

Awareness and attitudes of Saudi parents toward otitis media in children

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ABSTRACT

Background: An ear infection is a common health problem in children. Parents' awareness about otitis media (OM) among children, varies across the world. We aimed to explore parents' knowledge, attitude, and practices toward OM among their children. **Methods:** A quantitative cross-sectional study was done from May 1, 2020 to June 30, 2020, in Qassim, Saudi Arabia. **Results:** This study comprised 703 participants; Mothers comprised the majority (77.1%), 43.2% of the participants were aged between 31 and 40 years of age, and 73% of them had Bachelor's degrees or diplomas. More than half of the participants had suboptimal knowledge of OM. Although the result showed that 56% of them had positive attitudes, 86.6% did not view vaccination as a prevention measure of acute OM (AOM). Besides, 81.8% of parents were willing to follow the watchful waiting approach, in case their child had OM. **Conclusion:** Most of the parents in the Qassim region have inadequate knowledge regarding OM among children. Based on our result findings, we recommend further education programs to enhance the knowledge regarding OM and AOM, among the Qassim population, Saudi Arabia including family members of patients and the healthcare workers.

Keywords: Children, ear infection, otitis media, parents' knowledge, Saudi Arabia

Introduction

An ear infection is believed to be a significant and highly-prevalent medical issue among the pediatric age groups with the possibility of influencing their quality of life.^[1] Otitis media (OM) is an infection of the middle ear caused by viruses or bacteria.^[2-4] Parents' knowledge of OM and care practices have a crucial role in the outcomes of OM among their children. To reduce the occurrence of ear infections, parents must be aware of the causes of ear infections, as most of them are preventable. Causes of OM are early cessation of breastfeeding, day-care

attendance, parents' smoking habits, and poor compliance with the national immunization schedule.^[5,6] A previous study aimed to assess parents' knowledge of the causes of OM, found that the lack of breastfeeding was the most identifiable risk factor by parents. Besides, studies conducted have reported that a majority of their participants had poor knowledge of OM.^[7] A qualitative study designed to assess parents' beliefs and knowledge regarding the management of acute OM (AOM) reported that parents thought that antibiotics provided the best of the available treatment options whereas analgesics were not adequate as monotherapy.^[8,9] Parents play a major role in the early medical care sought by their children. This has the potential to reduce the risks of serious and catastrophic complications, such as meningitis, brain abscess, mastoid abscess, facial nerve paralysis, and labyrinthitis.^[10] Moreover, OM is responsible for a majority of hearing loss cases, among school-age children.^[11]

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Several studies were conducted about the causes, risk factors, clinical presentations, management, and complications of OM. However, in the current study, we assessed parents' knowledge, attitude, and care management practices regarding OM, in Qassim, Saudi Arabia.

Method

A quantitative cross-sectional study was done from May 1, 2020 to June 30, 2020, in the Qassim region of Saudi Arabia. The Qassim population comprises approximately 1.5 million people, with around 80% of them Saudi citizens.

The study population involved both Saudi citizens and residents living in different areas of the Qassim region. The inclusion criteria were parents, 18 years or older, with a child or children 10 years old or younger. Approval for this study was obtained via the Committee of Bioethics of the Qassim Health Affairs and the participants had the right to withdraw from the study at any time. The participants were invited to participate in the study through an online questionnaire adapted from a study conducted in Riyadh, Saudi Arabia, in 2019.^[10] However, we made minor changes to the questionnaire and adapted it to our study requirements, after revision with an expert in the field. The questionnaire was pretested before data collection. Following which, we used Google forms to conduct our online survey, by distributing the questionnaire through the WhatsApp application, via eight medical students who acted as data collectors. The questionnaire included 25 questions categorized in the following four sections: demographic data, knowledge of OM, attitude toward OM, and parents' care practices of OM.

The required sample size was calculated with an estimated absolute error of 5% and a 95% confidence interval (CI), showing the minimum required sample size to be 384 using $n = z^2pq/d^2$.

Statistical analysis

The calculation of the knowledge, attitude, and practices (KAP) score was done as follows: the correct answers were coded as 1 and incorrect coded 0. The knowledge, attitude, and practices were recorded through four, five, and four questions, respectively. These included multiple-choice answers to knowledge questions #1, #3, and #4 and practices question #4. The total mean score for each predictor was obtained by adding all the scores obtained for the questions of each predictor, respectively. The higher the score, the higher the level of knowledge, positive attitude, and care practices toward OM. By using the mean as a cut-off point to determine the level of KAP, parents were classified at a poor level of KAP, if the score-range was below or equal to the mean score, and a good level of KAP, if the score was above the mean.

Data was elaborated with numbers (percentages) for all qualitative variables, while mean \pm standard were used to present all quantitative variables. The comparison between

the score of knowledge and attitude and sociodemographic characteristics of participants has been calculated through the Mann-Whitney U test or Kruskal-Wallis test, where appropriate. A P value < 0.05 was considered statistically significant. Correlation procedures were also conducted to determine the linear agreement of knowledge and attitude. The Statistical Packages for Software Sciences (SPSS) version 21 Armonk, New York, IBM Corporation was used for data analysis.

Results

A total of 703 parents were involved in this study. As seen in Table 1, the group that comprised a greater part of the participants was between 31 and 40 years of age (43.2%) and most of them were mothers (77.1%). Nearly all participants were Saudis (98.4%). With regards to marital status, almost all participants were married (95.3%) as shown in [Table 1].

In the assessment of parents' knowledge of OM, we found that the most commonly cited causes of OM were swimming or frequent showering (39.7%), followed by bacteria (36%) and transmission through foreign bodies and/headphones (30.2%); the least common of the causes were congenital anomalies (11.8%). When asked if incorrect breastfeeding techniques can lead to OM, a little over two-thirds (67.4%) of the participants responded "yes." The most frequently mentioned symptoms of OM were ear pain (75.7%), followed by fever (43.5%) and dizziness (42.7%); deafness was the least-frequently mentioned symptom (12.8%). Besides, the most commonly known treatment options of OM were ear drops (55.2%), followed by antibiotics for certain cases (53.3%), and antibiotics for all ages and cases (30%); traditional medicine (11.1%) was reported as the least sought treatment option. The assessment of parents' attitudes toward OM is shown in [Figure 1].

In the assessment of parents' care practices toward managing OM, we learned that the most common action was taking the child with OM to the hospital (95.7%), while the most commonly requested medication from the doctor was analgesic ear drops (42.7%). Moreover, 81.8% of the parents reported that they were willing to wait and observe whether their children had OM and would revisit the doctor only if there was no improvement within 2 days. Besides, the most commonly known complications arising from OM were deafness (62.7%) and extension of damage to other organs (48.8%).

Regarding the description of parents' knowledge and attitude toward OM, it was found that the mean score of knowledge was 3.92 (SD 1.87) out of 9 points with the majority of the parents classified at a poor knowledge level (62%) and the rest were at a good level (38%). Regarding attitude, the mean score was 2.6 (SD 1.04) out of 5 points with negative and positive attitude levels comprising 43.4% and 56.6%, respectively. In Figure 2, we presented that the correlation between knowledge and attitude was positively, statistically significant ($r = 0.193$; $P < 0.001$). It suggests that while parents' knowledge of OM increases, their attitude will also likely to increase.

Table 1: Sociodemographic characteristics of parents (n=703)

Study Variables	n (%)
Age group	
18-30 years	109 (15.5%)
31-40 years	304 (43.2%)
41-50 years	228 (32.4%)
>50 years	62 (08.8%)
Parents' gender	
Male	161 (22.9%)
Female	542 (77.1%)
Nationality	
Saudi	692 (98.4%)
Non-Saudi	11 (01.6%)
Marital status	
Divorced or widowed	33 (04.7%)
Married	670 (95.3%)
Educational level	
High school or less	95 (13.5%)
Bachelor's degree or diploma	513 (73.0%)
Postgraduate	95 (13.5%)
Monthly Income (SAR)	
<5,000	129 (18.3%)
5,000-10,000	225 (32.0%)
>10,000	349 (49.6%)
Number of children	
One	107 (15.2%)
Two	143 (20.3%)
Three	140 (19.9%)
Four	99 (14.1%)
Five or more	214 (30.4%)
Having heard about otitis media	
Yes	642 (91.3%)
No	61 (08.7%)
Having children who had otitis media	
Yes	269 (38.3%)
No	361 (51.4%)
I do not know	73 (10.4%)
Having children who underwent ear operation	
Yes	32 (04.6%)
No	668 (95.0%)
I do not know	03 (0.40%)
Having children with congenital anomalies since birth	
Yes	26 (03.7%)
No	665 (94.6%)
I do not know	12 (01.7%)

When measuring the association between knowledge and attitude in regards to the sociodemographic characteristics of parents, we found that mothers had better knowledge of OM ($t = -5.915$; $P < 0.001$). Furthermore, postgraduate parents were significantly better educated about OM ($f = 7.838$; $P < 0.001$), compared to their counterparts. Parents who had heard about OM consequently had significantly better knowledge of ($t = 7.212$; $P < 0.001$) and attitude toward ($t = 3.467$; $P = 0.004$) OM; parents who had children with OM also possessed significantly better knowledge ($t = 3.472$; $P = 0.002$) of the infection as shown in [Table 2].

Table 2: Statistical association between knowledge and attitude concerning sociodemographic characteristics of parents (n=703)

Factor	Knowledge Total Score (9) Mean±SD	Attitude total Score (5) Mean±SD
Age group		
18-30 years	4.05±1.91	2.55±1.08
31-40 years	3.95±1.82	2.67±1.08
>40 years	3.84±1.92	2.55±0.98
F-Test; P	0.552; 0.368	1.249; 0.204
Parents' gender		
Male	3.17±2.14	2.54±1.12
Female	4.14±1.72	2.62±1.02
t-test; P	-5.915; <0.001**	-0.869; 0.551
Marital status		
Divorced or widowed	4.39±1.46	2.55±0.71
Married	3.89±1.89	2.61±1.06
t-test; P	1.487; 0.139	-0.325; 0.570
Educational level		
High school or less	3.37±2.19	2.58±1.01
Bachelor's degree or diploma	3.93±1.76	2.57±1.12
Postgraduate	4.43±1.99	2.63±1.01
F-test; P	7.838; <0.001**	0.238; 0.101
Monthly income (SAR)		
<5,000	3.79±1.94	2.40±1.07
5,000-10,000	3.73±1.92	2.62±1.02
>10,000	4.09±1.79	2.71±1.12
F-test; P	2.914; 0.085	2.347; 0.721
Number of children		
1-2	3.88±1.83	2.68±1.03
3-4	3.89±1.86	2.61±1.14
≥5	4.00±1.86	2.50±0.94
F-test; P	0.302; 0.712	1.641; 0.263
Having heard about otitis media		
Yes	4.07±1.81	2.64±1.00
No	2.33±1.81	2.16±1.33
t-test; P	7.212; <0.001**	3.467; 0.004 **
Having children who had otitis media		
Yes	4.23±1.69	2.67±0.99
No/I do not know	3.73±1.95	2.56±1.08
t-test; P	3.472; 0.002 **	1.321; 0.106

*P has been calculated using the Mann-Whitney U test. *P has been calculated using the Kruskal-Wallis test. **Significant at $P < 0.05$ level.

Discussion

The current study was designed to assess parents' awareness, attitudes toward OM in children. Besides, we looked at the current care practices of parents who have a child or children with AOM. Our results showed that parents having children with AOM had suboptimal awareness of it.

In our study, we found that most of the participants have inadequate awareness (62%) about AOM. Several studies conducted in different regions reported different levels of parents' knowledge toward AOM. Similarly, Al-Hammar *et al.*, who assessed the awareness of OM risk factors, reported an unsatisfactory level of awareness and knowledge among the majority of their study

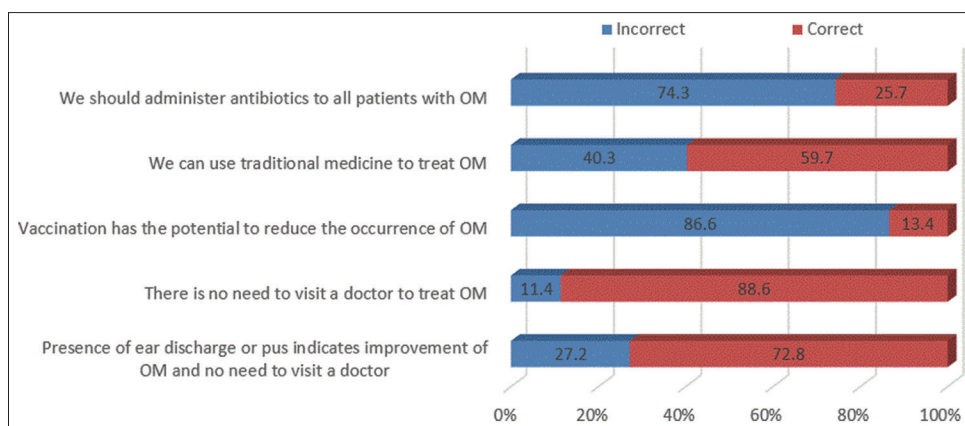


Figure 1: Assessment of parents' attitude toward OM

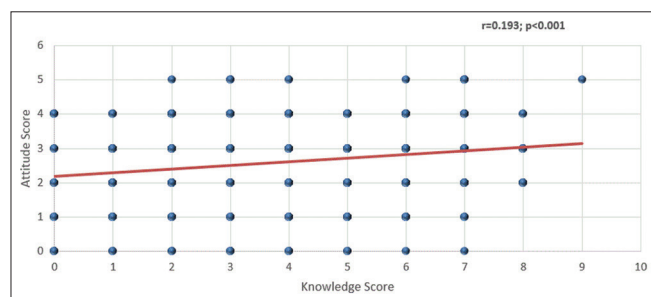


Figure 2: Correlation between knowledge and attitude scores

group participants.^[12] However, Mukara *et al.*, reported that 76.6% of their study population had a good knowledge base of OM^[13]; the results of this study observed a strong association between the level of education and level of knowledge ($P < 0.001$). On the other hand, Srikanth *et al.* found no association between parents' education and their level of knowledge of OM.^[14]

Further, this study reinforces that there is no association between parents' socioeconomic status and their level of knowledge of OM, which has been supported in multiple studies.^[7,14,15] The difference in the knowledge and awareness score could be due to many factors such as the diversity in geographic areas in which the studies were conducted and the level of education of the study group. This emphasizes the need of raising awareness of parents regarding OM in our community.

Surprisingly, most of our participants identified swimming or frequent showering as the most common cause of OM. It has been known that swimming is a predisposing factor for otitis externa but not OM.^[16] Viral and bacterial infections are the most frequent causes of OM among children and this fact is important for parents to understand, to prevent wrong interventions.^[17]

Overall, in the current study, a positive attitude toward dealing with OM was found in 56.6% (398) of the parents. This result is significantly lower than the reported findings of other similar studies where almost all had a positive attitude.^[13,15,18] A possible explanation for this result may be the lack of adequate knowledge of the participants of our study, as the correlation between

knowledge and attitude was positively and statistically significant. In our study, we found no association between socioeconomic status and a positive attitude. This supports the finding of similar studies conducted in Saudi Arabia, Riyadh, and south India.^[14,15]

The majority of the surveyed parents agreed that antibiotics should be prescribed to all patients with OM. A study states that the perception of antibiotics being the best and the only option for treating their child's AOM is mainly based on previous experience, advice from the general physician (GP), and a common belief that antibiotics hasten the recovery process while preventing complications (9). Most of the studies documented that parents are uncomfortable with observation and pain-killers without antibiotics for a child with OM. The watchful waiting approach for AOM in children is well-established, based on different experiences.^[19-21] However, this approach should be understood by the physician to explain it to parents. The result regarding this approach in a study showed suspicion among parents about it, with a number of those who accept it at par with those who do not believe in it.^[22] Conversely, our study results showed that the majority were willing to accept this strategy.

Several studies confirmed the pneumococcal vaccine's effectiveness toward AOM prevention.^[23,24] Nonetheless, most of the surveyed parents (86.6%) in our study, do not see vaccination as a prevention measure of AOM. This goes in line with the finding of a previous study which states that more than half of the parents (57%) will consider vaccination if they were aware of the availability of a vaccine against AOM.^[25] Therefore, further educating parents about the importance of vaccination and its impact on some diseases should be considered by healthcare providers.

Regarding the participants' care practices, in our study, most of them chose the right action by bringing the child to the hospital. This is similar to the results found in another study.^[13] The request for analgesic ear drops come as the most commonly demanded treatment, followed by antibiotics, and then antipyretic/analgesics.

Our finding in this study represents a high percentage of the participant with a low level of knowledge toward AOM. Also, present more than half of them with a positive attitude about AOM. We noticed that our participant parents had good practice with a high acceptance rate of watchful waiting approach in the management of AOM.

There were several limitations to this study. Specifically, the study was conducted in a single region in Saudi Arabia. Therefore, the results may not be generalizable, replicable, or even applicable to other regions. This implies that the convenience sampling method has the potential for sampling bias. Additionally, this study may have introduced some recall bias and subjectivity.

Conclusion

Most of the parents in this study showed inadequate awareness about OM among children. However, most of them exhibited a good attitude toward OM management care practices. Based on the results of our study, we recommend further education programs to enhance the level of knowledge regarding OM among the Qassim population, including the family members of patients and healthcare workers.

Ethical approval

Ethical approval was obtained through the Committee of Bioethics of the Qassim Health Affairs and the Ministry of Health.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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