL, sensorineural hearing loss. Age-group frequencies represent recorded diagnoses.

DISCUSSION

Within the present two-year series, ear-related complaints were seen in 643 of 1,234 patients examined by the investigator, 52.1%. A total of 819 otological diagnoses were recorded in these 643 patients. Among these diagnoses, middle ear and Eustachian tube disorders were the most common group. They accounted for 345 of 819 diagnoses, 42.1%. This was followed by external ear and ear canal disorders, 26.5%, and inner ear and vestibulocochlear disorders, 22.5%. In the earlier BIRDEM study by Dey et al., ear diseases were also the most common ENT group^[8]. They made up 41.1% of all ENT outpatient cases. The two studies are not directly comparable because of different methods and study design. However, both show that ear diseases form a large part of ENT outpatient work at BIRDEM. Among individual diagnoses, chronic suppurative otitis media (CSOM) was the most frequently recorded disorder, occurring in 206 of 643 patients, 32.0%. In another tertiary-care study from Dhaka by Yasmeen et al., CSOM was also reported as the leading ENT diagnosis, accounting for 18.14% of all ENT patients^[9]. Similarly, a substantial burden of chronic middle-ear disease has been documented at the population level in Bangladesh, where CSOM was detected in 6.2% of participants in the nationally representative survey by Tarafder et al^[7]. At the global level, CSOM prevalence was estimated at 3.8%, corresponding to approximately 297 million affected individuals, with most estimated cases occurring in low- and middle-income countries^[3]. Because these studies used general ENT or community denominators, their percentages are not directly comparable with the 32.0% observed among the present otological patients. Nevertheless, the repeated identification of CSOM across Bangladeshi and international studies supports its continued importance within otological practice. Within other South Asian clinical populations, a different middle-ear disease hierarchy has been reported. In a recent paediatric tertiary-care study from Pakistan, otitis media with effusion was reported in 41.24% of children with ear morbidity, while CSOM accounted for 19.29% and acute otitis media for 15.48%^[13]. Among children attending a tertiary ENT outpatient department in western Nepal, chronic otitis media and wax were also reported among the principal ear disorders^[12]. Such differences are compatible with variation in age composition and clinical setting, particularly because the present series included all age groups and contained a large number of middle-aged and older diagnosis records. Across the 819 diagnosis records, the largest numbers were observed in the 40–49-year, 50–59-year, and 60–69-year age bands, which together contributed 483 diagnoses, 59.0%. Because these

frequencies represent diagnosis records rather than unique patients, they should not be interpreted as the age distribution of the 643 individuals. Within diagnosis-specific distributions, however, distinct age patterns were observed. CSOM was most frequently recorded at 40–49 years, with 55 of 206 cases, 26.7%. In contrast, younger age concentration has been reported in selected CSOM populations; in the study by Mahfuz et al., 36.5% of 200 selected CSOM patients were aged 11–20 years^[14]. At the broader epidemiological level, otitis media incidence has also been shown to be highest in early childhood, with most incident cases occurring before 30 years of age^[2]. These differences suggest that the age pattern observed in the present outpatient caseload reflects the specific clinical population being seen rather than the general population distribution of otitis media. Among inner ear and vestibulocochlear disorders, presbycusis was the most frequent diagnosis and the second most common individual condition overall, occurring in 106 patients, 16.5%. Within these cases, 36.8% occurred at 60–69 years and 33.0% at 70–79 years. A strong age-related increase in hearing impairment has consistently been demonstrated in larger epidemiological studies. In Bangladesh, disabling hearing loss was reported to rise substantially with advancing age in the survey by Tarafder et al^[7]. Globally, the burden of hearing loss has also been shown to be concentrated increasingly among older populations¹. In the nationally representative study by Reed et al., hearing loss was identified in 65.3% of adults aged 71 years or older and increased progressively with age^[15]. Similarly, increasing hearing thresholds across advancing age groups were documented in the United States population analysis by Mo et al^[16]. Although these studies assessed hearing loss rather than clinically diagnosed presbycusis specifically, their age patterns are consistent with the older-age distribution observed in the present study. Among the external ear disorders, impacted wax was recorded in 52 patients, 8.1%, while otomycosis was recorded in 42, 6.5%. Considerable variability in cerumen burden has been reported between populations. In a large Indian community-screening programme, impacted wax represented 57% of detected ear problems, whereas a nationally representative United States study identified cerumen impaction in 18.6% of individuals aged 12 years or older, with the proportion increasing to 32.4% among those aged 70 years or older^[5,17]. For otomycosis, the age pattern has also varied between clinical settings. In an Iranian tertiary referral population, the largest proportion of confirmed otomycosis occurred at 46–55 years, broadly resembling the middle-aged distribution observed in the present series, whereas the largest group in

a Western Rajasthan study was aged 21–30 years^[18,19]. Within sudden sensorineural hearing loss (SSNHL), 13 of 37 cases, 35.1%, occurred at 40–49 years. A closely comparable age pattern was reported by Xie et al., in whose series of 739 patients with idiopathic SSNHL the largest age group was 41–50 years^[20]. This agreement provides relatively strong external support for the middle-aged concentration of SSNHL observed in the present study. Finally, temporomandibular joint neuralgia or strain was recorded in 66 patients, 10.3%, with the largest number occurring at 60–69 years. In an ENT-based study by Adegbiyi et al., formally diagnosed temporomandibular joint disorder was most frequent at 51–60 years, and earache was reported in all affected patients²¹. Conversely, among patients attending a dedicated temporomandibular disorder service, most cases were reported at substantially younger ages, although pain and restricted jaw movement increased with advancing age^[22]. Together, these observations indicate that temporomandibular disorders can contribute meaningfully to otological presentations, while their observed age distribution may differ according to referral pathway and diagnostic setting.

LIMITATIONS

The analysis used aggregated clinical records, so individual patient factors could not be assessed. Since only patients examined by the investigator were included, the results reflect this clinical caseload rather than all department attendees.

CONCLUSION

Overall, a broad spectrum of otological disorders was observed among patients examined at the ENT outpatient department of BIRDEM General Hospital, with middle ear and Eustachian tube disorders forming the largest diagnostic group. Among individual conditions, chronic suppurative otitis media was most frequently recorded, while presbycusis represented an important component of the otological caseload and showed a clear concentration at older ages. Alongside these conditions, external ear disorders, sudden sensorineural hearing loss, and temporomandibular joint-related presentations contributed appreciably to the observed disease pattern. These findings provide an updated institutional profile of otological disorders and may assist in recognizing the range of conditions commonly encountered in tertiary ENT outpatient practice.

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CONFLICT OF INTEREST

None declared

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee

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