

ORIGINAL ARTICLE**ASSESSMENT OF EAR DISEASES IN CHILDREN OF HIGHER AND LOWER SOCIOECONOMIC STATUS: A COMPARATIVE STUDY**Sanjay Agrawal¹, Sandeep Dabhekar²¹Associate Professor, Department of ENT, CCM Medical College Kachandur Durg,²Assistant Professor, Department of ENT, GMC Akola**ABSTRACT:**

Background: In the today's scenario, hearing impairment is reported to be increasing rapidly globally, becoming the most frequent sensory deficit among humans. The prevalence of moderate to severe hearing loss in India is reported to be 6.3 per cent. Although most of these illnesses are self-limiting, inappropriate management combined with poor socioeconomic environment in developing countries leads to various complications. Hence; we evaluated the frequency and type of ear diseases in children of low socioeconomic status in comparison to the children belonging to the higher strata of society. **Materials & methods:** The present study was conducted in the department of paediatrics of the institution and included all the paediatric patients that were surveyed from June 2012 to July 2015. All the patients were divided into two study groups. First group i.e. group 1 included children of government schools while group 2 included patients of the private schools. Only children with age group of 5–12 years were included while any child whose parent was not willing for him or her to be a part of the study was excluded. Initial screening was conducted with the help of a simple questionnaire. This was to be filled in by the parent of the child. All the data were tabulated and analyzed using chi-square test. **Result:** A total of 6000 school children were assessed. Otomycosis was found in 18 children from group 1, whereas only one child in group 2 was found to be suffering from this condition. The p value was calculated as, 0.005, so the difference was found to be statistically significant. **Conclusion:** Out of the several possible suggested hypotheses which cause ear problems, poverty is one of them.

Key words: Children, Ear diseases, Otitis

Corresponding Author: Dr Sanjay Agrawal, Associate Professor, Department of ENT, CCM Medical College Kachandur Durg

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INTRODUCTION

In the today's scenario, hearing impairment is reported to be increasing rapidly globally, becoming the most frequent sensory deficit among humans. The prevalence of moderate to severe hearing loss in India is reported to be 6.3 per cent.^{1, 2} Although most of these illnesses are self-limiting, inappropriate management combined with poor socioeconomic environment in developing countries leads to various complications. For example, the major proportion of childhood hearing impairment in developing countries is secondary to preventable or modifiable causes. At the same time, even mild degrees of hearing impairment can affect proper learning in noisy class rooms where speech is produced at a distance. This in turn can have significant impact on the scholastic performance and overall development.^{3, 4} Hence; we evaluated the frequency and type of ear diseases in

children of low socioeconomic status in comparison to the children belonging to the higher strata of society.

MATERIALS & METHODS

The present study was conducted in the department of paediatrics of the institution and included all the paediatric patients that were surveyed from June 2012 to July 2015. All the patients were divided into two study groups. First group i.e. group 1 included children of government schools while group 2 included patients of the private schools. Only children with age group of 5–12 years were included while any child whose parent was not willing for him or her to be a part of the study was excluded. Initial screening was conducted with the help of a simple questionnaire. This was to be filled in by the parent of the child. This included a few simply worded questions pertaining to the presence of any ear disease, discharge, pain, or hearing or speech problems. Ethical

approval was taken from the institutional ethical committee and written consent was obtained from the parents/guardians of the children after explaining them in written the entire research protocol. All the children whose parents consented for them to be a part of the study were subjected to an ear examination. A team of ENT specialists would visit the school at a preappointed time and screen 50 children in each sitting. All students underwent an ear examination to establish any existing external or middle ear pathology. Those with a positive history of hearing or speech defects or with a positive finding on examination were then subjected to hearing assessment and/or tympanometry. A simple proforma was filled for all children found to be suffering from any disease of the ear. This proforma included a brief history pertaining to the illness, the ear findings as well as audiometric and tympanometric findings, where undertaken. A comparison was made of both the groups with regards to certain parameters which are considered aetiological. Per capita income of the family, education and occupation of the head of the family of students of both the groups was obtained from parents or guardians or from school records and accordingly both cases and controls were categorized under different socioeconomic

status separately with the help of Kuppuswamy classification. The data obtained was analyzed using chi-square test.

RESULTS

A total of 6000 school children were evaluated in a period of over 3 years. The children were studied for prevalence and type of ear disease. **Table 1** shows prevalence of etiologic factors in the patients. A large population of children in group 1 was found to be suffering from CSOM whereas only 2 out of 3000 children seen in group 2 were found with the same condition. Upon analysis, the p value obtained was 0.005, denoting a highly significant difference between the two groups. **Table 2** highlights the prevalence of chronic otitis media in the patients. **Table 3** shows the prevalence of secretory otitis media in the patients. The point prevalence of the disease in group 1 was almost four times that in group B. Statistics show this disease to be significantly more prevalent in group 1 children (p < 0.005). **Table 4** highlights the prevalence of otomycosis in patients. Otomycosis was found in 18 children from group 1, whereas only one child in group 2 was found to be suffering from this condition. The p value was calculated as, 0.005, so the difference was found to be statistically significant.

Table 1: Prevalence of etiologic factors in the patients

Parameter	Group 1	Group 2
Family monthly income (Rs)	1100	32000
Family member number	8.09	4.05
Rooms per family person at home	2.80	7.01
Bath/weeks by child	3.4	9.9

Table 2: Prevalence of chronic otitis media in the patients

	Unilateral	Bilateral	Total cases	Point prevalence
Group 1	198	84	282	9.5%
Group 2	2	0	2	0.068%

P-value < 0.05

Table 3: Prevalence of secretory otitis media in the patients

	Unilateral	Bilateral	Total cases	Point prevalence
Group 1	172	94	266	9.1%
Group 2	48	12	60	3%

P-value < 0.05

Table 4: Prevalence of otomycosis in patients

	Unilateral	Bilateral	Total cases	Point prevalence
Group 1	20	16	36	1.4%
Group 2	2	0	2	0.067%

P-value < 0.05

DISCUSSION

Otitis media with effusion is presence of non purulent effusion within the middle ear cleft. The fluid may be mucous or serous but never purulent.⁵ It is one of the common reasons for deafness among children. When inadequately treated, otitis may lead to major functional limitations like permanent hearing loss and impairment in development of speech and language. Social class position is a powerful predictor of illness and death from many forms of both chronic and infectious disease. According to a recent study with increasing higher class position, health improves, and with descending class

position health deteriorates.⁶⁻⁸ Hence; we evaluated the frequency and type of ear diseases in children of low socioeconomic status in comparison to the children belonging to the higher strata of society.

In the present study, the data obtained in our study are based on the screening of schoolchildren in the five to 12-year age group in a private and a government school. Hence the extent of ear problems was determined by examinations performed on a random sample of the population, rather than from those seeking medical care. The results of the study show that the prevalence of otitis media (purulent and serous) is higher in children of low

socioeconomic status than those of higher socioeconomic status. The diagnosis of these conditions was based on otoscopic findings and impedance audiometry. Ilechukwu et al evaluated the prevalence of ear-related problems among children presenting at the Paediatric and Otorhinolaryngology clinics of the University of Nigeria Teaching Hospital, Enugu. They conducted a cross-sectional study at the Paediatric and Otorhinolaryngology Clinics of the University of Nigeria Teaching Hospital Enugu. Three thousand and twenty-one children were seen during the study period. Out of these, 248 children (8.2%) presented with ear-related problems. From the results, they concluded that ear-related problems among children presenting at the UNTH Enugu were not uncommon. However, otitis media was the most commonly diagnosed ailment affecting the ears in children.⁹ Chinawa et al assessed the pattern of congenital cardiac disease among children attending UNTH, Enugu, Nigeria. The nature of these abnormalities and the outcome were also considered. They retrospectively analyzed discharged cases in which a review of the cases of all children attending children outpatient clinics including cardiology clinic of the University of Nigeria Teaching Hospital (UNTH), Enugu over a five year period (January 2007-June 2012) was done. They observed that a total of 31,795 children attended the children outpatient clinics of the hospital over the study period. Of these, seventy one (71) had cardiac diseases. The overall prevalence of cardiac disease is 0.22%. The commonest symptoms were breathlessness, failure to thrive and cyanosis. Almost all types of congenital defects were represented, the commonest being isolated ventricular septal defect (VSD), followed by tetralogy of Fallot. From the results, they concluded that 0.22% per cent of children who attended UNTH in Enugu State had congenital cardiac abnormalities and the commonest forms seen were those with VSD.¹⁰ Musa et al assessed the prevalence of Otitis externa in the specialist otolaryngology clinic in National Ear Care Center Kaduna, to study the pattern of presentation among patients with otitis externa in the specialist otolaryngology clinic in National Ear Care Center Kaduna, and evaluated the choice of drug treatment for otitis externa in the specialist otolaryngology clinic in National Ear Care Center Kaduna. From the results, they concluded that otitis externa accounts for small fraction of cases seen in their clinic.¹¹ Chinawa et al determined the clinical profile and pattern of presentation of complex congenital cardiac malformations among children attending a tertiary hospital in Enugu State. They evaluated over thirty thousand children who attended the outpatient clinic of the hospital over the study period, of these, 65 had cardiac diseases, from which 16 were found to have congenital complex cardiac abnormalities of various types, giving a prevalence of 0.05%. From the results, they concluded that 0.05% of children who presented at cardiology clinic of a teaching hospital in Enugu State had congenital complex cardiac abnormalities.¹²

CONCLUSION

From the above results, the authors concluded that out of the several possible suggested hypotheses which cause ear problems, poverty is one of them. However, future research is required.

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