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Assessment Of Knowledge, Attitude and Practice Regarding Self -Ear Cleaning Among Medical Students in A Tertiary Care Centre

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ABSTRACT

Background: Self-ear cleaning is a commonly practiced habit influenced by cultural beliefs and misconceptions about ear hygiene. Even medical students, who are expected to promote safe health behaviours, may unknowingly adopt unsafe ear-cleaning methods. This study evaluates the knowledge, attitudes, and practices (KAP) related to self-ear cleaning among undergraduate medical students.

Aims & Objectives: To assess knowledge, attitude and practice regarding self-ear cleaning among undergraduate (MBBS) students

Methods: A descriptive cross-sectional study was conducted between April and May 2025 involving 399 undergraduate MBBS students, including interns, at a tertiary care teaching hospital in rural India. Data were collected using a structured, self-administered questionnaire covering demographic details and specific KAP components. Statistical analysis included Z-tests and ANOVA for quantitative data, and Chi-square tests for categorical variables, with significance set at $p < 0.05$

Results: A total of 399 students participated in the study, comprising 224 males (56.1%) and 175 females (43.9%). The majority (92.7%) reported cleaning their ears occasionally, with cotton buds being the most frequently used item (88%). Although 69.9% acknowledged the potential for injury from cotton buds, 45.1% still believed self-ear cleaning was beneficial. Nearly half (49.1%) had engaged in the practice for more than ten years. Reported complications included earache (34.1%), bleeding (5.0%), and otitis externa (4.0%). Despite awareness of associated risks, many participants continued to favor the use of ear-cleaning tools, highlighting a disconnect between knowledge and behavior.

Conclusion: The findings reveal a significant gap between awareness and practice regarding self-ear cleaning among medical students. Despite adequate knowledge of the risks, unsafe behaviors remain prevalent. This underscores the need to incorporate focused ear health education into undergraduate medical training to promote safer practices and prepare students to educate others effectively.

Keywords: *Self-ear cleaning, ear hygiene, medical students, health behavior, cerumen,knowledge,practices*

1. INTRODUCTION

Ear hygiene is frequently disregarded or misinterpreted while being a crucial component of personal health. Cerumen (earwax) and debris are gradually moved outward by the external auditory canal's natural self-cleaning mechanism, which is made possible by epithelial migration and jaw movement.(3) Desquamated keratin, cholesterol, long-chain fatty acids, and antibacterial compounds make up cerumen, a physiologically significant material that shields the ear canal from dryness and

infection [4]

The general public often confuses cerumen for dirt , despite its protective function. This false belief encourages a common practice of cleaning one's own ears, frequently with the aid of cotton buds, matchsticks, keys, or even hairpins[1]. Cerumen impaction, otitis externa, external auditory canal trauma, tympanic membrane perforation, and retained foreign bodies are among the problems that might result from these procedures [4,6]

Self-ear cleaning is a common habit, according to studies conducted among medical and non-medical populations. For example, 91.5% of participants in a cross-sectional research of medical students at KIST Medical College used cotton buds to clean their ears, and over half of them suffered at least one issue as a result.[2] According to a study done at King Khalid University in Saudi Arabia, many students still engaged in risky self-cleaning habits even though they had theoretical understanding of ear anatomy and hygiene.[1]

It is expected of medical students to model and encourage safe health practices as they prepare to become doctors and health educators. However, these students may unintentionally encourage risky behaviors in the general public if they themselves adopt potentially harmful habits as a result of personal misconceptions or a lack of emphasis on preventative ENT education. Therefore, it is essential to evaluate their self-ear cleaning knowledge, attitude, and practice (KAP). In order to find knowledge gaps and promote the inclusion of ear health education in undergraduate medical curricula, this study intends to assess the KAP about self-ear cleaning among undergraduate medical students in a tertiary care facility in India

Aims & Objectives: To assess knowledge ,attitude and practice regarding self ear cleaning among undergraduate(MBBS)students

2. METHODOLOGY

This cross-sectional study was conducted from April to May 2025 among all undergraduate (M.B.B.S.) medical students, including interns at a tertiary hospital in a rural area. After obtaining ethical clearance from the Institutional Ethics Committee, participants meeting the inclusion criteria were recruited with prior written informed consent. Students who refused or failed to complete the questionnaire were excluded. A structured, self-administered questionnaire was used to collect data on demographic details and assess knowledge, attitude, and practices (KAP) related to self-ear cleaning. The questionnaire included personal information and specific items targeting the KAP domains.[2] All participants were informed about the study and asked to complete and return the questionnaire

Sample size

Sample size (n)= $4pq/l^2$

P=prevalence 47.5% as per Reference article (belief of self ear cleaning beneficial)

q=(100-p) = 52.5%

L= allowable error=5%

N=4x47.5x52.5/25= 399

Data Collection & Analysis

Data were collected through a validated self-administered questionnaire. Data entry will be done in Microsoft Excel sheet and analysed by using SPSS software version 26.qualitative data will be described as frequency and percentages and quantitative data will be described as Mean and SD. For analysing various variables chi square test, z test and anova test will be used. P value less than 0.05 will be considered statistical significant

3. RESULTS

The study involved 399 medical students in total. To evaluate the knowledge, attitude, and practice (KAP) around self-ear cleaning, the data was examined.

1. Demographic Details224 (56.1%) of the 399 participants were males, and 175 (43.9%) were females. According to the age distribution, 82 (20.6%) were between the ages of 18 and 20, 208 (52.1%) were between the ages of 21 and 23, 105 (26.3%) were between the ages of 24 and 26, and 4 (1.0%) were older than 26

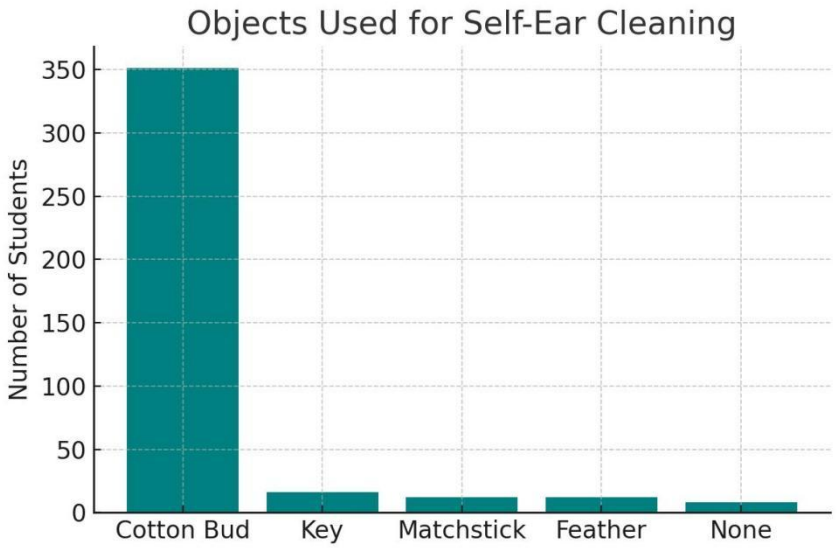

figure 1. objects used for self ear cleaning

Frequency and Duration of Self-Ear Cleaning

Parameter	Response	Frequency (%)
Frequency of Cleaning	Occasionally	370 (92.7)
	Once daily	20 (5.0)
	Twice daily	9 (2.3)
Duration of Practice	>10 years	196 (49.1)
	<10 years	191 (47.9)

Preference in Ear Cleaning

Question	Response	Frequency (%)
Which ear do you clean more?	Both equally	361 (90.5)
	Right more	34 (8.5)
	Left more	4 (1.0)

Reasons for Self-Ear Cleaning

Reason for Cleaning	Frequency (n)	Percentage (%)
Hygiene	242	60.7
Removal of wax	78	19.5
Dirt removal	42	10.5
Prevention of infection	20	5.0
Itchiness	17	4.3

2. Knowledge of Self-Ear Cleaning:

279 (69.9%) correctly identified that cotton buds could cause ear harm, whereas 40 (10.0%) were unsure and 80 (20.1%)

disagreed.Of those surveyed, 180 (45.1%) thought self-ear cleaning was helpful, 120 (30.1%) disagreed, and 100 (25.1%) were not sure. 319 people (79.9%) believed that earwax is a normal substance, 60 people (15.0%) believed that it is dirt, and 20 people (5.0%) were not sure.

Knowledge Question	Response	Frequency (n)	Percentage (%)
Can cotton buds cause ear injury?	Yes	279	69.9
	No	80	20.1
	Not sure	40	10.0
Is self-ear cleaning beneficial?	Yes	180	45.1
	No	120	30.1
	Not sure	100	25.1
What do you think ear wax is?	Normal	319	79.9
	Dirt	60	15.0
	Not sure	20	5.0

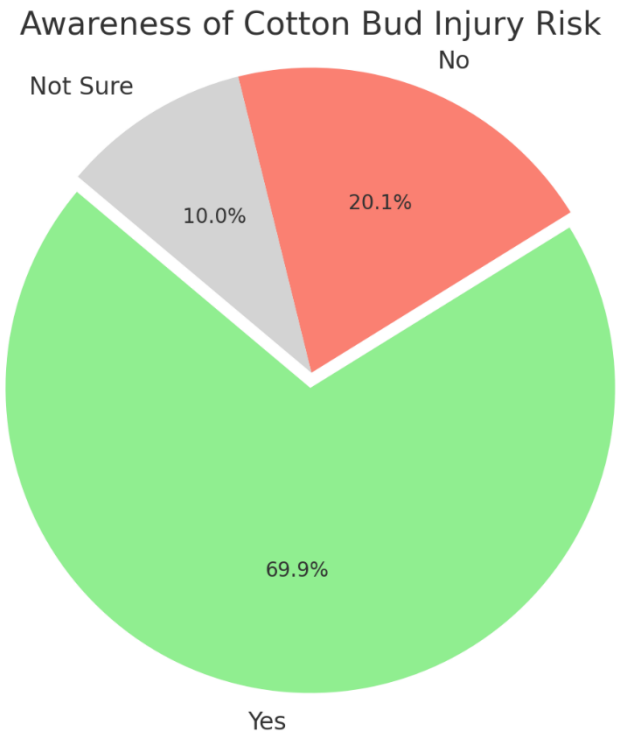

Figure 2: Awareness of Potential Harm from Cotton Buds

3.Self-Ear Cleaning Practice-

Three seventy (92.7%) of the participants said they clean their ears occasionally, twenty (5.0%) once a day, and nine (2.3%) twice a day. 196 people (49.1%) had been cleaning their own ears for over ten years, whereas 191 people (47.9%) had been

doing so for less than ten years.When asked which ear they clean more frequently, 361 (90.5%) respondents stated they clean both earsequally, whereas 34 (8.5%) said they favor the right ear and 4 (1.0%) said they prefer theleft.The cotton bud was the most often utilized item (351 students, 88.0%), followed by matchsticks (12, 3.0%), feathers (12, 3.0%), keys (16, 4.0%), and no tools (8, 2.0%) While 136 (34.1%) felt ear ache, 20 (5.0%) reported bleeding, 20 (5.0%) reported feeling full, and 16(4.0%) reported otitis externa, 207 (51.9%) had no negative effects.

Practice Parameter	**Response**	**Frequency (n)**	**Percentage (%)**
Duration of self-ear cleaning	>10 years	196	49.1
	<10 years	191	47.9
Frequency of cleaning	Occasionally	370	92.7
	Once daily	20	5.0
	Twice daily	9	2.3
Which ear is cleaned more often	Both equally	361	90.5
	Right ear	34	8.5
	Left ear	4	1.0
Object used for cleaning	Cotton bud	351	88.0
	Key	16	4.0
	Matchstick	12	3.0
	Feather	12	3.0
	None	8	2.0
Complications after cleaning	None	207	51.9
	Pain	136	34.1
	Bleeding	20	5.0
	Fullness	20	5.0
	Otitis externa	16	4.0

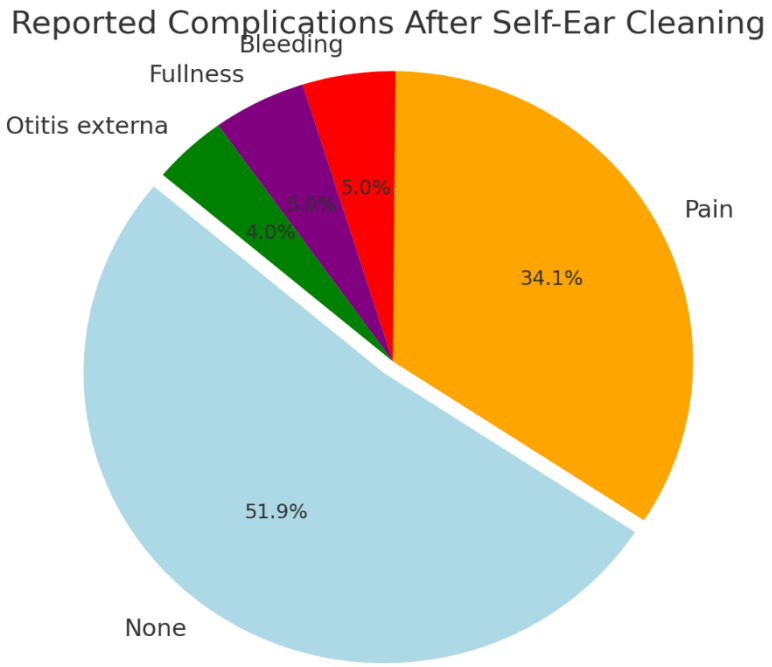

Figure 3: Reported Complications Following Self-Ear Cleaning

4.Attitide regarding Self-Ear Cleaning-

Of those surveyed, 239 (59.9%) agreed, 80 (20.1%) strongly agreed, 68 (17.0%) disagreed, and 12 (3.0%) strongly disagreed that self-ear cleaning can lead to difficulties.Cleaning aids should be utilized, according to 226 students (56.6%), 42 of whom (10.5%) strongly agreed, 128 of whom (32.1%) disagreed, and 3 of whom (0.8%) extremely disagreed. Of those surveyed, 214 (53.6%) agreed, 44 (11.0%) strongly agreed, 120 (30.1%) disagreed, and 21 (5.3%) strongly disagreed that cleaning aids are helpful at removing wax.Of those surveyed, 174 (43.6%) agreed, 34 (8.5%) strongly agreed, 166 (41.6%) disagreed, and 25 (6.3%) strongly disagreed that it is preferable to avoid using ear cleaning devices.

Statement	Strongly Agree	Agree	Disagree	Strongly Disagree
Self-ear cleaning can cause complications	80 (20.1%)	239 (59.9%)	68 (17.0%)	12 (3.0%)
Ear cleaning aids should be used to clean ears	42 (10.5%)	226 (56.6%)	128 (32.1%)	3 (0.8%)
Cleaning aids are good for wax removal	44 (11.0%)	214 (53.6%)	120 (30.1%)	21 (5.3%)
It is best not to clean ears using cleaning aids	34 (8.5%)	174 (43.6%)	166 (41.6%)	25 (6.3%)

Table 1: Association between Attitude and Practice Parameters

Attitude Statement	Practice Parameter	Category-wise Practice (%)	Chi-square (χ^2)	p-value	Interpretation
Self-ear cleaning can cause complications	Use of Cotton Buds	Agree/Strongly Agree: 277/319 (86.8%) Disagree/Strongly Disagree: 74/80 (92.5%)	2.56	0.109	Not statistically significant
Ear cleaning aids should be used to clean ears	Frequency of Cleaning (Daily vs Occasional)	Agree/Strongly Agree: Daily – 18 (6.9%), Occasional – 242 (93.1%) Disagree/Strongly Disagree: Daily – 2 (1.4%), Occasional – 138 (98.6%)	5.97	0.015	Statistically significant
Cleaning aids are good for wax removal	Reported Complications after Cleaning	Agree/Strongly Agree: 121/258 (46.9%) Disagree/Strongly Disagree: 63/141 (44.7%)	0.16	0.688	Not statistically significant
It is best not to clean ears using cleaning aids	Use of Cotton Buds	Agree/Strongly Agree: 163/208 (78.4%) Disagree/Strongly Disagree: 188/191 (98.4%)	37.25	<0.001	Highly significant

Table-1-Students who believed ear cleaning aids should be used were significantly more likely to clean their ears daily (p=0.015), while those who felt it's best to avoid aids were significantly less likely to use cotton buds (p<0.001), indicating a strong link between attitude and unsafe practices.

Table 2: Association between Knowledge and Practice Parameters

Knowledge Parameter	Practice Parameter	Category-wise Practice (%)	Chi-square (χ^2)	p-value	Interpretation
Cotton buds can cause injury?	Use of Cotton Buds for Cleaning	Yes: 251 (89.9%) No: 71 (88.8%) Not sure: 29 (72.5%)	9.83	0.007	Statistically significant
Is self-ear cleaning beneficial?	Frequency of Cleaning (Daily vs Occasional)	Beneficial: Daily – 17 (9.4%), Occasional – 163 (90.6%) Not Beneficial: Daily – 5 (4.2%), Occasional –	4.73	0.030	Statistically significant

		115 (95.8%)			
What is earwax?	Reported Complications after Cleaning	Normal: 158 (49.5%) had complications Dirt: 32 (53.3%) Not sure: 6 (30.0%)	4.26	0.119	Not statistically significant

Table 2-Despite knowing that cotton buds can cause injury, a high proportion continued using them (p=0.007). Additionally, belief in the benefits of self-ear cleaning significantly influenced daily cleaning frequency (p=0.030), reflecting a persistent gap between knowledge and behaviour.

4. DISCUSSION

This study investigated 399 medical students' self-ear cleaning knowledge, attitude, and practice (KAP). The results demonstrate the persistence of risky behaviours even among healthcare trainees, highlighting the extensive prevalence of self-ear cleaning procedures despite awareness of potential repercussions.

The findings highlight a widespread engagement in self-ear cleaning practices, often involving hazardous tools like cotton buds, despite many students being aware of the associated health risks.

A considerable proportion (69.9%) recognized that cotton buds could cause harm to the ears, reflecting a reasonably good level of theoretical knowledge. However, this awareness did not consistently influence behaviour, as 88% of respondents still reported using cotton buds. This contrast between awareness and practice has also been observed in prior research.[(2)] For instance, a study by Khadka et al. at KIST Medical College reported that 91.5% of medical students used cotton buds for self-cleaning, even though many experienced complications[(2)]

This emphasizes that possessing medical knowledge does not automatically lead to safe practices, especially when habits are culturally ingrained or developed early in life.

Nearly half of the participants in our study (45.1%) believed that self-ear cleaning is beneficial, which suggests ongoing misconceptions about the role of earwax. Many still associate cerumen with poor hygiene, disregarding its natural protective and antimicrobial functions.[(2,3)]

Similar misunderstandings were reported by Alshehri et al. at King Khalid University, where medical students engaged in unsafe cleaning habits despite their academic understanding of ear anatomy and physiology[(1)]

Moreover, a notable proportion of students (49.1%) had been engaging in self-ear cleaning for over a decade, suggesting that the practice often begins in childhood and continues unchecked. This trend has also been documented in other regions, including Nigeria, where Gadanya et al. reported that even healthcare professionals routinely cleaned their ears with cotton buds[(10)]

The study also identified a high frequency of adverse effects, with 48.1% of students experiencing complications such as ear pain, bleeding, otitis externa, or a sensation of fullness. These findings align with those of Oladeji et al., who noted similar outcomes among health professionals and emphasized the clinical consequences of unsafe ear-cleaning practices.[(7)]

Attitudinal analysis revealed an interesting contradiction—while the majority acknowledged the risk of complications from self-ear cleaning, many still supported the use of ear-cleaning tools. Over half believed such aids were effective for wax removal, suggesting a conflict between knowledge and behavior. This reflects findings from studies by Alsaadoon et al. and Adegbiji et al., who highlighted the powerful influence of long-standing cultural practices on health behavior, even among educated individuals.[(6)]

These observations underscore the need for targeted educational programs focusing on ear health and preventive ENT care within medical curriculum. By correcting misconceptions and emphasizing the natural self-cleaning mechanisms of the ear, such initiatives could foster safer practices. As future healthcare providers, medical students should be equipped not only with accurate knowledge but also with the behavioural reinforcement needed to model and promote healthy habits within the community

5. LIMITATIONS

The study's scope was confined to a single institution, which may limit the applicability of its findings to broader populations. As the responses were self-reported, there is potential for bias due to inaccurate recall or socially desirable answers. Additionally, the cross-sectional design prevents evaluation of changes in behavior over time, and the lack of

clinical confirmation may have affected the accuracy of reported complications.

6. CONCLUSION

In this study, we observed that while medical students have a moderate to good understanding of the dangers of cleaning their own ears, harmful habits like using cotton buds are nevertheless very common. Complications including ear pain and bleeding were frequently reported, and nearly half of the participants thought self-ear cleaning was helpful. This discrepancy between conduct and understanding emphasizes the impact of ingrained customs and cultural values. The results highlight the necessity of focused teaching initiatives in the medical curriculum to dispel myths and encourage safer ear hygiene habits. Raising awareness among college students can influence future medical professionals who will not only adopt healthier habits themselves but also accurately inform patients about the significance of adequate ear care

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