

EVALUATION OF PARENTS KNOWLEDGE ABOUT THE DANGEROUS EFFECT OF EXCESSIVE USE OF ANTIBIOTICS ON CHILDREN WITH URTIS IN SAUDI ARABIA, 2017

Maram Mohammed Aljohani*¹, Mai khalid alakhmimi¹, Abdulaziz Zaher Alalmaei², Musab Shakir Alshareef³, Saad saleh aldughaythir³, Ahmed abdullah saleh alenazi⁴, Seba Ghaithan AlAmri³, Rawan Ahmad Alsahafi¹,

¹King AbdulAziz University.

²Imam Muhammad ibn Saud Islamic University.

³King Saud bin Abdulaziz University for Health Sciences.

⁴Ibn sina national college.

⁵Al Batterjee Medical College.

ABSTRACT

Background: Upper respiratory tract infections (URTIs) are highly encountered by children all over the world with repeating episodes from 6-8 times during the year. However being of viral origin and a self-limited disease, many parents' attitudes forces physician to use antibiotics thus resulting in antibiotic resistance. **Objectives:** To study the parental knowledge, attitude and practice (KAP) toward antibiotic use among children with URTIs in Kingdom of Saudi Arabia. **Methods:** A d Self-administered questionnaire was distributed among parents presented at a random sample of primary schools in KSA from

February 2017 to June 2017. **Results:** A total of 547 parents were included from different parts of KSA, most of them were females, had a college degree and a moderate income. Overall, KAP toward using antibiotics in URTI for children was very low among 72% of subjects and was good in only 28% of subjects showing that there was inappropriate level of KAP among studied population. **Conclusion:** Saudi parents have inadequate knowledge about antibiotic use in children for treating URTIs that showed incorrect answered for attitudes and practices.

Article Received on
04 August 2017,

Revised on 25 August 2017,
Accepted on 15 Sept. 2017

DOI: 10.20959/wjpr201712-9666

*Corresponding Author

Maram Mohammed
Aljohani

King AbdulAziz University.

KEYWORDS: KSA, KAP, Upper Respiratory Tract Infections (URTIs), Antibiotic Resistance.

BACKGROUND

One of the most prevalent diseases among pediatrics is upper respiratory tract infections (URTIs) with high incidence and repeated from 6-8 per year.^[1] Most of the outpatient clinics and emergency departments visits were attributed to URTI infection in children.^[2,3] The URTI is the cause of children absence from schools and poses a high economic costs on the healthcare facilities and authorities due to unnecessary medical care visits.^[4,5]

Antibiotics are mainly used for treatment of bacterial infections however it is widely used in case of treating URTI in pediatric health care facilities even though its viral origin would result in ineffective practice and resistance.^[6,7] As for general practitioners about 33% of them would prescribe antibiotics at the end for URTI in children.^[8,9] Also, it has been found that about 23.4% of antibiotic prescriptions in ambulatory care of children in United States were of no clinical indications.^[10]

The misuse of antibiotics has been a global concern of and a public health issue as it would result in antibiotic resistance that is an increasing threat on children's health.^[11,12]

The WHO considered antibiotic resistance as a public threat and a global problem^[13] and many authors confirmed the relationship between the development of resistance with unnecessary use of antibiotics.^[14,15]

The major causes for development of antibiotic resistance are excessive and inappropriate use of antibiotics by both parents and physician.

Most of parents had low knowledge toward antibiotic use and had the perception that antibiotics could treat most of infections. Also, many physicians describe antibiotics for avoiding secondary bacterial infection.^[18] Therefore, this study intended to study the KAP of Saudi parents toward the use of antibiotics for treatment of URTI in children.

METHODS

It is a descriptive community based study that was conducted in a random sample of primary schools in KSA from the period of February 2017 to June 2017.

Using the stratified random sampling technique, 47 boys schools and 42 girls schools were included in the study where the parents of children were interviewed during the parent's day. The study participants were 547 parents of children aged from 6-10 years old who were attending the parent's day in all included schools and accepted to participate in the study. An informed consent was obtained from the parents included in the study and from the ethical committee of faculty of Medicine.

Study tools

A self-administrated questionnaire was developed and revised by 3 experts after reviewing the online database and literature and validated from two studies then translated into Arabic for being easy for all parents to participate. The questionnaire consisted of 4 parts the first part concerned the demographics of included subjects as age, gender, education and income other parts of the questionnaire were about knowledge, attitude and practice of included subjects. The readability and clarity of the questionnaire were assessed using a pilot study that was done among 30 participants who were excluded from participating in the study then the final version was adapted and corrected according to the reaction from the subjects.

Statistical analysis

The collected data were analysed using the Statistical Package for Social Sciences (SPSS, version 22) for windows. The quantitative statistics of answers were analysed as frequency and percentage. Also, means or medians were used for numerical variables.

RESULTS

Demographics of the studied subjects

The demographic characteristics of subjects are distributed in Table 1. The mean age of included subjects was 33 years old with a range from 26-41 years old. The most of respondents were mothers (62.9%) and fathers were 37.11%. Also, most of them had college degree (97.2%), 14.8% of them were at secondary school and 6% of them had primary school. 76% of them had moderate income, 18% had low income and 6% had high income.

Table 1: Socio-Demographic Characteristics of Respondents (547).

Variable	Mean ± SD	Range
Age (year)	33±1.6	26-41
Gender	No.	Percentage (%)
Female	344	62.9%
Male	203	37.1%

Educational Level		
Collage	433	79.2%
Secondary School	81	14.8%
Primary School	33	6%
Income		
Low	98	18%
Moderate	415	76%
High	34	6%

Assessment of knowledge of included subjects

Table 2 showed that the response of subjects to questions related to knowledge about antibiotic use. A total of 67% of subjects use antibiotics by themselves for their children and 33% of them had disagreed that antibiotics should not be used by fathers without description. 60.1% of subjects usually used antibiotics for any feverish children. Also, there was a low knowledge among parents according to the antibiotics make children get better faster. A low knowledge was found among parents as only 39.1% know that URTIs had a viral origin and don't need antibiotic as they are self-limited. In addition, 54.8% of subjects had a wrong concept that antibiotics had no side effects. On the hand, 77.3% of subjects had good knowledge regarding the side effects of overuse of antibiotics that result in bacterial resistance. Also, there was a good knowledge (76.8%) regarding the interference of antibiotics with certain drugs and reduce its efficiency (Figure. 1).

Table 2: Awareness regarding the excessive use of Antibiotics.

	Agree	Disagree
Q1: You can use antibiotics for children by yourself	366 (67%)	181 (33%)
Q2: Antibiotics are used for any child with fever	329 (60.1%)	218 (33.8%)
Q3: Children with flu like symptoms get better faster after using antibiotics	382 (69.8%)	165 (30.2%)
Q4: Most URT infections are of viral origin and don't need antibiotics they are self-limited	214 (39.1%)	333 (60.9%)
Q5: Using antibiotics poses no side effects	300 (54.8%)	247 (45.2%)
Q6: Overuse of antibiotic drives bacterial resistance	423 (77.3%)	124 (22.7%)
Q7: Antibiotics interfere with certain drugs and reduce its efficiency?	420 (76.8%)	127 (23.2%)

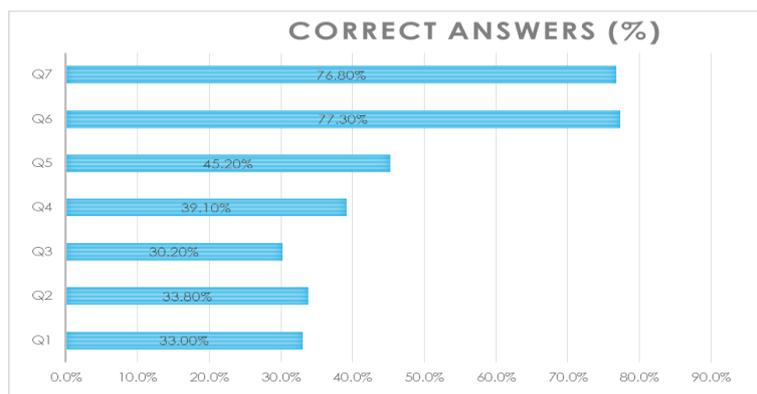


Figure 1: Correct answers of included subjects regarding awareness of using antibiotics for URTI in children.

Assessment of subject's attitude

Table 3 showed that the attitude of subjects was good in 52.8% toward that they should be informed about cautions of antibiotic use. 60% of subjects had positive attitude toward that URTI cleared without need for antibiotic. Most of subjects (69.7%) had wrong attitude toward reusing the remaining antibiotics when URTIs symptoms occur. Also, 74% of them had poor attitude toward changing the pediatrician when prescribing antibiotics every visit. However, 81.1% had good attitude toward not changing the doctor for not prescribing antibiotic when they ask them to do.

Table 3: Attitude of respondents toward antibiotic use (n=547).

Parents and Pediatrician should be informed about cautious antibiotics use	No.	Percentage (%)
Yes	289	52.8
No	258	47.2
URTIs cleared without need for antibiotic		
Yes	328	60
No	219	40
Do you reuse the remaining antibiotics when URTIs symptoms occur		
Yes	166	30.3
No	381	69.7
I change pediatrician when prescribing antibiotics every visit		
Yes	142	26
No	405	74
I change pediatrician for not prescribing antibiotic when I ask		
Yes	99	18.1
No	448	81.9

Practice pattern of included subjects

The practice pattern of included subjects showed that 60.1% of subjects declared that pediatrician prescribes antibiotic for URTIs when parents ask him to do. Although, 77.1% had a good practice toward following the instructions of pediatrician. There was a poor practice pattern regarding asking physician to prescribe antibiotics for URTIs. 71.8% of subjects had good practice toward asking the physician about the requirements of using antibiotic in URTI (Table. 4).

Table 4: Practice pattern of respondents toward antibiotic use (n=547).

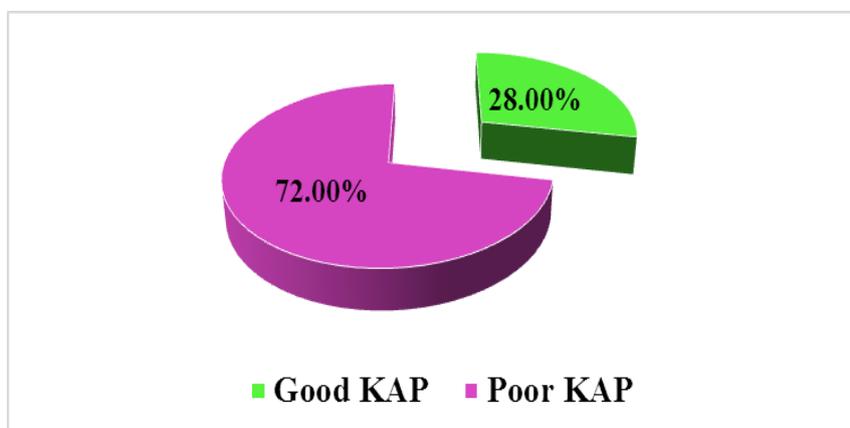
	Yes	No
Pediatrician prescribes antibiotic for URTIs when parents ask him to do?	329 (60.1%)	8(39.9%)
Do you follow all instructions of pediatrician?	422 (77.1%)	125 (22.9%)
Do you ask the physician to prescribe antibiotic for URTIs?	366 (66.9%)	181 (33.1%)
Do you ask the physician about the requirements of using antibiotic in URTI?	393 (71.8%)	154 (28.2%)

Level of KAP pattern

The level of knowledge, attitude, and practice of included subjects toward using antibiotics in URTI for children was very low among 72% of subjects and was good in only 28% of subjects showing that there was inappropriate level of KAP among studied population (Table. 5 & Figure. 2).

Table 5: Respondents' KAP of antibiotic use.

KAP level	Frequency	Percent (%)
Good	153	28
Poor	394	72
Total	547	100,0



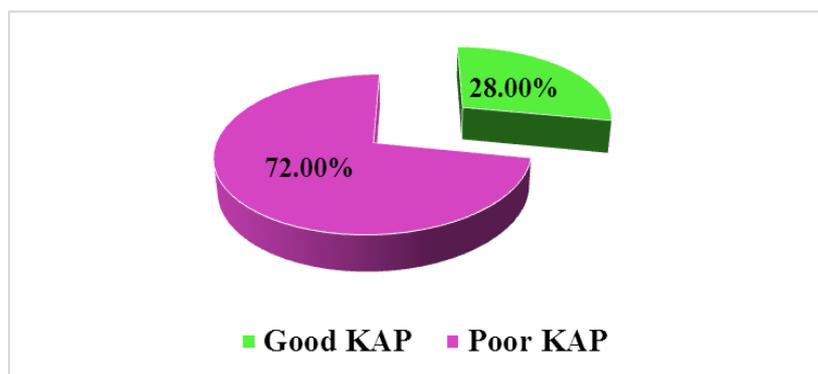


Figure 2: Respondent's KAP about antibiotic use.

DISCUSSION AND CONCLUSION

The present study was conducted to evaluate the KAP of a random sample of Saudi parents for providing better management of UTRIs without need for prescribing antibiotics.

This study demonstrated that most of subjects in the study were mothers suggesting that mothers are significantly concerned about the health of their children when compared to fathers,^[19,20]

However, most of participants had a college degree was very low, their level of KAP toward using antibiotics. This also, was seen in other studies conducted in KSA showing that most of Saudi subjects has a wrong knowledge and belief about using antibiotics,^[19,20]

Also, most of participants had poor knowledge regarding the adverse effects of using antibiotics, many had wrong conceptions that they could prescribe antibiotics of their own to children with flu like symptoms and every feverish child should administrate antibiotics for getting better faster. But, there was a good knowledge regarding the effects of antibiotics on drug resistance as well as interacting with other medication and interfering with its activity.

These wrong beliefs about using antibiotics for URTI in children had led to poor attitude and practice outcomes. In the same respect, the issue of using antibiotics to treatment of URTI is very obvious in many counties around the world,^[21,23] Also, other studies in KSA showed the same pattern of inappropriate use of antibiotics even without medical prescription,^[19,20,24]

CONCLUSION

Saudi parents have inadequate knowledge about antibiotic use in children for treating URTIs that showed incorrect answered for attitudes and practices. These results also proposed that

parents around the world had an inappropriate knowledge and conceptions about antibiotic use for URTIs in children. Thus it is important to provide patients and parents with information about antibiotic use for URTI to help doctors to manage these infections without prescribing antibiotic treatment for URTI without need and this could be done through regulations policies for fair use of antibiotics and not allowing people to buy antibiotics without a prescription specially with the presence of health insurance in KSA. Also, educational campaigns should be conducted on media, TV and internet for better treatment of URTI.

REFERENCES

1. Shin SM, Shin J-Y, Kim MH, Lee SH, Choi SPark B-J (2015): Prevalence of Antibiotic Use for Pediatric Acute Upper Respiratory Tract Infections in Korea. *Journal of Korean medical science*, 30: 617-624.
2. Krishnan A, Amarchand R, Gupta V, Lafond KE, Suliankatchi RA, Saha S et al. Epidemiology of acute respiratory infections in children - preliminary results of a cohort in a rural north Indian community. *BMC infectious diseases*, 2015; 15: 462.
3. Nadeem Ahmed M, Muyot MM, Begum S, Smith P, Little C Windemuller FJ Antibiotic prescription pattern for viral respiratory illness in emergency room and ambulatory care settings. *Clinical pediatrics*, 2010; 49: 542-547.
4. Hassali MA, Kamil TK, Md Yusof FA, Alrasheedy AA, Yusoff ZM, Saleem F et al. General practitioners' knowledge, attitude and prescribing of antibiotics for upper respiratory tract infections in Selangor, Malaysia: findings and implications. *Expert review of anti-infective therapy*, 2015; 13: 511-520.
5. Run Sigurethardottir N, Nielsen AB, Munck ABjerrum L Appropriateness of antibiotic prescribing for upper respiratory tract infections in general practice: Comparison between Denmark and Iceland. *Scandinavian journal of primary health care*, 2015; 33: 269-274.
6. Bhanwra S A study of non-prescription usage of antibiotics in the upper respiratory tract infections in the urban population. *J Pharmacol Pharmacother*, 2013; 4: 62-64.
7. Alumran A, Hou XYHurst C Assessing the overuse of antibiotics in children with URTIs in Saudi Arabia: development of the parental perception on antibiotics scale (PAPA scale). *J Epidemiol Glob Health*, 2013; 3: 3-10.
8. Alanazi MQ, Al-Jeraisy MISalam M Prevalence and predictors of antibiotic prescription errors in an emergency department, Central Saudi Arabia. *Drug, healthcare and patient safety*, 2015; 7: 103-111.

9. Easton GSaxena S Antibiotic prescribing for upper respiratory tract infections in children: how can we improve? *London journal of primary care*, 2010; 3: 37-41.
10. Hersh AL, Shapiro DJ, Pavia ATShah SS Antibiotic prescribing in ambulatory pediatrics in the United States. *Pediatrics*, 2011; 128: 1053-1061.
11. Roca I, Akova M, Baquero F, Carlet J, Cavaleri M, Coenen S et al. The global threat of antimicrobial resistance: science for intervention. *New microbes and new infections*, 2015; 6: 22-29.
12. Llor CBjerrum L Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Therapeutic advances in drug safety*, 2014; 5: 229-241.
13. WHO WHO. Antimicrobial resistance: global report on surveillance, 2014. Available at: http://apps.who.int/iris/bitstream/10665/112642/1/9789241564748_eng.pdf?ua=1.
14. Shaikh BT Anti-Microbial Resistance In Pakistan: A Public Health Issue. *Journal of Ayub Medical College, Abbottabad : JAMC*, 2017; 29: 184-185.
15. Sharma D, Patel RP, Zaidi STR, Sarker MMR, Lean QY Ming LC Interplay of the Quality of Ciprofloxacin and Antibiotic Resistance in Developing Countries. *Frontiers in pharmacology*, 2017; 8: 546.
16. Paluck E, Katzenstein D, Frankish CJ, Herbert CP, Milner R, Speert D et al. Prescribing practices and attitudes toward giving children antibiotics. *Canadian family physician Medecin de famille canadien*, 2001; 47: 521-527.
17. Fletcher-Lartey S, Yee M, Gaarslev CKhan R Why do general practitioners prescribe antibiotics for upper respiratory tract infections to meet patient expectations: a mixed methods study. *BMJ open*, 2016; 6: 12244.
18. Costelloe C, Metcalfe C, Lovering A, Mant DHay AD Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis. *BMJ (Clinical research ed)*, 2010; 340: 2096.
19. Alrafiaah AS, Alqarny MH, Alkubedan HY, AlQueflie SOmair A Are the Saudi parents aware of antibiotic role in upper respiratory tract infections in children? *Journal of Infection and Public Health*, 2017; 10: 579-585.
20. Alumran A, Hou X, Sun J, Yousef AHurst C The parental use of antibiotics in children in Saudi Arabia. *Epidemiology: Open Access*, 2015; 5: 194.
21. Nguyen QH, Nguyen TK, Ho D, Larsson M, Eriksson BLundborg CS Unnecessary antibiotic use for mild acute respiratory infections during 28-day follow-up of 823 children under five in rural Vietnam. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 2011; 105: 628-636.

22. Risk R, Naismith H, Burnett A, Moore SE, Cham MUnger S Rational prescribing in paediatrics in a resource-limited setting. *Archives of disease in childhood*, 2013; 98: 503-509.
23. Panagakou SG, Spyridis N, Papaevangelou V, Theodoridou KM, Goutziana GP, Theodoridou MN et al. Antibiotic use for upper respiratory tract infections in children: a cross-sectional survey of knowledge, attitudes, and practices (KAP) of parents in Greece. *BMC pediatrics*, 2011; 11: 60.
24. Bin Abdulhak AA, Altannir MA, Almansor MA, Almohaya MS, Onazi AS, Marei MA et al. Non prescribed sale of antibiotics in Riyadh, Saudi Arabia: a cross sectional study. *BMC public health*, 2011; 11: 538.