

Knowledge, Attitude, and Practice Regarding Ear Care among Pre-Clinical Medical Students of Tertiary Care Teaching Hospital: A Cross-sectional Study

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Article History:

Received date: February 19, 2026
Revised date: May 27, 2026
Accepted date: June 15, 2026
Published date: August 1, 2026

Online Access



DOI: 10.64772/mjapfn.2.2.53

Abstract

Introduction: The ear has an inherent self-cleansing mechanism, and inappropriate ear-care practices can predispose individuals to preventable ear diseases. Despite undergoing basic medical education, misconceptions and unsafe behaviors related to ear care may persist among medical students. Therefore, this study was conducted to find out the knowledge, attitude, and practices related to ear care, among pre-clinical medical students at a Medical College and Teaching Hospital.

Methods: After the ethical clearance from the Institutional Review Committee of the respective medical college (Reference no.15102025/17). A descriptive, cross-sectional study was conducted over one month, from October 1 to October 31, 2025, using a convenience sampling method. Data were collected using a semi-structured questionnaire distributed via Google Forms. Responses were compiled in Microsoft Excel and analyzed using descriptive statistical methods, including frequencies and percentages.

Results: Among 200 students, 176 (88.00%) were aware of the harmful effects of loud noise on hearing, and they supported early ENT consultation for sudden hearing loss. Regular ear check-ups were considered important by 184 (92.00%) students, and 172 (86.00%) supported neonatal hearing screening. Safe practices were reflected by 152 (76.00%) students, and avoidance of self-medication with ear drops and instillation of oil into the ear was opted by 160 (80.00%) students. However, certain risky behaviors persisted, including prolonged use of headsets at high volume and forceful nose blowing during colds by 88 (44.00%) and 56 (28.00%) students, respectively.

Conclusions: Pre-clinical medical students exhibited satisfactory knowledge and attitude towards ear care, though the gap between knowledge and practice remains, particularly concerning noise exposure.

Keywords: *attitude; cerumen; hearing; knowledge.*

Introduction

The ear is an essential organ for hearing and maintaining body balance. Cerumen is a hydrophobic,

waxy substance that provides mechanical and microbial protection to the epithelial lining of the external auditory canal (EAC).^{1,2} Accumulation of cerumen is one the common reasons for medical

How to cite (Vancouver Style)

Adhikari A, Piya S, Pradhan S. Knowledge, Attitude, and Practice Regarding Ear Care among Pre-Clinical Medical Students of Tertiary Care Teaching Hospital: A Cross-sectional Study. Med J APF Nepal. 2026;2(1):42-47.

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consultations.^{3,4} Regular cleaning of EAC is generally not required due to the presence of “conveyor belt” process.⁵ However, individuals frequently use objects such as cotton buds, keys, etc., which may cause trauma or tympanic membrane perforation.⁵⁻⁸

Improper ear care practice and exposure to loud noise contribute significantly to preventable ear diseases.^{10,11} Engaging in unhygienic ear-care practices due to limited knowledge and awareness are linked to many ear disorders. Awareness regarding safe ear care practices can help reduce such risks.^{7,12}

As future healthcare professionals play an important role in promoting healthy behaviors, it is essential to understand their awareness and practices.^{9,13} Therefore, this study was conducted among preclinical medical students at Kathmandu Medical College to assess their knowledge, attitudes, and practices related to ear care.

Methods

A descriptive cross-sectional study was carried out at Kathmandu Medical College and Teaching Hospital for a period of one month from October 1 to October 31, 2025. After the ethical clearance from the IRC of Kathmandu Medical College Teaching Hospital (Ref.no.15102025/17). Five questions each for the knowledge, attitude, and practice were created using Google Forms and distributed to 200 pre-clinical medical students of Kathmandu Medical College and Teaching Hospital through a convenience sampling method. The responses received were then collected and analyzed. Yes/No questions were specifically designed to assess the knowledge, attitude, and practice towards ear care (Table 1). Participants who scored three or more were considered to have good knowledge, positive attitudes, and appropriate practices, while those scoring below three were categorized as having poor knowledge, attitudes, and practices. Data were collected using a semi-structured questionnaire distributed via Google Forms. Responses were compiled in Microsoft Excel 2019 and analyzed using Statistical Package for the Social Sciences version 23.0.

Table 1: Questionnaire to evaluate the Knowledge, Attitude, and Practice.

Questionnaire to evaluate the Knowledge
Should wax be removed regularly?
Do you have a habit of cleaning your ears with sharp objects like pencils, keys, ear buds, etc.?
Do perforations in the ear require surgery?
Do you believe that exposure to loud noise causes deafness?
Do you usually blow your nose roughly when you have a cold?
Questionnaire to evaluate the attitude
Do you use ear drops without a specialist consultation when you have ear pain?
Do you use headsets when listening to loud music for a long period of time?
Do you clean your ears with water while bathing?
Should ear piercing be done as early as possible after birth?
Can sudden exposure to loud noise damage your hearing ability?
Questionnaire to evaluate the practice
Do you need a regular ear checkup?
Do you need early ENT specialist intervention when you experience sudden hearing loss?
Do you recommend putting oils in the ear?
Do you think neonatal hearing screening is necessary?
Do you recommend frequent swallowing while travelling at high and low altitudes?

Results

A total of 200 preclinical medical students participated in the study and completed a pre-designed questionnaire. Among them 176 (88.00%) participants knew that exposure to loud noise for a long time can lead to deafness, and 136 (68.00%) participants were aware that sudden loud sounds can immediately damage hearing, showing strong awareness of noise-induced hearing loss.

When it came to early care and referral, 184 (92.00%) of participants felt that regular ear check-ups are important, and 176 (88.00%) students believed that early consultation with an ENT specialist is necessary when sudden hearing loss occurs. Similarly, 172 (86.00%) students responded in favor of the need for neonatal hearing screening.

In everyday ear-care practices, 144 (72.00%) of respondents understood that earwax should not be removed continuously, and 148 (74.00%) students

reported that they do not clean their ears using sharp objects like keys or earbuds. Safe practices were also reflected in the fact that 152 (76.00%) students avoided using ear drops without medical advice, and 160 (80.00%) of them did not support putting oil into the ear.

Despite this generally positive awareness, some risky habits were still present. 88 (44.00%) participants said they use headsets for long periods while

listening to loud music. And 56 (28.00%) admitted to blowing their nose forcefully during a cold.

Regarding specific ear conditions and preventive measures, 120 (60.00%) respondents believed that ear perforations may need surgical treatment, while 132 (66.00%) felt that ear piercing should be done early in life. In addition, 140 (70.00%) students recommended frequent swallowing during travel at high or low altitudes to reduce ear discomfort.

Table 2: Responses (n=200).

S.N.	Question	Yes n (%)	No n (%)
1	Should wax be removed continuously?	56 (28)	144 (72)
2	Habit of cleaning the ear with sharp objects (keys, pencils, earbuds)?	52 (26)	148 (74)
3	Do ear perforations require surgery?	120 (60)	80 (40)
4	Does exposure to loud noise cause deafness?	176 (88)	24 (12)
5	Do you blow your nose roughly during a cold?	56 (28)	144 (72)
6	Do you use ear drops without specialist consultation?	48 (24)	152 (76)
7	Do you use headsets for long periods at a loud volume?	88 (44)	112 (56)
8	Do you clean your ears with water while bathing?	40 (20)	160 (80)
9	Should ear piercing be done as early as possible after birth?	132 (66)	68 (34)
10	Can a sudden loud noise damage hearing?	136 (68)	64 (32)
11	Do you need regular ear check-ups?	184 (92)	16 (8)
12	Do you need early ENT intervention in sudden hearing loss?	176 (88)	24 (12)
13	Do you recommend putting oil in the ear?	40 (20)	160 (80)
14	Is neonatal hearing screening necessary?	172 (86)	28 (14)
15	Do you recommend frequent swallowing during altitude changes?	140 (70)	60 (30)

Discussion

The findings from the study suggest that participants had strong knowledge and positive attitudes toward hearing protection and early intervention, while also pointing out a few common behaviors that need continued education and reinforcement, especially related to noise exposure and daily ear-care habits.

The present study assessed the knowledge, attitude, and practice (KAP) regarding ear care among pre-clinical medical students at Kathmandu Medical College and Teaching Hospital. Ear diseases remain a significant cause of preventable morbidity worldwide, and inappropriate ear-care practices are frequently observed even among educated populations.^{5,7} Medical students represent an important target group, as their knowledge and practices will influence future patient counselling and community health education.

In this study, most participants demonstrated good knowledge regarding the role of cerumen in ear health. Nearly three-fourths of respondents

understood that earwax should not be removed continuously. Cerumen serves as a natural protective substance by lubricating the external auditory canal and providing a barrier against bacteria, fungi, and foreign bodies.⁴ Disruption of this protective mechanism through frequent or improper cleaning may predispose individuals to otitis externa, cerumen impaction, and canal trauma.¹⁴ Similar findings have been reported in studies among university students, where awareness of cerumen's protective role was relatively high but not universal.⁵

Similarly, 148 (74.00%) reported that they do not clean their ears using sharp objects such as keys, pencils, or earbuds. This reflects a favorable level of awareness regarding the risks of self-ear cleaning. Mechanical trauma caused by such objects can result in abrasions of the external auditory canal, secondary infections, and tympanic membrane perforation.^{5,7} However, the persistence of this practice in a subset of students is concerning and highlights that misconceptions regarding ear cleaning may persist despite medical education. Olaosun et al. also reported similar unsafe practices among educated

young adults, suggesting that education alone may not be sufficient to change behavior.⁷

Knowledge regarding noise-induced hearing loss was notably high in the present study. A large majority of participants were aware that exposure to loud noise can cause deafness. This is supported by other studies as well, where they have found that loud noise exposure of more than or equal to 89 dB for more than one hour a day led to hearing loss.^{10,11} And 136 (68.00%) recognized that sudden exposure to loud noise can damage hearing immediately. Noise-induced hearing loss is a growing public health concern, particularly among adolescents and young adults, due to increasing use of personal listening devices.¹⁰ The high level of awareness observed in this study is comparable to findings from other studies among medical students in Nepal.⁹

Despite a good level of knowledge, risky listening practices were still observed. Among all, 88 (44.00%) of respondents reported using headsets for long periods at loud volumes. This discrepancy between knowledge and practice has been consistently reported in previous studies.^{5,7} It suggests that awareness alone does not necessarily translate into safe behavior and emphasizes the need for behavioral change strategies alongside educational interventions.

Attitudes toward early diagnosis and professional care were highly positive among participants. In this study, 184 (92.00%) of respondents believed that regular ear check-ups are important, and 176 (88.00%) emphasized the need for early ENT consultation in cases of sudden hearing loss. Sudden sensorineural hearing loss is an otological emergency, and delayed treatment can lead to permanent hearing impairment.¹⁵ The strong support for early referral observed in this study reflects good clinical awareness among pre-clinical students.

Among the respondents, 152 (76.00%) reported that they do not use ear drops without specialist consultation. Inappropriate use of topical ear medications, especially in the presence of tympanic membrane perforation, can result in ototoxicity and worsening of ear disease.¹⁴ This cautious attitude contrasts with findings from studies conducted in the general population, where self-medication is common, indicating a positive influence of medical education.⁷

Traditional practices related to ear care were also explored. Most respondents, 160 (80.00%), did not recommend instilling oil into the ear. Although commonly practiced in many cultures, putting oil into the ear may increase the risk of infection and exacerbate cerumen impaction. This finding suggests that most participants favored evidence-based ear-

care practices over traditional beliefs.

Regarding preventive measures, a high proportion of respondents, 172 (86.00%), supported neonatal hearing screening. Early identification of congenital hearing loss is essential for timely intervention and optimal speech and language development. This finding reflects good awareness of preventive otology among participants. Additionally, 140 (70.00%) recommended frequent swallowing during altitude changes, indicating knowledge of simple methods to equalize middle ear pressure and prevent barotrauma.

Opinions regarding ear piercing showed some difference in opinion, with 132 (66.00%) respondents believing that ear piercing should be done as early as possible after birth. While ear piercing does not directly affect hearing, early piercing may increase the risk of infection if not performed under sterile conditions. This finding suggests that cultural beliefs may influence attitudes even among medically educated individuals.

Overall, the study demonstrates good knowledge and positive attitudes toward ear care among pre-clinical medical students. However, the persistence of certain unsafe practices, particularly related to noise exposure and self-ear cleaning, highlights the need for continued education and reinforcement. Similar observations have been reported in other KAP studies, emphasizing the importance of integrating preventive ear-care education early in medical training.⁹

With the right information and simple daily ear-care practices, many ear problems can be prevented. Improving awareness at the community level can reduce unnecessary suffering and enhance quality of life. Continued education and training programs are therefore essential to promote positive attitudes and safe ear-care behaviors. Introducing structured teaching on ear health early in medical training could help future doctors develop better awareness and practices, ultimately reducing preventable ear-related health problems.

However, this study was conducted in pre-clinical students at a single medical college; hence, the results cannot be generalized. This study gives an idea about the status of ear care knowledge, attitude, and practice, but it cannot be generalized to the community.

Conclusions

The study demonstrated that pre-clinical medical students at Kathmandu Medical College and Teaching Hospital possessed good knowledge and positive attitudes toward the ear care. Most participants

were aware of the protective role of cerumen, the risks of self-ear cleaning, and the importance of early referral and preventive measures such as neonatal hearing screening. However, certain unsafe practices, particularly prolonged use of headsets at high volumes and occasional self-cleaning with sharp objects, were still observed. These findings indicate that knowledge alone does not always translate into safe ear-care behavior and highlights the need for continuous education and reinforcement of safe practices.

Source of Funding: None

Acknowledgement: None

Conflict of Interest: None

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