

# Prevalence and Attitude of Self-ear Cleaning with Cotton Bud among Doctors at Aminu Kano Teaching Hospital, Northwestern Nigeria

Mukhtar Gadanya, Sanusi Abubakar, Abdulazeez Ahmed<sup>1</sup>, Amina Zangina Maje<sup>2</sup>

Departments of Community Medicine and <sup>1</sup>Otorhinolaryngology, College of Health Sciences, Bayero University/Aminu Kano Teaching Hospital, <sup>2</sup>Department of Community Medicine, Faculty of Clinical Sciences, College of Health Sciences, Bayero University/Aminu Kano Teaching Hospital, Kano, Nigeria

## ABSTRACT

**Background:** The use of cotton bud for self-ear cleaning is a common practice among many people despite its attendant ill-effects. This study examined the prevalence, attitude toward the use of cotton buds, and reasons for the use of cotton buds and problems or ill-effects associated with its use among medical doctors working at Aminu Kano Teaching Hospital.

**Materials and Methods:** A descriptive cross-sectional study was carried out among a randomly selected sample of 130 medical doctors working in Aminu Kano Teaching Hospital spread across several departments in the hospital using a self-administered semi-structured questionnaire. Data were analyzed using MINITAB statistical software and the results summarized using measures of central tendency while Chi-square test was used to assess for associations between categorical variables.

**Results:** The respondents' age ranged from 25 to 55 years with a mean age of  $33.6 \pm 5.4$  years. Most of the respondents were males (68.0%) The prevalence of cotton bud use was found to be 76.3% and for many, the frequency of use of cotton buds was once daily, and both ears were frequently cleaned. A common problem encountered with cotton bud use was retention of the bud as a foreign body. There was an association between owning a cotton bud and using it ( $\chi^2 = 38.317$ ,  $P = 0.001$ ). There was also a significant association between the use of cotton buds and the department where the respondent works ( $\chi^2 = 19.28$ ,  $P = 0.0001$ ).

**Conclusion:** The use of cotton buds for self-ear cleaning is surprisingly prevalent among medical doctors working at Aminu Kano Teaching Hospital. There is a need for health education and promotion strategies for health workers in the hospital community that ear cleaning is best done by trained personnel.

**Key words:** Complications, cotton bud, prevalence, self-ear cleaning

## INTRODUCTION

Anecdotally among the lay public, it is believed that the ear needs to be cleaned frequently to rid it of dirt in the form of ear wax. This is usually achieved by the insertion of objects into one's own ears most often with Q-tips also known as cotton buds.

Ear wax or cerumen auris is a mixture of ceruminous gland secretions, squames of epithelium, dust, and other foreign debris.<sup>[1]</sup> It serves to protect, clean, and lubricate the skin of the ear canal.<sup>[2]</sup> Furthermore, the ear canal has a "self-cleaning" mechanism for ear wax, aided by jaw movement, "a conveyor belt" phenomenon of epithelial migration from the drumhead toward the external auditory meatus until it flakes off. There is a

**Address for correspondence:** Dr. Abdulazeez Ahmed, Department of Otorhinolaryngology, College of Health Sciences, Bayero University/ Aminu Kano Teaching Hospital, Kano, Nigeria. E-mail: drahmedzizo@yahoo.com

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

**How to cite this article:** Gadanya M, Abubakar S, Ahmed A, Maje AZ. Prevalence and attitude of self-ear cleaning with cotton bud among doctors at aminu Kano teaching hospital, Northwestern Nigeria. Niger J Surg Res 2016;17:43-7.

### Access this article online

#### Quick Response Code:



#### Website:

www.njsrjournal.org

#### DOI:

10.4103/1595-1103.194215

growing body of evidence that inadvertent and frequent use of cotton buds is associated with some ear diseases such as wax impaction, ear infection, facial nerve palsy, dizziness, perforation of the ear drum, perilymphatic fistula, trauma to the ear canal, and deafness.<sup>[3-8]</sup>

The most common object used for self-ear cleaning by majority of the population is the cotton bud. In a survey involving 239 responders in Southeast England,<sup>[9]</sup> 68% admitted to using cotton buds in their ears while in Kaduna and Osun states in Nigeria, 90% and 93.4% of respondents respectively used cotton bud for self-ear cleaning.<sup>[7,10]</sup> Cotton buds consist of small pad of cotton wrapped around one or both ends of a short rod usually made of either wood, rolled paper, or plastic.<sup>[10]</sup> The Cotton bud was said to have been developed in 1923 by Leo Gerstenzang to facilitate cleaning of his baby's ear.<sup>[11]</sup> Medical concerns over the use of cotton buds and consequent complications were first reported in 1972, with reports of tympanic membrane perforation, otitis externa, and cerumen impaction.<sup>[3,12,13]</sup> Nowadays, cotton bud-related injuries have become a common reason for attendances at ear, nose, and throat clinics.<sup>[14]</sup> In a study, from the United States cotton-buds were associated with 75% of cerumen occlusion on the left side, but not on the right side. More so, cotton bud-induced injury was reported to be common.<sup>[5,14]</sup>

Awareness of cotton bud-related complications is an important public health problem. Whereas trends in cotton-bud usage in Nigeria have been variously studied, they have mostly focused on patients and health workers.<sup>[7,15-18]</sup> One study also looked at educated cohorts from a population-based survey<sup>[10]</sup> and the prevalence in these reported studies have all been quite high. The use of cotton bud for cleaning the ears is quite popular and practiced by both literate and illiterate individuals with the general belief that the practice is "harmless" and/or in some instances believed to be "beneficial,"<sup>[19]</sup> this belief is surprisingly held even among healthcare professionals.<sup>[18]</sup>

However, the use of cotton buds among medical doctors, in particular, have been poorly researched and because they are expected to give medical advice on cotton-bud use. It is important to assess the attitudes and practices of ear self-cleaning with cotton buds among medical doctors. This study assessed the prevalence, attitude toward, and associated practices of self-ear cleaning with cotton bud among doctors at our institution.

## MATERIALS AND METHODS

This was a cross-sectional descriptive study among medical doctors from different specialized departments in Aminu Kano Teaching Hospital. The hospital has a total staff strength of 1443 (all categories of healthcare

workers), out of which 865 are senior staff and 643 are junior staff.

The calculated minimum sample size of doctors required for the study was arrived at using the Fisher's formula<sup>[20]</sup> which gave an estimated sample size of 123. To account for nonresponse, approximately 10% of the calculated number was added to the estimated sample to give a total of 130 respondents. Using a multistage sampling technique in the first stage, 5 out of the 16 departments were selected by a one-time ballot, thereafter 130 validated semi-structured self-administered questionnaires were distributed among the 5 selected departments with a probability proportional to the population size of doctors in each of the 5 selected departments. For inclusion, members of the department who were health workers and adults were included whereas nondepartmental members and clerical staff were excluded from this study.

## Ethical statement

Ethical approval for this research was granted by the Health Research and Ethics Committee of Aminu Kano Teaching Hospital and the informed consent of all respondents before administration of the questionnaires. This study conformed to the Code of Ethics of the World Medical Association 2013 (Declaration of Helsinki).

## Data analysis

The collected data were entered into a Microsoft Excel spreadsheet and analyzed using MINITAB (statistical software version 12 – MINITAB Inc., Pennsylvania, USA). The obtained result was presented in the form of tables and charts using Microsoft Word and Microsoft Excel, respectively. Quantitative data were summarized using range, mean and standard deviation. Categorical data were summarized using frequencies and percentage. The Chi-square test of statistical significance was used to determine significant associations between categorical variables.  $P \leq 0.05$  was considered statistically significant.

## RESULTS

### Socio-demographic characteristic of respondents

A response rate of 90.8% was obtained in this study. The ages of the respondents ranged from 25 to 55 years with a mean age of  $33.6 \pm 5.4$  years. Majority (68.0%) of the respondents were males while (32.0%) are females, giving a male:female ratio of 2.1:1.

### Prevalence

The prevalence of cotton bud usage for self-ear cleaning was 76.3%, among the respondents [Tables 1-4 and Figure 1].

**Table 1: Distribution of respondents within the hospital**

Variable	Frequency (%)
Grade	
House officer	15 (12.7)
Medical officer	12 (10.2)
Registrar	82 (69.5)
Consultant	9 (7.6)
Departments	
Family medicine	20 (17)
Paediatrics	26 (22)
ENT	7 (5.9)
O and G	25 (21.2)
Internal medicine	40 (33.9)

ENT: Ear, nose and throat, O and G: Obstetrics and gynaecology

**Table 2: Attitudes of doctors towards using cotton buds**

Variables	Frequency (%)
Attitude towards ear cleaning with cotton bud	
Users of cotton bud	53 (44.9)
None users of cotton bud	65 (55.1)
Reasons for self-ear cleaning (n=53)	
Hygiene	29 (54.7)
Ear wax removal	15 (28.3)
Itchiness	2 (3.8)
Others*	7 (13.2)
Reasons for none self-ear cleaning (n=65)	
Wax impaction	20 (30.8)
Trauma	14 (21.5)
Infection	14 (21.5)
Foreign body	8 (12.3)
Others*	9 (13.9)

\*ENT doctors discourage so, not safe, not necessary. ENT: Ear, nose and throat

## DISCUSSION

Following this survey, it was evident that self-ear cleaning with the cotton bud is a common practice among physicians working at our institution, with a prevalence of 76.3%. Moreover, most of the respondents were long-term habitual users; most have been using cotton buds to clean their ears for well over 10 years. The most common ill-effect noted was accidental retention of cotton bud in the ear canal which commonly presents as a complaint of a foreign body in the ear.

The prevalence from our survey (76.3%) was less than the values reported in Sokoto (91.2%)<sup>[21]</sup> and Osun (93.4%)<sup>[10]</sup> states, respectively. The relatively low prevalence in this study may be explained by the population surveyed. Moreover, it will be logical to presume that the prevalence from this study should have been much less considering the fact that our respondents are health professionals. However, a slightly higher prevalence 115 (81.6%) was also reported from Jos among a near similar cohort of health professionals (Intern Doctors, Nurses, and Resident Doctors).<sup>[18]</sup> We hypothesize that perhaps the knowledge of the ill-effects of cotton bud usage is

**Table 3: Practices associated with the use of cotton buds**

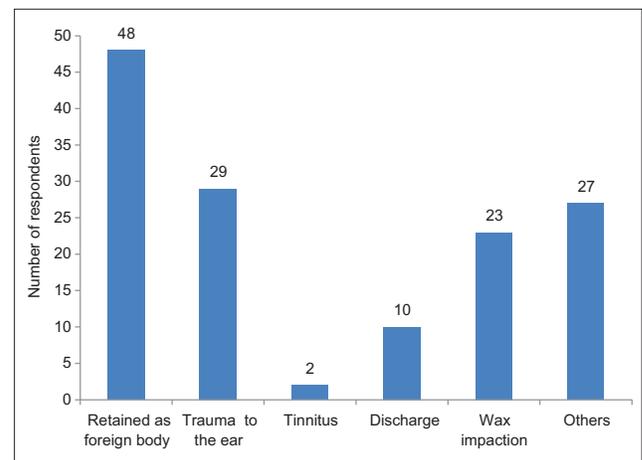
Variable	Frequency (%)
Use cotton bud for self-ear cleaning	
Yes	90 (76.3)
No	28 (23.7)
Duration of use of cotton bud (years)	
>10	47 (52.2)
<10	43 (47.8)
Frequency of using cotton bud for ear cleansing	
Use cotton buds occasionally	80 (88.9)
Use it daily	8 (8.9)
Use twice daily	1 (1.1)
Use more than twice daily	1 (1.1)
Ear frequently cleaned with cotton bud	
Clean both ears equally	82 (91)
Clean their right ears more	6 (7)
Clean their left ear	2 (2)
Ownership of cotton buds	
Own cotton buds	68 (57.6)
Did not own cotton bud	50 (42.4)

The relationship between ownership of cotton bud and cotton bud use by the respondents also revealed a statistically significant association ( $\chi^2=38.317$ ;  $df=1$ ;  $P<0.001$ )

**Table 4: Association between departments and cotton bud use**

Departments <sup>†</sup>	Use cotton bud (%)	Do not use cotton bud (%)	Total (%)
ENT doctors	1 (12.5)	7 (87.5)	8 (6.8)
Non-ENT doctors	89 (80.9)	21 (19.1)	110 (93.2)
Total	90 (76.3)	28 (23.7)	118 (100.0)

<sup>†</sup>The respondents were divided into two broad departments; ENT department 5.9% (n=7) and non-ENT 94.1% (n=111). The non-ENT departments included medicine 33.9% (n=40), O and G 21.2% (n=25), pediatrics 22% (n=26), family medicine 17% (n=20).  $\chi^2=19.28$ ,  $df=1$ ,  $P<0.0001$ .



**Figure 1: Ill-effects experienced following the use of cotton buds in the ear**

lacking, not only just among the educated populace<sup>[10]</sup> but also among health professionals as well.

Furthermore, another study<sup>[12]</sup> recorded a lower prevalence (53%) than that seen in this study; this

may be due to a high dropout rate despite the large sample size for the survey (325 respondents). In this study, more than half of the respondents have been using cotton bud for over 10 years, and perhaps this long duration predates this habitual use to a very young age. This is quite possible, since the average age of our respondents was  $34 \pm 5$  years, and expectedly family influence<sup>[19]</sup> from young age to adulthood cannot be ruled out. In a study,<sup>[10]</sup> mean age at commencement of self-ear cleaning was reported to be 7.6 years reinforcing the importance of conditioning during childhood as an important factor in the development of the habit. This is also in keeping with the study done in Kaduna<sup>[7]</sup> where about one-third of the respondents reported that they had practiced the habit of self-ear cleaning with cotton bud for over a 10 years duration.

Both ears are frequently cleaned as reported by the respondents; this accounts for 91% of the responses while a few of the respondents clean either the right or the left ears. This is corroborated by previous studies<sup>[7,21,22]</sup> where majority of their respondents, also cleaned both ears. It is perhaps unusual, for one to pick up cotton bud to clean only one ear while leaving the other. This may explain the very low frequency recorded in this study for cleaning only one ear. The choice and/or preference for which ear to be cleaned also depends on the otological reason why the ear was tampered with in the first instance, for example, persons with otitis externa in one ear, this will then determine cleaning of the affected ear only.

Although the use of cotton bud is very common, majority (55.1%) of the respondents reported that cleaning the ear with cotton bud is not a good practice. However, in another study,<sup>[10]</sup> 24.8% of the respondents in that study think it is beneficial to use cotton buds, while 74.2% think otherwise. However, despite these responses, this did not correlate with the level of cotton bud usage found in that study. Interestingly, in this study, those respondents who said that self-ear cleaning with cotton bud is "beneficial," thought it was beneficial for hygienic purposes (54.7%) and these were in the majority followed by wax removal purposes and then for remedying an itching episode. Other respondents feel that using cotton bud had become a habit, partly because it is convenient and easy to use. Recent studies have also documented this same feeling in other respondents who reported that it is part of their normal/routine habit on daily basis and is good for ear cleaning.<sup>[19,23]</sup> However, some of the respondents think it is harmful to use cotton buds for self-ear cleaning, and they expressed how they think this is so, while some think it is harmful because their colleagues in Otolaryngology discourage such acts.

There is a general belief in our society that there is nothing wrong with using cotton buds, and this worsens the habit of using cotton buds simply to alleviate

symptoms such as itching, removal of dirt and perhaps even with claims of perceived benefits.<sup>[7]</sup> Itchy ears were the commonest reason reported by a study,<sup>[7]</sup> as well as itching from neurodermatitis and otitis externa of the ear canal by other studies.<sup>[6,24]</sup> While earwax was the predominant reason for using cotton buds reported from other studies.<sup>[23,25]</sup>

The ill-effects of cotton bud use include retention as a foreign body in the external ear canal (40.7%) followed by trauma (24.6%) to the ear canal. Others include tinnitus, discharge, wax impaction, pain, deafness, and fungal infection notably otomycosis. Similar reports of these complications have also been reported by several other studies.<sup>[22,24]</sup> Conversely, during a recent study (22.5%) of the respondents admitted to having had any complications following the use of cotton buds.<sup>[19]</sup>

There is a significant statistical association between the department where the respondents are working and cotton bud use. Another association also indicated that owning a cotton bud was strongly associated with its use. This underscores the need for raising awareness within the hospital community, especially during activities organized to mark the World Hearing Day, Medical students annual Health Week to mention but a few.

It will be erroneous to assume from the above narrative that cotton bud use is always harmful to the ear, in fact, under professional guidance, it could serve as a drug delivery agent in the ear canal. This therapeutic value is well exemplified by a study that compared patient's self-medication with clotrimazole antimycotic solution used on Q-tips with physician-inserted ear wicks; in terms of safety, efficacy, and patient satisfaction. The authors then theorized that self-medication with antimycotic solution on Q-tips gives more patient satisfaction and less rate of otomycosis recurrence.<sup>[26]</sup>

This survey is not without limitations; the major limitation was that it is a self-reported behavior of current and previous practices (i.e., use of cotton bud) which can be easily influenced by social desirability and recall bias. Further studies will be needed to assess the prevalence of cotton bud use among other health professionals within the hospital so as to have a better picture of the problem and to help in the planning of a more comprehensive intervention.

## CONCLUSION

The outcome of this study shows that there is a high prevalence of cotton bud use for self-ear cleaning at Aminu Kano Teaching Hospital. This finding has wider implications as doctors are looked upon by the lay public and other health workers as role models and reliable sources of health information for primary

ear care. There is a need to plan and map out health education and promotion strategies that will disseminate key messages to doctors and other health workers in the hospital community that ear cleaning is best done by trained personnel. This is in addition to providing targeted ear care messages during health campaigns such as World Hearing Day, Continued Professional Development programs for annual licensure for doctors, etc., while reviewing and including best ear and hearing care practices in our undergraduate curricula.

### Acknowledgment

Sincere gratitude to all the Doctors in Aminu Kano Teaching Hospital for taking time out to participate in this survey.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

## REFERENCES

1. Hanger HC, Mulley GP. Cerumen: Its fascination and clinical importance: A review. *J R Soc Med* 1992;85:346-9.
2. Jung TT, Jinn TH. Diseases of the external ear. In: Snow JB Jr., Ballenger JJ, editors. *Ballenger's Otorhinolaryngology Head and Neck Surgery*. 16<sup>th</sup> ed. Ontario: Decker; 2003. p. 230-48.
3. Robertson MS. The misuse of cotton wool buds. *N Z Med J* 1972;75:37.
4. Sim DW. Wax plugs and cotton buds. *J Laryngol Otol* 1988;102:575-6.
5. Macknin ML, Talo H, Medendrop SV. Effect of cotton-tipped swab use on ear-wax occlusion. *Clin Pediatr (Phila)* 1994;33:14-8.
6. Nussinovitch M, Rimon A, Volovitz B, Raveh E, Prais D, Amir J. Cotton-tip applicators as a leading cause of otitis externa. *Int J Pediatr Otorhinolaryngol* 2004;68:433-5.
7. Afolabi AO, Kodiya AM, Bakari A, Ahmad BM. Attitude of self ear cleaning in black Africans: Any benefit? *East Afr J Public Health* 2009;6:43-6.
8. Roland PS, Smith TL, Schwartz SR, Rosenfeld RM, Ballachanda B, Earll JM, et al. Clinical practice guideline: Cerumen impaction. *Otolaryngol Head Neck Surg* 2008;139 3 Suppl 2:S1-21.
9. Nagala S, Singh P, Tostevin P. Extent of cotton-bud use in ears. *Br J Gen Pract* 2011;61:662-3.
10. Olaosun AO. Self-ear-cleaning among educated young adults in Nigeria. *J Family Med Prim Care* 2014;3:17-21.
11. Unilever. Q-tips; 2015. Available from: <https://www.unileverusa.com/brands/our-brands/qtips.html>. [Last cited on 2015 Nov 11].
12. Hobson JC, Lavy JA. Use and abuse of cotton buds. *J R Soc Med* 2005;98:360-1.
13. Barton RT. Q-tip otalgia. *JAMA* 1972;220:1619.
14. Steele BD, Brennan PO. A prospective survey of patients with presumed accidental ear injury presenting to a paediatric accident and emergency department. *Emerg Med J* 2002;19:226-8.
15. Ologe FE. Traumatic perforation of the tympanic membrane in Ilorin, Nigeria. *Niger J Surg* 2002;8:9-12.
16. Ijaduola GT, Okeowo PA. Foreign body in the ear and its importance: The Nigerian experience. *J Trop Pediatr* 1986;32:4-6.
17. Ibekwe UM, Lucky OO, Chibuikwe N. Ear, nose and throat injuries in a tertiary institution in Niger Delta, Nigeria. *J Med Pract* 2012;1:59-63.
18. Adeyi AA, Tonga LN. What health professionals at the Jos University Teaching Hospital insert in their ears. *Niger J Med* 2013;22:109-12.
19. Olajide TG, Usman AM, Eletta AP. Knowledge, attitude and awareness of hazards associated with use of cotton bud in a Nigerian community. *Int J Otorhinolaryngol Head Neck Surg* 2015;4:248-53.
20. Araoye MO. Sample size determination. In: Margaret OA, editor. *Research Methodology with Statistics for Health and Social Sciences*. Ilorin, Nigeria: Nathadex Publishers; 2003. p. 115-9.
21. Amutta SB, Yunusa MA, Iseh KR, Obembe A, Egili E, Aliyu D, et al. Sociodemographic characteristics and prevalence of self ear cleaning in Sokoto metropolis. *Int J Otorhinolaryngol Head Neck Surg* 2013;2:276-9.
22. Suresh K, Shamim A. Use of cotton buds and its complications. *J Surg Pak* 2008;13:137-8.
23. Lee LM, Govindaraju R, Hon SK. Cotton bud and ear cleaning – a loose tip cotton bud? *Med J Malaysia* 2005;60:85-8.
24. Ahmed S, Zaheer SA, Shabbir SM, Rao S, Islam T, Ahmed B. Association of dermatological conditions of external ear with the use of cotton buds. *J Enam Med Coll* 2014;4:174-6.
25. Adegbiyi WA, Alabi BS, Olajuyin OA, Nwawolo CC. Earwax impaction: Symptoms, predisposing factors and perception among Nigerians. *J Family Med Prim Care* 2014;3:379-82.
26. Abou-Halawa AS, Khan MA, Alrobaee AA, Alzolibani AA, Alshobaili HA. Otomycosis with perforated tympanic membrane: Self medication with topical antifungal solution versus medicated ear wick. *Int J Health Sci (Qassim)* 2012;6:73-7.