

Self-Ear-Cleaning Among Educated Young Adults in Nigeria

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ABSTRACT

Context: Self-ear-cleaning has been reported to be common from several hospital-based studies and it has been associated with some diseases of the ear. **Aims:** To determine community-based prevalence of self-ear-cleaning and its sociodemographic correlates among educated young adults in Nigeria. **Settings and Design:** A cross-sectional survey conducted in a National Youth Service Corps camp in Nigeria. **Subjects and Methods:** Semistructured questionnaires were administered on a randomly selected sample of 1280 respondents. The outcome variable was self-ear-cleaning. Independent variables were sociodemographic variables, materials used and ear-cleaning habits. **Statistical Analysis Used:** Statistical Package for the Social Sciences (SPSS) version 15 was utilized for univariate, bivariate, and multiple logistic regression analysis. **Results:** There were 1012 respondents (M: F = 1.05:1). Mean age was 25.3 (standard deviation, 2.34). Prevalence of self-ear-cleaning was 93.4%. Mean age at first cleaning was 7.6 years. Cotton buds were the most frequently used objects (in 85.1%). Prevalence was high irrespective of sociodemographic class, significantly higher among females ($\chi^2 = 4.549$, $P = 0.033$), those who believed the habit was beneficial ($\chi^2 = 114.185$, $P < 0.001$) and those whose parents and siblings practiced the habit. Significant predictive factors were self-ear-cleaning in respondent's father [odds ratio (OR) $P = 0.011$] and owning cotton buds (OR = 0.192, $P = 0.007$). **Conclusions:** Self-ear-cleaning is almost universal. Most of the population is, therefore, at risk of possible harmful effects. Also, medical advice against self-ear-cleaning is not widely known. Rather, the erroneous perception that self-ear-cleaning is beneficial is common. Collaborative health education efforts targeted at families and schools and campaigns and advocacy for legislation regulating the sale of cotton buds are recommended.

Keywords: Correlates, educated young adults, Nigeria, prevalence, self-ear-cleaning, socio-demographic correlates

Introduction

Self-ear-cleaning, the insertion of objects into one's own ears purportedly to clean them, has been reported to be very common in several places including Malaysia, England, and the United States.^[1-4] In Nigeria, 90% of respondents in a survey practiced self-ear-cleaning.^[1] Most of those who practice self-ear-cleaning believe that for ear hygiene, it is necessary to remove excess earwax.^[1] It is, however, well-established that earwax (cerumen) protects, cleans, and lubricates the skin of the ear canal^[5] and that the normal canal has a self-cleansing mechanism (a "conveyor belt" process of epithelial migration, aided by jaw movement) and does not need to be cleaned. By this process, cerumen in the canal is moved outward along with dirt, dust, and particulate matter within the ear canal. Eventually, the epithelium reaches

the outside of the ear and flakes off.^[6] It is believed by experts that self-ear-cleaning interferes with this natural process and may predispose to certain diseases of the ear.

Otitis externa, cerumen impaction, and injuries to the ear are thought to be associated with self-ear-cleaning.^[7-9] Otitis externa is an infection of the external ear with potentially serious implications for hearing. Acute otitis externa is one of the most common infections encountered by clinicians. The annual incidence is between 1:100 and 1:250 of the general population with regional variations based on age and geography, and a lifetime incidence of up to 10%.^[10,11] Cerumen impaction is defined as an accumulation of cerumen that causes symptoms, prevents a needed assessment of the ear canal/tympanic membrane, audiovestibular system, or both.^[12] It is one of the most common reasons that patients seek medical care for ear-related problems.^[9] It can affect up to 6% of the general population and a much higher percentage of the elderly and persons with cognitive

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impairment.^[13] Excessive or impacted cerumen is present in approximately 1 in 10 children, 1 in 20 adults, and 1 in 3 older adults.^[9,12,14] In the United States, cerumen accumulation leads to 12 million patient visits and 8 million cerumen removal procedures annually.^[15] Also, cerumen removal is the most common ear, nose, and throat (ENT) procedure performed in primary care.^[14]

Available prevalence figures for self-ear-cleaning are mostly from hospital based studies but community-based figures are needed to accurately estimate the population at risk of possible complications. In addition, inquiry into social and demographic factors is needed to identify modifiable factors and yield information for designing control measures. This study, therefore, aimed at investigating the prevalence and sociodemographic correlates of self-ear-cleaning among educated young adults in Nigeria. The data here presented are from a study that investigated the prevalence of self-ear-cleaning and its correlates among a population of youths. This population of youths was studied as an initial step toward studying community-based prevalence because a previous study in Nigeria gave the mean age of people who practiced self-ear-cleaning as 30.3 years.^[1] The study area was the National Youth Service Corps (NYSC) camp located on in Ede, Osun State, Nigeria, where about 2317 youths from all over Nigeria were gathered.

Subjects and Methods

The study was a cross-sectional survey approved by an institutional ethical review committee. The target population was the population of NYSC members in Osun state, Nigeria; while the study population was a randomly selected sample of NYSC members aged 17 years and above. A minimum sample size of 385 was determined but a projection to study 1280 was made in order to facilitate subgroup analysis and also taking into consideration a nonresponse rate of 10%. Respondents were selected by stratified random sampling. One-tenth of the total sample size was selected from each of the 10 “platoons” into which the corps members were systematically allocated, based on the number serially assigned them at registration.

Data were collected with a self-administered semistructured questionnaire which had been pretested on 20 randomly selected corps members who were not resident in the camp and revised prior to administration. Face validity and content validity were ascertained by two otorhinolaryngologists (ear, nose and throat specialists) and two statisticians. The major outcome variable was self-ear-cleaning (yes or no). Independent variables included sociodemographic variables, perception of benefit of self-ear-cleaning, reason (s) for practicing or not practicing self-ear-cleaning, owning cotton buds and moving about with cotton buds, others included the ear (s) involved, part of ear cleaned, duration and frequency of self-ear-cleaning, and the material (s) used for self-ear-cleaning.

Data entry, cleaning, and analysis were done with the Statistical Package for the Social Sciences (SPSS) version 15. Data analysis

was univariate (proportions, means and standard deviations, medians and ranges), bivariate (crosstabs), and multiple logistic regression analysis [of the outcome variable and independent variables that showed tendencies ($P < 0.10$) in the bivariate analysis]. P values less than 0.05 were considered significant.

Results

Of the 1280 subjects enrolled in the study, 1012 subjects returned their questionnaires. There were about as many females as males (M: F =1.05:1). Mean age was 25.3 (standard deviation, 2.34). The frequency distribution of the sociodemographic characteristics is as shown in Table 1. The prevalence of self-ear-cleaning was 93.4% and majority of these (95.8%) practiced it in both ears. Unilateral self-ear-cleaning was 1.1% and 3.2% in the right and left ears, respectively. Mean age at commencement of self-ear-cleaning was 7.6 years and cotton buds were the most frequently used objects (in 85.1% of respondents).

The prevalence was high in all groups although there were some variations by some sociodemographic characteristics.

Table 1: Prevalence by sociodemographic strata and association with self-ear-cleaning

Sociodemographic variable	Self-ear-cleaning (%)		Total (%)	X ²	P value
	Yes	No			
Sex					
Female	464 (95.1)	24 (4.9)	488 (100)	4.549	0.033
Male	465 (91.7)	42 (8.3)	507 (100)		
Religion					
Christian	739 (94.5)	43 (5.5)	782 (100)	4.756	0.029
Muslim	187 (90.3)	20 (9.7)	207 (100)		
Ethnicity					
Yoruba	467 (92.3)	39 (7.7)	506 (100)	3.044	0.381*
Ibo	220 (95.7)	10 (4.3)	230 (100)		
Hausa	38 (92.7)	3 (7.3)	41 (100)		
Others	208 (93.7)	14 (6.3)	222 (100)		
Geopolitical zone					
North	204 (89.1)	25 (10.9)	229 (100)	11.759	0.008
South-west	344 (93.5)	24 (6.5)	368 (100)		
South-south	191 (94.6)	11 (5.4)	202 (100)		
South-east	197 (97.0)	6 (3.0)	203 (100)		
Marital status					
Married	95 (95.0)	5 (5.0)	100 (100)	0.847	0.714*
Single	831 (93.2)	61 (6.8)	892 (100)		
Divorced	2 (100)	0 (100)	2 (100)		
Discipline					
Physical sciences	190 (92.7)	15 (7.3)	205 (100)	2.147	0.542
Bio. sc and med**	174 (94.6)	10 (5.4)	184 (100)		
Arts and education	235 (94.8)	13 (5.2)	248 (100)		
Social sciences and law	331 (92.2)	28 (7.8)	359 (100)		
Institution***					
University	736 (94.4)	44 (5.6)	780 (100)	6.520	0.011
Others	185 (89.4)	22 (10.6)	207 (100)		

*Fisher's exact test, **Biological sciences and medicine, ***Institution attended

Self-ear-cleaning was significantly higher among females than among males, among Christians than among Muslims, in university graduates than in graduates of other institutions, in the south-eastern geopolitical zone of the country than in the other zones, and among those whose perception was that self-ear-cleaning was beneficial. It was also significantly higher in those whose parents' education was secondary or postsecondary, among those who owned cotton buds, those moved around with cotton buds, and among those whose parents and siblings also practiced the habit. Tables 1 shows the prevalence by sociodemographic strata and associations with self-ear-cleaning and Table 2 shows the prevalence by other selected respondent characteristic and associations with self-ear-cleaning.

Table 2: Prevalence by other respondent characteristics and association with self-ear-cleaning

Sociodemographic variable	Self-ear-cleaning (%)		Total (%)	X ²	P value
	Yes	No			
Perception					
Beneficial	814 (97.1)	24 (2.9)	838 (100)	114.185	<0.001
Not sure/harmful	115 (74.2)	40 (25.8)	155 (100)		
Ownership of cotton buds					
Yes	829 (96.3)	32 (3.7)	861 (100)	80.808	<0.001
No	99 (75.6)	32 (24.4)	131 (100)		
Carrying cotton buds around					
Yes	278 (98.6)	4 (1.4)	282 (100)	16.640	<0.001
No	647 (91.5)	60 (8.5)	707 (100)		
Education (father)					
Primary/no formal	128 (88.9)	16 (11.1)	144 (100)	6.431	0.040
Secondary/postsecondary	287 (95.3)	14 (4.7)	301 (100)		
Tertiary	492 (93.2)	36 (6.8)	528 (100)		
Education (mother)					
Primary/no formal	170 (89.5)	20 (10.5)	190 (100)	8.310	0.016
Secondary/postsecondary	379 (95.7)	17 (4.3)	396 (100)		
Tertiary	349 (92.8)	27 (7.2)	376 (100)		
Mother's occupation					
Low income	162 (91.5)	15 (8.5)	177 (100)	2.301	0.317
Middle income	602 (94.2)	37 (5.8)	639 (100)		
High income	146 (91.8)	13 (8.2)	159 (100)		
Father's occupation					
Low income	111 (93.3)	8 (6.7)	119 (100)	4.668	0.097
Middle income	559 (92.2)	47 (7.8)	606 (100)		
High income	235 (96.3)	9 (3.7)	244 (100)		
Ear cleaning in father					
Yes	759 (97.6)	19 (2.4)	778 (100)	220.915	<0.001*
No	23 (47.9)	25 (52.1)	48 (100)		
Ear cleaning in mother					
Yes	824 (96.9)	26 (3.1)	850 (100)	133.082	<0.001*
No	22 (56.4)	17 (43.6)	39 (100)		
Ear cleaning in sibling					
Yes	817 (96.2)	32 (3.8)	849 (100)	133.306	<0.001*
No	17 (50.0)	17 (50.0)	34 (100)		

*Fisher's exact test

In a multiple logistic regression analysis model between self-ear-cleaning and selected covariates (with bivariate associations with self-ear-cleaning significant at 0.10 level of significance), only self-ear-cleaning in father and ownership of cotton buds remained statistically significant after adjusting for the effects of other covariates. Respondents whose fathers practiced self-ear-cleaning were about 11 times more likely to practice self-ear-cleaning than those whose fathers did not [$P = 0.011$, confidence interval (CI) = 1.740-70.030] and those who did not own cotton buds were about 0.192 times more likely (5 times less likely) to practice self-ear-cleaning than those who did ($P = 0.007$, CI = 0.058-0.641). Table 3 shows the multiple logistic regression analysis for self-ear-cleaning.

Discussion

The prevalence of self-ear-cleaning in this study was high (93.4%). Similarly, high figures were reported by Afolabi *et al.*,^[1] in Kaduna, Nigeria and Lee *et al.*,^[2] in Kuala Lumpur, Malaysia (90% and 92%, respectively). However, our study has special merit, being about three times as large as each of the other two and, therefore, less prone to random error. In addition, the other two studies were hospital-based, while our study was community-based. Hospital-based prevalence figures have external validity issues because they are prone to systematic error from a selection bias and may not be a true estimate of the community prevalence. Thus, this study presents stronger evidence of a high prevalence of self-ear-cleaning in the community. The uniformly high figures in all the studies suggest high prevalence across communities. High prevalence in each geopolitical region in this study further supports this.

Two studies have reported much lower prevalence figures. Hobson and Lavy^[3] in London found a prevalence of 53%. This was also a hospital-based study and it had a low response rate. The low response rate (325 out of 1000 responded) probably accounted for the low prevalence. Macknin *et al.*,^[4] found a prevalence of 62% in a pediatric clinic in Cleveland, Ohio, United States. This may suggest a lower prevalence among pediatric clinic patients, but since the study was also hospital-based it may have been a biased estimate.

The most significant association was found with history of self-ear-cleaning in parents and siblings. This suggests that family influences are important in the development of the habit. Also, the fact that majority had practiced the habit for more than 15 years and the mean "age at first insertion" was 7.6 years highlights the importance of conditioning during childhood as an important factor in the development of the habit. Family influence was supported by the logistic regression analysis which found father's self-ear-cleaning as one of the significant predictors of self-ear-cleaning. The other significant predictor was the ownership of cotton buds. This may be an antecedent, a consequence, or a perpetuating factor for self-ear-cleaning but it is most definitely a modifiable factor.

Table 3: Logistic regression analysis for self-ear-cleaning

Variable	β	SE (β)	Odds ratio	95% CI	P value
Geopolitical zone					
North (ref.)			-	-	
South-west	-0.598	0.755	0.550	0.125-2.415	0.428
South-south	-0.746	0.960	0.474	0.072-3.113	0.437
South-east	0.191	0.986	1.211	0.175-8.354	0.846
Father's occupation					
Low income (ref.)			-	-	
Middle income	-1.097	1.046	0.334	0.043-2.594	0.294
High income	-0.070	1.324	0.932	0.070-12.497	0.958
Mother's education					
Primary and less (ref.)			-	-	
Secondary/postsecondary	-0.281	0.979	0.755	0.111-5.144	0.774
Graduate and above	-1.278	1.103	0.279	0.032-2.422	0.247
Father's education					
Primary and less (ref.)			-	-	
Secondary/postsecondary	0.575	1.033	1.777	0.235-13.442	0.578
Graduate and above	0.884	1.128	2.421	0.265-22.087	0.433
Institution					
University (ref.)			-	-	
Others	0.250	0.723	1.284	0.311-5.299	0.730
Religion					
Christian (ref.)			-	-	
Muslim	-0.535	0.728	0.586	0.141-2.440	0.463
Others	-0.342	2.577	0.711	0.005-111.013	0.895
Sex					
Female (ref.)			-	-	
Male	0.183	0.555	1.201	0.404-3.566	0.742
Ear cleaning in sibling					
Yes (ref.)			-	-	
No	1.750	0.971	5.757	0.858-38.644	0.072
Ear cleaning in mother					
Yes (ref.)			-	-	
No	-0.127	1.249	0.881	0.076-10.179	0.919
Ear cleaning in father					
Yes (ref.)			-	-	
No	2.401	0.943	11.038	1.740-70.030	0.011
Ownership of cotton bud					
Yes (ref.)			-	-	
No	-1.650	0.615	0.192	0.058-0.641	0.007
Carrying cotton buds around					
Yes (ref.)			-	-	
No	-1.075	0.895	0.341	0.059-1.969	0.229
Perception (ref.=beneficial)					
Not sure/harmful	-1.030	0.593	0.357	0.112-1.140	0.082

SE: Standard error; CI: Confidence interval

The perception that self-ear-cleaning is beneficial may be one of the factors promoting self-ear-cleaning. It is, however, unlikely to be the only factor since as high as 74.2% of those who thought otherwise also practiced self-ear-cleaning. Health education of the public can be used to modify this factor. But this intervention is likely to be more effective if started early and is also implemented at the family level since family influences seem to be strong.

This study has implications for public health and primary care. Self-ear-cleaning was almost universal among the study population. Thus, a large proportion of the population is at risk of possible harmful effects. This study also determined that the medical advice not to clean the ears is not widely known. Instead, the erroneous perception that self-ear-cleaning is beneficial is common. Clearly, there is a need for more education to the public. The primary care physician, the first point of call for most patients including those who may not be referred to an ear specialist, is in an excellent position to educate away from self-ear-cleaning. He should take time to educate as many of his patients as possible, paying particular attention to those who present with ear symptoms.

In addition, health education programs to correct the wrong perceptions about self-ear-cleaning should be included in primary ear care programs. The programs should be jointly planned and implemented by ear specialists, primary care physicians, and community health physicians. They should target home, school, and other settings where there are family gatherings, since there is a strong family predictive factor and also because the habit is mostly formed in childhood. Strong campaigns should also be mounted against the sale of cotton buds. These should include media campaigns and advocacy for legislation to control the sales and purchase of cotton buds.

Limitation of study

One limitation of this study is that it was not based on all age-segments of the population. Nonetheless, it has been able to focus on young people in a way that a study on the entire population may not have been able to do. The study was population-based and appropriate to estimate prevalence among this age group. It was also possible to observe variations in the prevalence of self-ear-cleaning by the various categories into which the youths could be grouped into. Another limitation was that this study was conducted only on educated young graduates. The effect of education on self-ear-cleaning may, however, be inferred from the association demonstrated between the respondents' parents' education and the practice of self-ear-cleaning: The higher the parents' education, the more likely respondents were to practice self-ear-cleaning. Larger studies based on the entire population are recommended in order to determine age-specific prevalence figures and to more accurately study variations of self-ear-cleaning with age and other population factors.

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