

Evaluating Ear-Care Knowledge and Practices Among Doctors and Nurses in Sub-Saharan Africa

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ABSTRACT

Background: The ear serves the functions of hearing and balance in an individual. Whereas the hearing function is articulated by the three parts of the ear, balance is performed alongside other structures by the vestibular system of the inner ear. Acoustic trauma and drug ototoxicity affect mainly the inner ear and are usually irreversible. **Aim:** To assess ear care knowledge and practices among health care practitioners (doctors and nurses) in Benue State. **Methodology:** The setting was the 2021 AGM and CME/CPD of NMA, Benue State which held between 2-6th August, 2021, and a 5- days CPD by NANNM, Benue State which took place from 1st - 5th March, 2021. Ethical clearance for the study was obtained from the ethical committee of the BSUTH, Makurdi. The sample size of 226.8 was calculated using a previous prevalence of 81.6% but 252 subjects were used because of 10% attrition rate. Pretested, self-administered questionnaire was distributed to consented participants who filled and returned them same day. Data collected were analyzed and presented in simple distribution tables. **Results:** They were 252 respondents but 2 had incomplete data leaving 127(50.8%) Males and 123(49.2%) Females whose data were finally analyzed. One hundred and thirty-nine (55.6%) doctors: [Consultants- 53(21.2%), Medical Officers/General Practitioners-86(34.4%) and 111(44.4%) Nurses. Majority (60.8%) were unaware that childhood immunization prevent deafness and 60.3% said that deafness could not be inherited while 58.8% responded that a child born deaf could still develop speech. About 60.3% of the respondents did not know that hearing loss resulting from loud noise may not recover and use of H₂O₂ and syringing an infected ear were regular normal practices to many. Majority 87.9% were unaware of any warning sign of drug ototoxicity. **Conclusion:** A significant percentage of the studied population exhibited inadequate knowledge and still undertakes some harmful practices that are detrimental to good ear care. There is therefore the need to increase the exposure-time in ear, nose and throat postings during the trainings of or embark on regular health education at CME/CPD for these category of professionals.

Keywords: Ear care, knowledge, doctors, nurses

INTRODUCTION

The ear serves the functions of hearing and balance in an individual[1]. The ear is divided into three parts viz the external, middle and inner ear

compartments. Whereas the hearing function is articulated by the three parts, balance is performed alongside other structures by the vestibular system of the inner ear. Pathologies in either the external or middle ear

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or both result in conductive hearing loss while those affecting the inner ear and beyond cause sensorineural hearing loss and balance disorders. These pathologies range from cerumen aërus(wax) impaction, foreign body lodgment, acoustic trauma, injuries to the ear, infections, tumors, iatrogenic drug ototoxicity, deleterious effect of comorbidities of diabetes mellitus and hypertension and their treatment to a host of other ailments[2,3]. Cerumen aërus is produced by the ceruminous and sebaceous glands of the skin lining of the external auditory canal and functions to lubricate, clean and protect the canal. It does this by maintaining acidic milieu(PH of 5.2-7.0), as well as its antibacterial and antifungal properties, and trapping dusts and other dirt, in the external auditory canal[4-7]. The ear normally cleans itself of these cerumen aërus but in some people who produced thick wax or habitual self-ear cleaners, the cerumen may get impacted in the narrowed bony cartilagenous segment(isthmus) of the canal to cause symptoms.

Injury from noise exposure could be insidious or sudden such as use of ear buds to listen to loud music, noise from recreational events, churches/mosques, noisy work places or gunshots or blasts. There are many drugs that are ototoxic but are still being used liberally by many practitioners without looking out for possible deleterious effect on the hearing of their patients thereby rendering many of the patients hearing impaired or deaf after such treatment. There are also many outdated harmful practices that are still being carried out among health care practitioners especially the nurses such as use of hydrogen peroxide for ear pains/infections and syringing an infected ear among others[8-10].

It was in the light of these that we designed this study to assess ear care knowledge and practices among health care practitioners(doctors and nurses) in Benue State. To the best of the authors' knowledge no similar study had been done in Benue State, Nigeria.

MATERIALS AND METHODS

The setting was the 2021 Annual General Meeting and CME/CPD of NMA, Benue State which held between 2-6th August, 2021, and a 5- days CPD by National

Association of Nigerian Nurses and Midwives(NANNM), Benue State which took place between 1st – 5th March, 2021. Ethical clearance for the study was obtained from the ethical committee of the Benue State University Teaching Hospital, Makurdi. The sample size of 226.8 was calculated using Fisher's formula and a prevalence of 81.6% from a previous study[8,9]. But considering a 10% non-response rate, the sample was adjusted to 252 subjects. All consented doctors and nurses were recruited and a pretested, self-administered questionnaire was distributed to the participants who filled and returned them same day. Ear, Nose and Throat doctors and nurses were excluded from the study. Data collected were in two parts: Part A was on demography, specialization and work experience, while Part B dwelled on basic knowledge of ear and awareness about primary ear care or hearing care and some negative practices. Highlights in part B included knowledge about the hearing and balance functions of the ear, need for regular hearing assessment especially in children, effect of exposure to loud sounds/prevention, common drugs and ototoxicity and warning symptoms, ability of ear cleaning itself naturally, harmful practices such as self-ear cleaning/complications from such practices, use of hydrogen peroxide in the ear, syringing of infected ear and prolong use of ear piece or headphones to listen to loud music.

RESULTS

They were 252 respondents with 2 incomplete data; 127(50.8%) Males and 123 (49.2%) Females. They were 139(55.6%) Doctors:[Consultants-53(21.2%), Medical Officers/General Practitioners-86(34.4%) and 111(44.4%) Nurses. A further categorization of the nurses showed: Basic/General Nurses-53(21.2%) and Specialist Nurses-58(23.2%). Two(0.8%) respondents did not complete their data. The respondents' years of experience vary from 1year to >40 years, see table I while the responses to the various questions on awareness and basic knowledge of primary ear care or hearing care and common disorders are in table II.

Table I: Distribution of respondents and years of experience

Variable	Frequency	Percent
Profession /Cadre	139	55.6%
Consultant Medical Officers/General Practitioners Specialist Nurses Basic/General duty Nurses	111	44.4%
Years of Experience		
1 – 10	86	34.4%
11 – 20	65	26.0%
21 – 30	57	22%
31 – 40	39	15.6%
>40	3	1.2%
Total	250	100

Table II: Questions on awareness and basic knowledge of primary ear care or hearing care

QUESTION	YES (%)	NO (%)	DO NOT KNOW (%)
Are you aware that the ear serves the functions of both hearing and balance and equilibrium	215(86.0)	17(6.8)	18(7.2)
Hearing impairment always means that the person is deaf	35(14.0)	64(25.6)	151(60.4)
Can deafness be inherited?	20(8)	59(23.6)	171(68.4)
A child who is born deaf may not learn to speak properly	68(27.2)	14(5.6)	168(67.2)
Some hearing loss can benefit from hearing aid	21(8.4)	59(23.6)	170(59.8)
Are you aware that there are different types and levels of hearing impairment	81(32.4)	51(20.4)	118(47.2)
Do you know that neglected or inadequately treated ear infection can cause hearing impairment	78(31.2)	52(20.8)	120(48.0)
Can vaccination against measles, mumps and rubella prevent hearing impairment	63(25.2)	36(14.4)	151(60.4)
Is it okay to clean the ear regularly with cotton buds or other objects?	35(14.0)	189(75.6)	26(10.4)
Is it okay to use cotton bud or other things to soothe an itching ear?	163(65.2)	65(26.0)	22(8.8)
Have you ever experienced any complication with the use of cotton buds or other objects?	205(82.0)	33(13.2)	12(4.8)
Are you aware that the ear cleans itself naturally?	39(15.6)	189(75.6)	22(8.8)
Is it okay to use headphones or ear buds to listen to music?	224(89.6)	14(5.6)	12(4.8)

Do you know that loud noise can damage the ears?	63(25.2)	37(14.8)	150(60.0)
Hearing impairment by loud noise will always recover	36(14.4)	195(78.0)	19(7.6)
Are you aware that your ear need time to recover after prolonged exposure to loud noises at concerts or party?	37(14.8)	176(70.4)	37(14.8)
Are you aware of the rule of 60/60 regarding listening to music through headphones?	179(71.6)	48(19.2)	23(9.2)
Are you aware of hearing protection devices that can protect the ears from the effect of noise?	224(89.6)	12(4.8)	14(5.6)
Are you aware that some drugs can cause hearing loss?	44(17.6)	187(74.8)	19(7.6)
Do you know of any early warning symptom of drug ototoxicity?	26(10.4)	205(82.0)	19(7.6)
Do you know that tinnitus may be an early warning sign to drug ototoxicity?			
Do you think the use of hydrogen peroxide in the treatment of ear infections is appropriate?	64(25.6)	153(61.2)	33(13.2)
	74(29.6)	149(59.6)	27(10.8)
Is it okay to flush or syringe a discharging ear?	207(82.8)	23(9.2)	20(8.0)
Do you know that a discharging ear can be a source of intracranial lesion including cerebrospinal meningitis	179(71.6)	30(12.0)	41(16.4)
Do you know that routine hearing assessment is necessary in individuals including children?	220(88.0)	12(4.8)	18(7.2)
Are you aware that infection from the nose can extend to the ears?	219(87.6)	17(6.8)	14(5.6)

The commonest complication with the use of cotton bud was trauma/pain in 146(58.4%) and lodgment in 89(35.6%). Chloramphenicol and Gentamicin were recorded by most respondents as drugs that cause deafness.

DISCUSSION

A very good number of participants in this study 215(86%) knew about the balance and hearing functions of the ear. However, many were unaware that deafness could be inherited, or a child born deaf may not be able to speak, or some hearing impaired individuals could benefit from use of hearing aids. Whereas, only 31.2% and 25.2% were aware that neglected or inadequately treated ear infection could lead to hearing loss and vaccination against measles, mumps and rubella could prevent hearing impairment respectively, a whopping 48% and 60.4% were ignorant of these. We could not find any literature that documented any findings on these variables.

On some harmful practices in ear care such as use of objects to clean the ear, 82.0% claimed they were aware that the ear cleans itself. Furthermore, majority of the

respondents(76.4% and 75.6%) knew that it was not good to use cotton bud to clean the ear or use it to soothe an itching ear respectively, yet 65.2% still indulge in it with resultant various complications which ranges from trauma/pain in 58.4% and lodgment in 35.6%. However, this prevalence is lower than the 94%, 76.3% and 81.6% recorded in Ekiti, Kano and Jos respectively, among similar health worker populations in Nigeria with documented various degrees of complications [10,11,12]. These differences may be attributed to the sample sizes and the different characteristics of the studied populations. Another study by Olajide et al[9] on school children population from the same South-West region, Nigeria had similar prevalence of 67.8%. Previous studies recorded that personal hygiene, to soothe an itching ear and habit are the main reasons adduced for the practice of self-ear cleaning [10-14].

A large percentage of the study population (89.6% and

75.6%) knew about the deleterious effects of loud sounds on the ear and the use of headphones /ear piece or ear buds to listen to loud music respectively. Unfortunately, 25.2% thought that hearing loss associated with loud sounds could recover while 60.0% were not sure. Also, 71.6% knew of devices that could protect the ears from loud sounds. But of great significance is that 78% and 70.4% respectively of the respondents did not know that the ears need to be rested after exposure to loud sounds at parties or concerts, and the rule of 60/60 regarding listening to music through the ear piece or headphone. This is worrisome because these health care professionals should be in the forefront of health education to the teeming population of our youths that normally indulge in listening to loud sounds at parties/concerts, in cars and through the use of headphones or ear piece or buds.

On drugs and ototoxicity, 89.6% had knowledge of some drugs that are ototoxic such as chloramphenicol and gentamicin but 74.8% did not know of any warning symptom. Worse still is the fact that 82.0% never knew that tinnitus could be a warning sign and can precede hearing loss in drug ototoxicity. No previous studies reported this findings.

On other harmful ear care practices such as use of hydrogen peroxide in the ear and flushing or syringing a discharging ear, 25.6% and 29.6% respectively felt there was nothing wrong with these practices, this was despite the fact that 82.8% knew that a discharging ear could be a source of cerebrospinal meningitis.

The majority of the studied group (88.0%) and (87.6%) had knowledge of possible extension of nasal infection into the ear as well as the importance of expertise and use of special instruments in extracting foreign bodies from the ear respectively. Equally, 71.6% affirmed that regular hearing assessment was necessary in individuals especially in children. This agrees with the documented report by Olajide et al in a similar population in South West, Nigeria[10].

Majority of the respondents(39.7%) are young practitioners of 10years or less. This means they are more likely to be equipped with recent memories from

their various training institutions. But with the high number of respondents with no idea about some harmful ear care practices it brings to question the possible gap in knowledge on basic ear care in the curricula of the training institutions. This can be attributed to short time of exposure in Ear, Nose and Throat Surgery during special postings/rotations in medical schools and nursing training.

CONCLUSION

A significant percentage of the studied population exhibited inadequate knowledge and still undertakes some harmful practices that are detrimental to good ear care. There is therefore the need to increase the exposure-time in ear, nose and throat postings during the trainings of or embark on regular health education at CME/CPD for these category of professionals.

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