MEDICAL SCIENCE

Public perception of common Ear, Nose, and Throat-related diseases in the Makkah region of Saudi Arabia: A cross-sectional study

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ABSTRACT

Background: Ear, nose, and throat (ENT)-related complaints are among the most frequent medical issues worldwide. Our objective was to evaluate the awareness level of, and attitudes toward, ENT-related diseases among residents of the Makkah region of Saudi Arabia. *Methodology:* A cross-sectional study was conducted in June 2023 by posting an online survey in Arabic on various social media platforms. The survey contained 23 questions to determine the participants' general knowledge about frequent ENT-related issues. *Results:* The study involved 420 participants. Most participants (82.1%) had poor knowledge about ENT-related issues (score <50%). Regarding general knowledge, 64.0% of participants properly answered the safety of using cotton buds, and 35.2% correctly answered the question related to respiratory viral infections and antibiotic use. A minority of participants, 14.8% and 11.4%, correctly answered questions about the role of vitamin C in the prevention and treatment of the common cold and the difference between vertigo and dizziness, respectively. Most individuals had an acceptable level of knowledge regarding ear and hearing issues (score ≥50%). The most correctly answered question was the one related to smoking and laryngeal cancer (90.5%). The most commonly used information sources were society, websites, and ENT clinics. *Conclusion:* According to this study, poor knowledge about ENT-related complaints is frequent among individuals in the Makkah region. Furthermore, our results suggest increasing awareness and educating the community through community campaigns and awareness programs because the community was the main source of information for survey participants.

Keywords: common ENT, general population, Makkah, Saudi Arabia.

1. INTRODUCTION

Ear, nose, and throat (ENT)-related complaints are common reasons for visiting primary healthcare providers worldwide (McCormick et al., 1995; Finley et al., 2018). Approximately 278 million individuals have moderate-to-profound two-sided hearing deficits. Almost two-thirds of those individuals with hearing loss live in developing countries, where causes of hearing impairment are avoidable (World Health Organization, 2006). In terms of nasal diseases, the prevalence of rhinosinusitis is anticipated to be around 16% in the United States (Di-Berardino et al., 2013). Head-and-neck tumors are correlated with major morbidity and mortality and lead to high healthcare expenses in the United States (Luryi et al., 2014). These are the 10th most frequent tumors in the United States and are estimated to be around 3% of all adult tumors (Siegel et al., 2019).

Previous studies indicated inadequate perception of and attitudes toward ENT-related issues (Crandell et al., 2004; Joubert et al., 2017; Knobel et al., 2012). There was inadequate available data about the local perception and attitudes toward ENT-related issues. although a previous study done in Riyadh revealed that only 2.3% of participants had excellent knowledge. While the majority (79.4%) had poor knowledge (Alkholaiwi et al., 2020). There have been only two published studies about ENT-related diseases in Saudi Arabia. This survey assessed perceptions and attitudes toward frequent ENT-related issues in the Makkah region of Saudi Arabia.

2. METHODOLOGY

A cross-sectional survey was performed in June 2023 by distributing a validated, electronic, self-administered questionnaire in Arabic on various social media platforms to gather data about individuals' demographics and perceptions about frequent ENT-related complaints. The questionnaire was made by an otolaryngologist to cover the most frequent ENT-related diseases and to try to cover the most frequent misunderstandings among the Saudi individuals. After that, the questionnaire was translated into Arabic with the aid of the translation team. Then it was revised and adjusted by a senior otolaryngologist (Alkholaiwi et al., 2020).

The required sample size was determined utilizing the Raosoft calculator (Raosoft, Inc., Seattle, WA), indicating that there should be more than 384 participants, with a confidence interval of 95% and a significance level (P value) of 5%. The questionnaire was completed by 420 participants. We included only individuals from the Makkah region who were ≥16 years old and who agreed to enroll in the survey. Incomplete questionnaire submissions were removed. The questionnaire comprised three parts. The first part contained six items for collecting personal data. The second part had 23 questions divided into 3 categories. The first category, which contained eight items, referred to general knowledge.

The second category, which included eight items, was focused on ear and hearing diseases. The third category included seven items focused on nose, throat, and laryngeal diseases. The final section of the questionnaire was about sources utilized by the individuals to access information regarding ENT-related issues. Data was analyzed using SPSS, version 22 (IBM Corp., Armonk, NY). Categorical data were represented as frequency distributions and percentages. Descriptive analyses were conducted to evaluate the number of individuals who answered correctly for each item.

The percentages of correct answers for each individual were also counted. The total score was determined as follows: Correct answers were given +2, wrong answers were given −2, and "I don't know" answers were given −1. Knowledge scores were categorized as "excellent" if individuals achieved a score ≥75%, "good" if they earned a score between 74% and 50%, and "poor" if they obtained a score <50%. Scores ≥50% were designated acceptable. The Chi-square test was utilized to evaluate the distribution of the knowledge scores (acceptable vs. unacceptable) among different demographics.

Institutional review approval was acquired from the Biomedical Research Ethics Committee, College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia. Informed consent was obtained from the participants through the online questionnaire. The participants were not paid for their participation, and their identities remained (Approval No: HAPO-02-K-012-2023-06-1670).

3. RESULTS

A total of 420 individuals were involved. 50.5% were male, 57.6% Participants aged 16–25 years, 90.5% were Saudi, 58.1% had a university level, 54.5% participants were single, 41% were unemployed (Table 1).

Table 1 Bio-demographic data, Makkah Region, Saudi Arabia (n=420).

Variables		Frequency	Percent
Age	From 16 to 30	242	57.6
	From 31 to 45	151	36.6
	More than 46	27	6.4
Gender	Male	212	50.5
	Female	208	49.5
Nationality	Saudi	380	90.5
	Non-Saudi	40	9.5
Educational level	Primary or less	23	5.5
	High school level	143	34.0
	University level	244	58.1
	Postgraduate level	10	2.4
Marital status	Single	229	54.5
	Married	177	42.1
	Divorced	12	2.9
	Widowed	2	.5
Occupation	Student	105	25.0
	Employee	136	32.4
	Unemployed	172	41.0
	Retired	7	1.7

Few individuals (n=9, 2.1%) achieved excellent knowledge scores, and 66 (15.7%) achieved good knowledge scores. The majority of individuals (n=345, 82.1%) had poor knowledge about ENT-related issues (Table 2).

Table 2 Knowledge score.

The calculated score regarding the participants' knowledge	n (%)
Excellent	9 (2.1)
Good	66 (15.7)
Poor	345 (82.1)

Table 3 displays the percentages of correct responses for all questions in the three main sections. In the general knowledge component, 74% of respondents answered correctly for the question about having an influenza vaccine every year. The question about dizziness and vertigo was answered correctly by only 11.4% of respondents, and the question about vitamin C and the common cold was answered correctly by 14.8% of respondents. Most participants responded correctly about sudden hearing loss, whereas only 24.8% of respondents correctly answered the question about hearing aids in infants. Questions about smoking and laryngeal cancer and tonsillectomies and immunodeficiency were answered correctly by 90.5% and 27.9% of respondents, respectively.

Correlation of respondents' knowledge with the various variables was analyzed using the Chi-square test. Knowledge was significantly correlated with age ($P<0.029$), gender ($P<0.045$), and marital status ($P<0.014$); it was not significantly correlated with education level ($P<0.259$) and occupation ($P<0.566$) (Table 4).

In this survey regarding ENT-related diseases, community was the most frequent source of knowledge (46.9%), followed by websites (14.8%), visiting an ENT clinic (14.5%), and social media (13.1%) (Table 5).

Table 3 Respondents' perceptions of ear, nose, and throat-related diseases.

	Wrong responses, n (%)	I don't know responses, n (%)	Correct responses, n (%)
General knowledge			
Cotton buds are the safest way for cleaning your ears?	82 (19.5)	69 (16.4)	269 (64.0)
Newborns' hearing can be screened?	48 (11.4)	132 (31.4)	240 (57.1)
Upper respiratory tract viral infections can be treated with antibiotics?	192 (45.7)	80 (19.0)	148 (35.2)
It is recommended to take influenza vaccine every year?	40 (9.5)	69 (16.4)	311 (74.0)
Influenza vaccine is not recommended for diabetics and hypertensive patients?	34 (8.1)	220 (52.2)	166 (39.5)
Vitamin C can prevent and cure common cold?	238 (56.7)	120 (28.6)	62 (14.8)
Using olive oil as ear drops can cure ear diseases?	106 (25.2)	129 (30.7)	185 (44.0)
Dizziness and vertigo are the same?	341 (81.2)	31 (7.4)	48 (11.4)
Ear and hearing diseases			
Hearing impairment in children can cause attention deficit and affect school performance?	17 (4.0)	36 (8.6)	367 (87.4)
Hearing loss may affect social life?	47 (11.2)	25 (6.0)	348 (82.9)
Continuous noise exposure can harm your hearing and may cause hearing loss?	72 (17.1)	110 (26.2)	238 (56.7)
Hearing aids are one of the most common ways to improve hearing loss in elderly patients?	9 (2.1)	68 (16.2)	343 (81.7)
Inner ear infections can cause vertigo?	3 (.7)	67 (16.0)	350 (83.3)
Hearing aids can be used in children <12 months?	106 (25.2)	210 (50.0)	104 (24.8)
All ear pain are necessarily middle-ear infections?	90 (21.4)	162 (38.6)	168 (40.0)
Sudden hearing loss is an emergency condition and needs an immediate medical assessment?	6 (1.4)	21 (5.0)	393 (93.6)
Nose, throat, and laryngeal diseases			
The most appropriate way to deal with epistaxis is leaning the head backwards?	132 (31.4)	101 (24.0)	187 (44.5)
Nasal decongestants drops are safe to use for long term?	63 (15.0)	107 (25.5)	250 (59.5)
The initial step to control nasal allergy - allergic rhinitis - symptoms is to stay away from the specific irritants that causing the symptoms? (e.g., dust, some animals, etc…)	5 (1.2)	39 (9.3)	376 (89.5)
Tonsillectomy procedure can cause obesity?	71 (16.9)	173 (41.2)	176 (41.9)
Tonsillectomy procedure can lead to immunodeficiency?	121 (28.8)	182 (43.3)	117 (27.9)
Voice abuse can cause vocal cord disorders?	17 (4.0)	74 (17.6)	329 (78.3)
Smoking can cause laryngeal cancer?	8 (1.9)	32 (7.6)	380 (90.5)

Table 4 Relationships between demographic variables and respondents' knowledge levels about ear, nose, and throat-related diseases.

Variables		Unacceptable, n (%)	Acceptable, n (%)	P
Age	From 16 to 30	208 (86.0)	34 (14.0)	.029
	From 31 to 45	114 (75.5)	37 (24.5)	
	More than 46	23 (85.2)	4 (14.8)	
Gender	Male	182 (85.8)	30 (14.2)	.045
	Female	163 (78.4)	45 (21.6)	
Educational level	Primary or less	22 (95.7)	1 (4.3)	.259
	High school level	120 (83.9)	23 (16.1)	
	University level	195 (79.9)	49 (20.1)	
	Postgraduate level	8 (80.0)	2 (20.0)	
Marital status	Single	200 (87.3)	29 (12.7)	.014
	Married	133 (75.1)	44 (24.9)	
	Divorced	10 (83.3)	2 (16.7)	
	Widowed	2 (100)	0	
Occupation	Student	89 (84.8)	16 (15.2)	.566
	Employee	114 (83.8)	22 (16.2)	
	Unemployed	137 (79.7)	35 (20.3)	
	Retired	5 (71.4)	2 (28.6)	

Table 5 Source of knowledge regarding ENT-related diseases among participants.

Sources of participants' knowledge	n (%)
ENT clinic	61 (14.5)
GP clinic	5 (1.2)
Pharmacy	1 (0.2)
Medical journals	31 (7.4)
Newspaper	8 (1.9)
Web sites	62 (14.8)
Social media	55 (13.1)
Community	197 (46.9)

4. DISCUSSION

This study evaluated awareness levels and attitudes about ENT-related issues among the residents of the Makkah region of Saudi Arabia. Our results demonstrated that most participants in the Makkah region (82.1%) have poor knowledge about common ENT-related diseases. Although, 16 to 25-year-olds represented 242 (57.6%) participants, younger individuals had less knowledge than older people, likely because older individuals are more liable to have a current ENT-related disease and have experienced ENT-related issues previously (Alkholaiwi et al., 2020; Niccoli et al., 2012; Jalaladdin et al., 2023). Thus, the older population is likelier than younger people to have visited clinicians and read more regarding ENT-related diseases. Moreover, this result is supported by a previously conducted survey that showed older people have better knowledge than younger people (Elolemy et al., 2012). Also, female participants had better knowledge than male participants. This finding agrees with a study conducted in Milan, Italy, that revealed females had better knowledge concerning ear and hearing issues (Di-Berardino et al., 2013).

Our results also showed that married individuals had more acceptable levels of knowledge than single individuals, which agrees with a cross-sectional study conducted in Riyadh, Saudi Arabia (Alkholaiwi et al., 2020). Our results showed that two-thirds of participants considered cotton buds to be an unsafe way to clean their ears. A previous study found a similar finding (Alkholaiwi et al., 2020; Jalaladdin et al., 2023). Our study also showed that most participants had poor knowledge about the role of vitamin C in the prevention of the common cold. Another Saudi Arabian study found that participants had poor knowledge regarding the importance of vitamin C in the common cold (Alkholaiwi et al., 2020). On the contrary, a recent study showed that most

participants had good knowledge of the use of vitamin C in the common cold (65.1%) (Jalaladdin et al., 2023). Nevertheless, there is no evidence to verify the importance of Vitamin C in the common cold (Alkholaiwi et al., 2020).

In the current study, most participants demonstrated appropriate responses regarding the action to be taken in case of sudden hearing loss. This is in agreement with a study recently published (Jalaladdin et al., 2023). This survey had several limitations. First, the focus on one region may have affected the generalizability of the findings. Second, the lack of a standardized questionnaire about knowledge and attitudes about ENT-related diseases could have limited the comparability of the study findings. Third, we did not eliminate healthcare professionals from this study. Fourth, completing the questionnaire requires Internet access, meaning that the poor could not participate. Fifth, logistic regression analysis was not performed.

5. CONCLUSION

Poor knowledge about common ENT-related issues was frequent among individuals in the Makkah region of Saudi Arabia. Hence, our results suggest the necessity of increasing awareness through community campaigns. We propose establishing educational programs for all age groups in Saudi Arabia to enhance levels of awareness. Further studies are advised.

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Author's contributions

All the authors contributed equally in the selection of the idea, proposal writing, data collection, data entry and analysis, results and discussion writing and final revision of the article.

Ethical approval

The study was approved by the Ethics and Research Review Committee of Umm Al-Qura University, Faculty of Medicine (Approval number: HAPO-02-K-012-2023-06-1670)

Informed consent

Written informed consent was obtained from all individual participants included in the study.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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