

Prevalence of Impacted Ear Wax in Some Selected Junior Secondary Schools in Sokoto Metropolis.

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Abstract: Ear wax is a normal secretion from the glands in the ear that cleanses the ear but when it becomes impacted it poses some problems to an individual. The aim of the study was to determine the prevalence of impacted ear wax in junior secondary school children and to determine if there was any association between socioeconomic status and the occurrence of wax impaction among these school children. There was need for this study in order to promote awareness of wax impaction and how to manage wax impaction. The study would help to reduce the rate at which people insert items into their ears and as well help the teachers to proactively detect students with hearing loss and take appropriate action as wax impaction accounts for most of the conductive hearing loss as this will improve the students' performance and cost reduction. A multi-staged stratified sampling technique was used to select students from the schools in Sokoto metropolis according to the sampling frame which included both government and private junior secondary schools. A total of five schools were used and 600 students were selected. Consent was obtained from parents/guardian. A self developed questionnaire was used as well as interview to obtain information on socioeconomic status of the students and ear examination to detect wax impaction. Data gathered was analyzed using simple descriptive statistics and was presented in tables. The study established that only 41.3% of the students were aware of wax impaction indicating low level of awareness among the students. 35.3% had impacted ear wax which accounted for one-third of the study population which is quite significant. Greater proportion of the students use cotton bud with 57.6% for wax removal and 39.1% use sticks ranging from broom sticks to match sticks while 73% believed that it is wrong to insert any object into the ears. Wax impaction was more common on both ears with 47.2%. Itching with 39% and ear pain with 17.6% were the most common symptoms of the students. Male to female ratio was 1.4:1 which means wax impaction is not associated with sex and low socioeconomic class with 85.8% had impacted ear wax. The study showed that awareness of impacted ear wax was still very low among junior secondary school students and wax impaction cuts across all ages of which self cleaning of the ears was still common practice. Wax impaction has no association with sex but associated with the low socioeconomic class.

Keywords: Prevalence, Ear, Wax, Junior Secondary, School, Sokoto.

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I. Introduction

Ear wax is a normal secretion from the glands in the ear that cleanses the ear but when it becomes impacted it poses some problems to an individual.

Cerumen, or "earwax," is a naturally occurring substance that cleans, protects, and lubricates the external auditory canal. Cerumen forms when glandular secretions from the outer one-third of the ear canal mix with exfoliated squamous epithelium. Normally, cerumen is eliminated or expelled by a self-cleaning mechanism, which causes it to migrate out of the ear canal, assisted by jaw movement. Ear wax is impacted when it has built up in the ear canal to such a point that there may be signs that something is not quite right and that ear wax buildup and blockage often happens when people use items like cotton swabs or bobby pins to try to clean their ears which only pushes the ear wax farther into the ears (American Academy of Otolaryngology 2013).

Accumulation of cerumen, caused by failure of the self-cleaning mechanism, is one of the most common reasons that patients seek medical care for ear-related problems. Excessive or impacted cerumen is present in one in 10 children, one in 20 adults, and more than one-third of the geriatric and developmentally delayed populations. That about 12 million people seek medical care annually for problematic cerumen in the united states, resulting in nearly eight million cerumen removal procedures. Moreover, excessive or impacted cerumen in high-risk populations such as the elderly and developmentally delayed is substance present in the external auditory canal (American Academy of Otolaryngology 2013).

Ibiam, Nduagu, Obasikene and Mbata (2014) stated that ear wax impaction is a common daily otolaryngology clinic presentation cutting across age group, sex and race, yet our sub-region has little

knowledge and research on this common disease and that excess wax accumulation in some individuals can cause hearing difficulty, pain dizziness, discomfort and may become a source of infection, yet others may have very scanty amount of wax.

Eziyi, Amusa, Nwawolo and Ezeanolue (2011) said impacted wax has been classified as an ear disease. It can cause pain, itching, tinnitus, hearing loss or otitis externa and that the prevalence of cerumen impaction varies and that wax impaction is a problem amongst Nigerian primary school children. He also posed that there was a significant relationship between wax impaction and low socioeconomic status..

Adegbiji, Alabi, Olajuyin and Nwawolo (2014) described earwax impaction as one of the most common ear pathology treated in otolaryngological clinic worldwide, in the USA, about 6% of the population suffer from impacted wax and ear wax is said to be impacted when its accumulation in the external auditory canal is symptomatic or prevent assessment of the canal and eardrum or both. Impacted wax causes discomfort such as irritation, blockage, hard of hearing, earache, noise in the ear or head, and dizziness.

II. Methodology

A descriptive survey research method was used to achieve the purpose of this study. The research was specially designed to elicit information on the prevalence of impacted ear wax among junior secondary school students in Sokoto metropolis. The population comprised all junior secondary school students in Sokoto metropolis.

A multi-staged stratified sampling technique was used to select students from the schools in Sokoto metropolis according to the sampling frame which included both government and private junior secondary schools. A total of five schools were used and 600 students were selected. Pre-tested structured questionnaire was administered on each selected student with consent from parent/ guardian. Students were interviewed about their parents' education and work to determine the students' socio-economic status and students' ears were examined in the schools using the otoscope. Each pupil was placed in the upper, middle and lower socioeconomic class based on Oyediji's classification (ref).

The instrument used for data collection was self developed questionnaire structured to elicit information from the respondents on the prevalence of impacted ear wax among the selected junior secondary school students in Sokoto metropolis. Students were interviewed on their parents' socioeconomic status for proper placement and further examination (otoscopy) with the use of the otoscope was carried out in the schools and any student requiring further treatment was sent to ENT clinic.

The questionnaire was given to experts for scrutiny which was adjudged adequate in terms of content and face validity. The instrument for examination which was the otoscope has been in use over the years and approved by otorhinolaryngologists. The researcher also used test and re-test method that was based on premise that individuals maintain particular views, opinions and attitudes over a reasonable length of time, particularly if certain conditions remain constant.

Scope and Delimitation of the Study

The scope of the study was only junior secondary school level of education. The study was delimited to junior secondary school students in Sokoto metropolis only

Method and Procedure for Data Collection.

Consent forms were distributed to the students to obtain their parents/guardian's consent and a column was provided for their signatures. The instruments were administered on students whose parents/guardians gave consent by the researcher, a co-ENT nurse and assisted by a teacher from each school to ensure 100% retrieval and interview about their parents' occupation was also used to be able to determine the socio-economic status of each student and examination of the ear (otoscopy) of the selected students was carried out with the assistance of co- ENT staff.

III. Data Analysis.

Data gathered was analyzed using simple descriptive statistics and was presented in tables according to the research questions. 600 students from five schools of both public and private institutions with obtained consent were used for this study.

IV. Result

Answering of the research questions on the prevalence of impacted ear wax in junior secondary school children and to determine if there was any association between socioeconomic status and the occurrence of wax impaction among these school children.

Prevalence of Impacted Ear Wax in Some Selected Junior Secondary Schools in Sokoto Metropolis.

Table 1 which is the level of awareness of wax impaction among junior secondary school students, 41.3% were aware of wax impaction while 58.7 were not aware. The students that said it is not good to insert objects into the ears were 73% while 27% said it is good to insert objects into the ears for wax removal.

Table 1: Awareness of Ear Wax.

Schools	GDSSA	TC	SS	NG	SB	Total	Percentage
Yes	65	19	24	115	25	248	41.3
No	151	24	15	87	75	352	58.7
Awareness of Insertion of Objects into the Ears							
Yes	6	35	12	105	4	162	27
No	37	181	88	97	35	438	73

Table 2 stated the population of the students that had wax impaction. 51.2% have removed wax from their ears at one time or the other. From examination of the ear, 35.3% had impacted ear wax which accounted for one-third of the study population.

Out of the 600 students examined, 35.3% were found with impacted ear wax which accounted for approximately one-third of the population. 2.3% were found with ear perforation, debris and hyperaemic tympanic membrane.

Table 2: Attempted Wax Removal.

Schools	Yes	No
SB	155	47
SS	17	22
TC	31	12
GDSSA	74	142
NG	30	70
Total	307	293
Percentage	51.2	48.8
Ear Examination Conducted.		
Ear Examination Findings	Total	Percentage
Total students examined.	600	100
Total students found with wax	308	51.3
Total students found with impacted ear wax.	212	35.3
Total students found with ear perforation.	6	1
Total students found with debris in the ears.	5	0.8
Total students with hyperaemic tympanic membrane.	3	0.5

Table 3 showed the items they insert into their ears of which cotton buds accounted for 57.6%, sticks ranging from broom sticks to match sticks accounted for 39.1%, biro covers 2.6% and feather 0.7%.

Table 3: Items used for Wax Removal.

Items	GDSSA	NG	SB	SS	TC	Total	Percentage
Cotton bud	42	20	68	16	31	177	57.6
Sticks	32	10	77	1	-	120	39.1
Biro cover	-	-	8	-	-	8	2.6
Feather	-	-	2	-	-	2	0.7

Table 4 showed the ear that was most affected and 25.1% have had wax impaction on their left ears, 28.3% on their right ears and 46.6 have had wax impaction on both ears. Ear examination showed that both ears were more affected with 47.2% while left and right ears showed equal range of 26.4% each.

Table 4: Ears that have had Wax Impaction.

Schools	Left ear	Right ear	Both ears
SB	37	48	70
SS	7	6	4
TC	3	6	22
GDSSA	18	21	35
NG	12	6	12
Total	77	87	143
Percentage	25.1	28.3	46.6
Ears Affected on examination			
	56	56	100
Percentage	26.4	26.4	47.2

Table 5 showed the distribution of students with wax impaction associated with sex. The study showed 58% male and 42% female of the population found with impacted ear wax.

Table 5: Sex Distribution of Students with Impacted Ear Wax.

Sex	Total	Percentage
Male	123	58
Female	89	42
Total	212	100

Table 6 showed wax impaction associated with socioeconomic status of the students. The study showed low socioeconomic class with 85.8%, middle socioeconomic class with 11.8% and high socioeconomic class with 2.4%.

Table 6: Distribution of Impacted Ear Wax among the Socioeconomic Class.

Socioeconomic Class	Total Students with Wax Impaction.	Percentage
High Socioeconomic Class	5	2.4
Middle Socioeconomic Class	25	11.8
Low Socioeconomic Class	182	85.8
Total	212	100

V. Conclusion

The study showed that awareness of impacted ear wax was still very low among junior secondary school students and wax impaction cuts across all ages of which self cleaning of the ears was still common practice as cotton buds was the most inserted object into the ears. Wax impaction was more common on both ears and has no association with sex but associated with the low socioeconomic class.

VI. Recommendation

Based on the conclusion from the research findings the following recommendations were made:

1. There should be more awareness campaign against self cleaning of impacted ear wax.
2. Impacted ear wax management should be included as part of health education given to students in schools.
3. Teachers and parents/guardians should be proactive in detection students with hearing loss for appropriate treatment.

Acknowledgement

My sincere gratitude goes to Almighty God for sustaining me and to my husband and children for their understanding, care and support. I wish to appreciate my assistance Sule Adejoh for his time and support accorded during the course of this research. My sincere gratitude to Dr K. R.Iseh for his encouragement.

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APPENDIX 1

ETHICAL CLEARANCE

USMANU DANFODIYO UNIVERSITY TEACHING HOSPITAL, SOKOTO.
PRIVATE MAIL BAG 2370, SOKOTO - NIGERIA.

Chairman Board
Director of Administration
Salim Ibrahim Jafar, B.Sc (Sociology) PGDPA, AIHAN



Chief Medical Director
Dr. Y. Ahmed MBBS, FWACS
Chairman M.A.C
Dr. Anas Sabir, MBBS, FMCP

UDUTH/HREC/2016/No. 464
Our Ref: _____ Your Ref: _____ Date: June 10, 2016

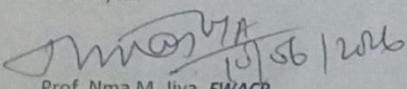
Scott-Aghedo Patricia O.
ENT Ward,
Usmanu Danfodiyo University Teaching Hospital,
Sokoto, Nigeria.

RE: APPLICATION FOR ETHICAL CLEARANCE AND APPROVAL FOR CONDUCTING RESEARCH

With reference to your application on the above subject dated 21st April, 2016 on a research topic titled "*Prevalence of Impacted Ear Wax in some selected Junior Secondary Schools in Sokoto Metropolis*", I write to acknowledge its receipt and to convey Ethical Committee's approval to you. The approval is given with the understanding that the data obtained would be used to substantiate the above topic.

Please ensure that the study is guided by the methodology presented in the proposal.

Thank you.


Prof. Nma M. Jiya, FWACP
Chairman HREC

UDUTH, Sokoto Tel: 08065100313, 08098548232, 07052752768 email:uduth.org.ng

APPENDIX 2

LETTER TO SCHOOLS.

ENT Department
UDUTH,
Sokoto.

The Principal
Success Schools
Sokoto.
Sir/Ma,

PERMISSION TO CARRY OUT A RESEARCH.

I, Mrs Patricia Scott-Aghedo a Chief Nursing Officer in ENT Department, UDUTH, Sokoto wish to carry out a research on the “Prevalence of impacted ear wax in some selected junior secondary schools in Sokoto metropolis”among which your school is selected to benefit from the exercise.

This research will include ear examination of the students using the Otoscope for the presence of wax (ear secretions that can block the ear if not properly cared for). Any student found with such incident will be treated and advised on how to prevent further reoccurrence. No risk is involved and students will benefit from the examination and treatment offered.

I will be very grateful if my request is granted.

Yours Sincerely,

Patricia Scott-Aghedo.

APPENDIX 3

INFORMED CONSENT FORM

A Study to evaluate the “Prevalence of impacted ear wax in some selected junior secondary schools in Sokoto metropolis”.

Respected Parents /Guardians.

I request your child or ward to participate in this study as he/she is eligible to be included.

During the study, he/she will be asked questions regarding cleaning of the ear and will also benefit from examination of the ear.

Your participation in this study is voluntary.

Benefits: The benefit will be examination for the presence of impacted ear wax which if present will require further treatment and advice.

Confidentiality: All information gathered during the course of this study is confidential.

Yours Sincerely

Patricia Scott-Aghedo

Parent/Guardian

APPENDIX 4

QUESTIONNAIRE

This questionnaire is to assess the prevalence of wax impaction among junior secondary school students in Sokoto metropolis. All information will be kept confidential.

(√) Tick where appropriate.

Section A

Name of School -----

Age -----

Sex M () F ()
Class JSS1 () JSS2 () JSS3 ()

Section B

Have you heard about ear wax? Yes () No ()

Have you ever remove any wax from your ear? Yes () No ()

If yes what did you use? -----

Is it good to insert any object into your ears? Yes () No ()

Prevalence of Impacted Ear Wax in Some Selected Junior Secondary Schools in Sokoto Metropolis.

- Which ear has wax impaction? Left ear () Right ear () Both ()
- What signs and symptoms do you usually have?
- | | |
|----------------------------------|----------------------------------|
| Itching | Sensation of fullness in the ear |
| Ringing sensation in the ear | Odour |
| Cough | Fainting attack |
| Feeling of discomfort in the ear | Headache |
| Dizziness | Ear pain |
| Loss of hearing | Ear discharge |
- What does your father do? -----
- What does your mother do? -----
- Which school did your father attend? (a)University graduate or equivalent
(b) School certificate ordinary level GCE, holders who also had teaching or other professional training
(c) School certificate or grade II teachers certificate holders or junior secondary education only or equivalent (d) Modern 3 or primary 6 certificate (e) Those who could either just read or write
- Which school did your mother attend? (a)University graduate or equivalent
(b) School certificate ordinary level GCE, holders who also had teaching or other professional training
(c) School certificate or grade II teachers certificate holders or junior secondary education only or equivalent (d) Modern 3 or primary 6 certificate (e) Those who could either just read or write.

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