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# PARENTAL KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING EAR INFECTIONS IN CHILDREN AND ADOLESCENTS IN LAHORE PAKISTAN: A CROSS-SECTIONAL STUDY



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## Abstract

**Objective:** To analyze the parental knowledge, attitude and practice for pediatric ear infection in Lahore, Pakistan.

**Methods:** A cross-sectional study was performed in Lahore, Pakistan, that specifically targeted the parents of children below 18 years. Data were collected using a pre-designed questionnaire from parents who visited Nawaz Sharif Hospital and from the community and occupational settings.

**Result:** The study examined 268 parents, with a mean age of  $35 \pm 8$  years. 226 (84.33%) parents demonstrated good knowledge of children's ear infections. Family and health Professionals were major sources of knowledge and had good knowledge regarding pediatric ear infection, while media (90.42%) and family (90.24%) had higher rates of good knowledge. Family was the main independent source associated with good knowledge (AOR = 4.323, 95% CI: 1.837–10.173;  $P = 0.001$ ), whereas residence outside Lahore was associated with lower knowledge (AOR = 0.261, 95% CI: 0.096–0.708;  $P = 0.008$ ). Overall, 261 (97.4%) parents consulted medical doctors for their children's ear infections. The perception of respondents on reasons for delayed or no medical treatment for ear infections includes: parental ignorance (73.1%,  $n = 196$ ) and poverty (65.3%,  $n = 175$ ).

**Conclusion:** The present study found that most parents had a good level of awareness about ear infection in Lahore. Family, health professionals, and media were important sources correlated with good knowledge regarding ear infections in children. Parental ignorance and poverty were the most reported barriers to seeking medical care for pediatric ear infections.

**Keywords:** Adolescents, Children, Ear Infections, KAP, Lahore, Otitis, Parents

## INTRODUCTION

The ear has a very important role in hearing, to maintain balance, and any sort of disturbance in the structure or function can greatly affect the overall quality of life (1, 2). Ear infection is the most common health problem in children and is a major cause of acquired hearing loss in the world (3, 4). A significant burden for otitis media has also been discovered in recent epidemiological studies of children worldwide (3). Nearly 80% of children experience at least one episode of ear infection by age three, along with a high percentage of developing recurrent infection at an early age (5).

So the high percentage of ear infections in children is mainly effects the anatomical and physiological characteristics of the pediatric ear, specifically affecting the growth of the Eustachian tube, hence increasing the risk of middle ear infections (6). Acute otitis media is a middle ear infection that shows the symptoms of fever, ear pain, irritability, and the risk of other common ear disorders, which include otitis media (accumulation of non-infected fluid in the middle ear) and otitis externa (infection of the external auditory canal) (6, 7).

If the ear infections are not treated in an adequate manner, they may progress to serious complications. Hearing impairment is considered the most serious outcome, as it may disrupt language development, educational achievements, and social functioning in children (8). Chronic Purulent otitis media affects millions of people, with a very high proportion of permanent hearing loss, and compromises



the quality of life in the world (9, 10). These outcomes emphasize that early recognition and timely medical treatment are important.

Parents play a very important role in the early detection, risk prevention, and effective management of ear infections in their children. Proper knowledge of symptoms, causes, and potential complications, along with their attitude and health-seeking behavior, directly impacts the treatment outcomes (11, 12). Research carried out in various regions has revealed variation in parental awareness about pediatric ear infections, with many parents showing a misunderstanding related to symptoms, antibiotic therapy, and severity of the disease (5, 6, 11). Lack of parental awareness can lead to treatment delays, improper medication use, and increased risk of negative side effects. Although there is a significant burden of ear infections in children and a long-term effect, information regarding parental awareness, attitudes, and health management behaviors for ear infections is limited for some populations. Acknowledging the lack of knowledge or attitudes among parents is essential to the design of effective educational programs and to improving health care services.

Hence, this research aimed to examine parental understanding, attitude, and practice regarding children's ear infection, to identify the gaps that may affect prevention and management strategies.

## METHODOLOGY

The cross-sectional study was adopted to analyze parental knowledge, attitude, and practices in relation to pediatric ear infections. This methodology has been successfully utilized in similar research assessing parental KAP in relation to ear infections. The study was conducted in different areas of Lahore, Pakistan, and targeted the parents in both urban and semi-urban areas. To get a wide range of participants, a quota sampling technique was employed with a half from a clinical setting (when parents visited ENT and Pediatric OPDs in selected hospitals such as Nawaz Sharif Hospital) and the other half from community and occupational setting (teachers, small local businessmen and workers). This study was performed from September to November 2022. The eligibility was that the participants must have children less than 18 years, must be residents of Lahore, and must agree to participate voluntarily. Individuals without children or who were unwilling to participate were excluded from the study. Sample size was determined by using Raosoft sample size calculator software to determine the sufficient sample size required for the study. A 95% confidence level and a 6.2% margin of error was decided. The exact sample size for the study was 268 individuals from Lahore.

A pre-designed questionnaire was used to collect data, consisting of the knowledge of parents about ear infections in children (13). The questionnaire was designed on secondary validated KAP studies, but the internal consistency of the questionnaire was determined to check the consistency of the questionnaire with the study population. Cronbach's alpha was used to assess the reliability of the questionnaire, and it was found to be 0.73, which is considered to have acceptable internal consistency for the questionnaire items. The questionnaire had three sections: the first one was of personal information, age, income, and the education of parents. The middle section discussed the parents' knowledge about ear infection, and the last section covered the views and practices of parents regarding ear infection. The questionnaire format and design were based on secondary validated KAP research done on parental awareness of ear infections. The parents who visit ENT and Pediatric OPDs in the identified hospitals in Lahore were sampled to provide data. Two trained data collectors contacted the qualified parents, informed them about the objective of the study, and received the informed consent before the distribution of the questionnaire. The participants were requested to fill in the structured form in a place, and they were assisted in answering or comprehending any questions that one has difficulties with, by these two above mentioned trained data collectors. This has improved quality of our data as it was noticed that respondents were prone to wrong assumptions due to communication gap. All filled questionnaires were verified as accurate and complete, and all information related to the participants was kept confidential and only used for the research purpose.

Data analysis was done through Statistical Package of Social Sciences (SPSS) software version 26. Armonk, NY: IBM Corp. Summary of the sociodemographic data and levels of KAP were summarized by



descriptive statistics (frequency, percentages, mean  $\pm$  SD). Scoring in the KAP item was based on good vs. poor (e.g., a cut-off point of 60% correct responses was used to define adequate knowledge, adopted from previous studies(13) scoring criterion as it was in the reference article. A total of 18 items were used to measure knowledge about pediatric ear infections. 1 point was given for correct answers (such as the correct identification of a symptom, cause or complication) and 0 points were given for incorrect or don't know answers. This resulted in the highest possible knowledge score, which were 18. A score of 60% (or 11/18 or more) was deemed Good Knowledge and a score less than this was defined as Poor Knowledge. The Institutional Review Board concerned was approached to provide ethical approval. Informed consent (stated on the questionnaire) was received by all the participants. Information confidentiality was ensured in the research.

## RESULTS

The demographic information of the participants revealed that with a mean age of  $35 \pm 8$  years, the majority of responders were aged between 26 and 32 years (34.7%). Female participants (48.1%) are less predominant than the male participants (51.9%). Nearly half of the participants had primary level education (48.1%), while only 9.7% had postgraduate education regarding educational status. Most respondents were employed, and more than half of the participants (57.5%) have a monthly income of less than 50000 PKR. This indicates the population is low-income. Moreover, 54.1% respondents stated that their child did not have any ear disease, and 45.9% reported that their child had an ear disease (Table I).

**Table I.** Demographic characteristics of study participants, Lahore, Pakistan (n = 268)

Personal data	Frequency (n=268)	Percentage (%)
<b>Age Range</b>		
<26	20	7.5%
26-32	93	34.7%
33-38	79	29.5%
>38	76	28.4%
Mean $\pm$ SD	35 $\pm$ 8	
<b>Gender</b>		
Male	139	51.9%
Female	129	48.1%
<b>Education Level</b>		
No Education	27	10.1%
Primary Level	129	48.1%
Secondary Level	40	14.9%
Graduation	46	17.2%
Post-Graduation	26	9.7%
<b>Employment</b>		
Unemployed	96	35.8%
Employed	172	64.2%
<b>Monthly Income</b>		
<50k PKR	154	57.5%
50k-100k PKR	55	20.5%
>100k PKR	59	22.0%
<b>Does your child have ear disease?</b>		
No	145	54.1%
Yes	123	45.9%

The results indicated that the majority of the respondents had good knowledge about ear infections, 84.33% showed good knowledge. Most participants knew of ear infections, and the most commonly recognized symptoms were ear discharge and pain. Most respondents reported poor hygiene as the main cause of ear infections. The most commonly recognized complication was hearing loss, and it is noteworthy that only 67.9% consider hearing loss as a symptom while relatively higher 88.1% consider it a complication. This can be due to their perception of hearing loss as a long term side effect of ear infections, not an acute symptom. Whereas, there was a high degree of awareness of the importance of the consequences of untreated ear infections. Also, almost all respondents felt that ear infection is preventable and effectively treatable. Most repetitively heard reason for choosing yes for preventable was their faith on cleanliness, while repetitively heard reason for choosing yes for it being treatable was their trust on human doctors and medical technologies. These reasons were heard by trained data collectors. The overall findings show that respondents

were very aware of the symptoms, causes, complications, prevention, and treatment of ear infections (Table II). The results indicated that 97.4% of parents consulted medical doctors for pediatric ear infections, while 27.6% of parents resorted to self-medication. In general, most respondents said that healthcare providers had conducted a proper checkup of their children in primary healthcare services (92.2%). Prescribed medicines and ear cleaning were the most common treatment interventions recognized, and a few persons believed in herbal and religious treatments. According to perception of respondents, primary factors associated with parents not seeking medical attention for children with ear infections were ignorance

(73.1%) and poverty (65.3%). The overall findings indicate a positive attitude toward professional health services; however, some parents have misconceptions, and non-medical practices are present (Table III).

**Table II.** Parental knowledge regarding pediatric ear infections, Lahore, Pakistan (n = 268)

Knowledge	Items	Frequency (n)	Percentage (%)
Do you know anything about ear infection?	Yes	245	91.4
	No	23	8.6
Symptoms of ear infections	Ear discharge	207	77.2
	Hearing loss	182	67.9
	Pain	230	85.8
	None of these	5	1.9
	I don't know	10	3.7
Causes of ear infections	Infection/Fever	211	78.7
	Poor hygiene	229	85.4
	Water in ear	184	68.7
	Wax	202	75.4
	Trauma	194	72.4
	Foreign body	190	70.9
	Poison	103	38.4
	Witchcraft/Spiritual	57	21.3
	In Utero/Delivery	104	38.8
	Complications of ear infections	Hearing loss	236
Spread to other organs		202	75.4
Poor school performance		221	82.5
Persistent illness		204	76.1
Death		60	22.4
None of these		7	2.6
Can be prevented?	Yes	261	97.39
	No	7	2.61
	Don't Know	0	0
Can be treated?	Yes	263	98.13
	No	5	1.86
	Don't know	0	0
Knowledge score	Good knowledge	226 (out of 268)	84.33
	Poor knowledge	42 (out of 268)	15.67

**Table II.** Parental practice and attitude regarding care of pediatric ear infection Lahore, Pakistan (n = 268)

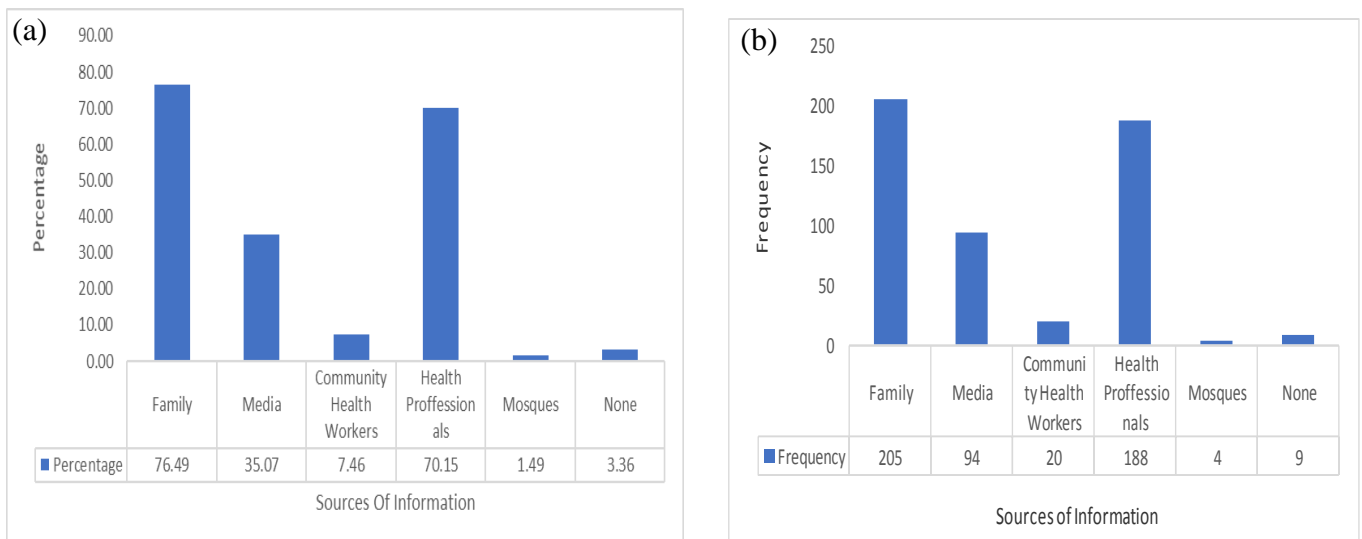
Parents Practice and attitude towards pediatric ear infection	Frequency (n)	Percentage (%)
<b>Personals who treat children having ear infection</b>		
Traditional Healer	41	15.3
Quack	15	5.6
Community Health Worker	14	5.2
Nurse	19	7.1
Medical Doctor	261	97.4
Self-Medication	74	27.6
Not look for treatment	3	1.1
<b>Attitude on Service at primary facilities</b>		
Healthcare providers examine them	247	92.2
Healthcare provider didn't examine them	15	5.6
Wrong medications	7	2.6
Not timely referral	3	1.1
<b>Treatment available</b>		
Herbal medicine	109	40.7
Prescribed drugs	255	95.1
Ear cleaning	223	83.2
Surgery	127	47.4
Hearing aids	31	11.6
Heals without treatment	16	6
Religious cures	112	41.8
Cannot be cured	1	0.4
I don't know	0	0

**Reason children are not taken for medical care**

Parental ignorance	196	73.1
Poverty	175	65.3
Not worried	138	51.7
Heals without treatment	132	49.3
No cure available	4	1.5

The most stated sources of information were family (76.49%, n= 205), health professionals (70.15%, n= 188), and media (35.07%, n= 94) (Fig. 1a & b).

The analysis revealed that none of the sociodemographic characteristics, such as age, gender, education, employment status, monthly income, and disease exposure of children, were significantly associated with the knowledge level of the respondents ( $P > 0.05$ ). There was, however, a statistically non-



**Fig. 1 (a).** Information source regarding pediatric ear infections among study participants (Frequency); **(b).** Information source regarding pediatric ear infections among study participants (Percentage). Multiple options allowed

significant difference between the association of the source of information and level of knowledge ( $\chi^2 = 1.122, df= 3, P > 0.05$ ). The respondents had a higher rate of good knowledge from sources like the media (90.42%) and family (90.24%) as compared to health professionals (87.23%). In general, the results indicate that parental information sources are important influences on parental knowledge about pediatric ear infections (Table IV).

**Table IV.** Factors associated with parent’s knowledge regarding pediatric ear infections (n = 268)

Factors	Overall, knowledge level				Test	df	p-value
	Good (n)	%	Poor (n)	%			
<b>Age in years</b>							
<26	17	85%	3	15%	2.143	3	0.5433
26-32	83	89.25%	10	10.75%			
33-38	66	83.54%	13	16.46%			
>38	62	81.58%	14	18.42%			
<b>Gender</b>							
Male	116	83.45%	23	16.55%	0.638	1	0.4244
Female	112	86.82%	17	13.18%			
<b>Educational level</b>							
None	24	88.89%	3	11.11%	8.877	4	0.0642
Primary	113	87.60%	16	12.40%			
Secondary	37	92.50%	3	7.5%			
Graduation	39	84.78%	7	15.22%			
Post-Graduation	17	65.38%	9	34.62%			
<b>Employment</b>							
Employed	142	82.56%	30	17.44%	2.193	1	0.1386
Unemployed	86	89.58%	10	10.42%			
<b>Monthly income</b>							
< 50 k PKR	135	87.66%	19	12.34%			



50-100k PKR	46	83.64%	9	16.36%	1.492	2	0.4143
>100k PKR	47	79.66%	12	20.34%			
<b>History of ear infection exposure in the child</b>							
Yes	109	88.62%	14	11.38%	2.585	1	0.1079
No	119	82.07%	26	17.93%			
<b>Source of health information</b>							
Family	185	90.24%	20	9.76%			
Media	85	90.42%	9	9.58%			
Health Professional	164	87.23%	24	12.77%	1.122	3	0.772
None	8	88.89%	1	11.11%			

The multivariable logistic regression analysis revealed that the parents who came from their family and neighbors were significantly more likely to have good knowledge on pediatric ear infections than the reference group (AOR = 4.323, 95% CI: 1.837–10.173, P = 0.001). For good knowledge, there was also some higher odds among respondents who received information from media (AOR = 1.835, 95% CI: 0.709–4.747, P = 0.211) and health professionals (AOR = 1.662, 95% CI: 0.719–3.841, P = 0.235), but these were not statistically significant. Residence was the socio-demographic variable that was significantly associated with the odds of good knowledge, as compared to that of residence within Lahore (AOR = 0.261, 95% CI: 0.096–0.708, P = 0.008). There was no significant association with age, gender, education, occupation, monthly income or ear infection history in the child (P > 0.05) (Table V).

**Table V.** Multivariable logistic regression analysis of predictors for good parental knowledge regarding pediatric ear infection (n=268)

Variable	Adjusted Odds Ratio (AOR)	95% CI	p-value
<b>Sources of Information</b>			
Family and neighbors	4.323	1.837–10.173	0.001
Media	1.835	0.709 – 4.747	0.211
Health professional	1.662	0.719 – 3.841	0.235
None	8.854	0.830– 94.42	0.071
<b>Sociodemographic variables</b>			
Age range (Overall)	-	-	0.872
26-32 vs <26	1.064	0.222 – 5.106	0.938
33-38 vs <26	0.776	0.155 – 3.897	0.758
>38 vs <26	0.681	0.135 – 3.435	0.641
Gender (Female vs Male)	1.037	0.400 – 2.689	0.941
Residence (Outside vs Inside Lahore)	0.261	0.096 – 0.708	0.008
<b>Education level (Overall)</b>			
Primary vs No Ed	1.659	0.448 – 6.147	0.449
Secondary vs No Ed	5.680	0.920–35.056	0.061
Graduation vs No Ed	1.423	0.278 – 7.289	0.672
Post-Graduation vs No Ed	0.389	0.068 – 2.231	0.289
Occupation (Yes vs No)	1.255	0.415 – 3.800	0.688
<b>Monthly income (Overall)</b>			
50k-100k vs <50k	0.996	0.334 – 2.968	0.994
>100k vs <50k	1.411	0.392 – 5.076	0.598
History of ear infection (Yes vs No)	1.889	0.823 – 4.335	0.133

## DISCUSSION

Overall, the present study found that most parents had adequate knowledge about the ear infection disease and its risk factors, providing evidence that parents can be a valuable resource in supporting the care of their children's ear infections. Overall good knowledge score of 84.3% suggests a good knowledge level of parents about the symptoms, causes, complications, prevention, and treatment of ear infections. The results are consistent with the previous studies (14, 15), both of which assessed parental knowledge

regarding pediatric ear infections. Higher awareness observed may be associated with increased health information outreach via media and health education programs (11, 14).

The respondents' demographic profile indicated that the majority of the respondents were from a low socioeconomic background, as more than half of the respondents said their income is less than 50,000 PKR per month, and nearly half of the respondents said they had a primary level education. A number of studies have shown that socioeconomic disadvantage is a strong risk factor in childhood ear infections. Throughout developing countries, overcrowding and poor hygiene, poverty, and inadequate health care access are reported to make otitis media a burdensome disease for children (4). In the current study, despite these socioeconomic constraints, the respondent's knowledge was adequate, possibly due to the increased importance of awareness in the community and media coverage in health education.

The majority of participants agreed that common symptoms of pediatric ear infections are ear discharge, hearing loss, and pain. The results are similar to those reported by previous studies where ear pain and otorrhea were the most recognized clinical symptoms by caregivers (14, 16). Clinical recognition of these symptoms is important as early diagnosis may prompt early medical consultation and minimize complications of delayed treatment.

Some of the frequently mentioned causes of ear infections were lack of hygiene, fever/infection, and water getting into the ear. It was also noted that caregivers often equated childhood ear infections with poor hygiene and exposure to the environment. Some myths like poison, witchcraft, and spiritual causes, were still reported by some of the respondents, but in relatively small numbers, which suggests an increasing scientific awareness among the respondents (16, 17).

Awareness about complications of untreated ear infections was satisfactory in the present study. The most common complication recognized was hearing loss, followed by poor school performance and ongoing sickness. The results are consistent with the literature that showed that children with chronic otitis media are significantly more likely to have hearing impairment and school problems (16, 18). Recurrent ear infection may have a negative impact on speech development, learning, and social and emotional functioning. Thus, the high awareness about hearing loss found in the current research is promising and can positively impact seeking health care.

Most respondents thought it was possible to prevent and treat ear infections. This favorable perception was similar to previous findings (11) who found that there was a growing trust in modern medical management of ear diseases among the children's parents. Trust in prevention and treatment pathways is relevant as it helps to take up preventive and treatment services in the early stages and enhances compliance to prescribed treatment.

In the present study, most parents demonstrated appropriate health-seeking practices. A vast majority of the respondents said they seek help from medical doctors when their children are suffering from ear infection, with a select few saying they visit traditional healers or quacks for the same purpose. Previous studies have been reported similar results, where professional's health care services were preferred over traditional health care services by the caregivers. (16, 19) Moreover, the majority of participants indicated that children were examined appropriately by health care providers at the primary health care services, indicating a satisfactory level of confidence in the availability of health care services.

One of the significant findings of the present study was that 27.6% of parents reported self-medicating their children for ear infections. Similar practices have been observed in low and middle-income countries where over-the-counter medicines are readily available, leading to irrational antibiotic use (20, 21). So, there is a risk of inaccurate diagnosis due to self-medication, development of antimicrobial resistance, and worsening of complications (20, 21). Thus, community pharmacists should raise awareness about the dangers of self-medication and promote an approach that involves seeking advice from qualified health care providers. In addition, stricter regulations on dispensing of over-the-counter antibiotics also could be a way to decrease inappropriate medication practices (22).

One of the significant results of the present study was that 27.6% of parents reported self-medicating their children with ear infections. This practice could result in unnecessary antibiotic consumption, late diagnosis, and be a factor in the emergence of antimicrobial resistance (AMR) (21, 22).

The study also revealed some of the respondents had faith in herbal medicine and religious healing of ear infections. These results are similar to the results of the studies conducted in the rural communities where cultural and traditional beliefs play a significant role in decision-making on treatment (11, 16). Despite the strong cultural traditions and practices that are embedded in many cultures, non-medical treatment strategies can result in delayed access to appropriate medical help and a greater disease burden.

Primary barriers to seeking medical attention for children with ear infections reported were ignorance and poverty among parents. These results are consistent with previous studies showing that financial constraints and poor health literacy are major factors influencing access to health care services in children with diseases (19, 23). Families of limited financial resources may forgo health care visits because of the costs of that care, transportation costs or failure to afford prescribed drugs. Improved access to affordable primary health care services and community-based ear health awareness education programs might thus decrease the burden of untreated ear infections.

The finding of this study that was noteworthy was that there was a significant relationship between the sources of health information and parental knowledge about ear infection in children. Parents who acquired information from family members, media, and community and health professionals tended to have a high level of information. The highest percentages of good knowledge were from family and media sources, with health professionals also making a significant contribution to parental awareness. Similar studies have also shown that health care professionals are primary source of information (14). The results are similar to those reported in previous study that access to health information and educational resources affected parent's awareness and healthcare-seeking behavior for childhood ear infections (11). Improving health education by health care providers, family and community-based programs and services, and mass media could further enhance parental knowledge and contribute to better time management of ear infections in children.

In multivariable logistic regression, family and neighbors were independent predictors of good parental knowledge of ear infections even when adjusted for potential confounding factors. The odds of good knowledge were over four times as high for parents who obtained information from family members as for the reference group. This discovery underscores the significance of family communication in delivering health information in the community (11, 14). Media and health professionals were also associated with good knowledge, but these associations were not significant after controlling for other factors. This suggests that the influences that these sources have on parental awareness may be less significant than that of the other factors. Further, living outside Lahore was independently related to significantly reduced likelihood of good knowledge. This difference could be due to the availability of healthcare services, health education initiatives, and quality health information in urban and rural areas (19, 23). This finding is corroborated by the earlier studies, highlighting the need to broaden educational programs in the community beyond the major urban centers.

Sociodemographic variables were not significantly related to the knowledge levels. This study did not reveal any significant correlation between parental knowledge and age, gender, education, status of employment, income, or history of ear disease (14). This indicates that there was no major socioeconomic or demographic effect on parents' knowledge levels about ear infections, as there were relatively similar levels of knowledge about the issue across different demographic groups. However, there is a comparatively noticeable increase in the percentage in the bad knowledge category in high-end economic status (>100k PKR monthly income) and high-end education status (post-graduates). But these are not statistically significant.

Parents showed satisfactory knowledge and proper healthcare-seeking practices for pediatric ear infections based on the findings of this study. Misinformation, self-medication, and socioeconomic factors are still public health issues, however. It is recommended to continue health education programs,

community awareness programs, and reinforce the primary healthcare systems so as to further enhance parental practices and minimize complications due to ear infections in children.

## CONCLUSION

Overall, the study revealed that parents in Lahore had good knowledge and positive attitudes towards ear infections in children and how parents should seek medical attention for their child. The majority of parents were familiar with the symptoms, causes, complications, prevention, and treatment of ear infection; most would like to manage ear infection with medical doctors. Parents who acquired health information from family members had significantly more likelihood of good health knowledge, which underscores the critical importance of family-based health education. Those living outside Lahore had less knowledge, highlighting the importance of augmenting awareness activities in the surrounding areas. Overall, knowledge was good, but self-medication, parents' lack of knowledge, and poverty are significant restrictions to accessing healthcare in time. Continued health education and community awareness programs are recommended to further enhance the parent's knowledge about Pediatric ear infection. Furthermore, increased access to affordable health care services may help to identify these infections early and to manage them appropriately.

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### Consent to publication:

The submitted manuscript is original, has not been published previously in any language or format, and is not currently under review elsewhere. Participation was voluntary with online informed consent obtained at questionnaire commencement; no identifiable personal data was collected.

### Conflict of interest:

The authors declare no conflict of interest.

### Author s' contributions:

KFZ Conducted primary research and manuscript preparation; MAK Supervision; MAS Data collection and SPSS entry; LF SPSS data entry; MNA Data Collection; AA Critical revision, overall supervision and correspondence. All authors approved the final version of the manuscript.

### Declaration of generative AI-assisted tools:

Authors declared that no AI-assisted tools were used.

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