



Are the Saudi parents aware of antibiotic role in upper respiratory tract infections in children?



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ABSTRACT

Upper respiratory tract infection (URTI) is considered to be the most common reason for children's visits to emergency departments or outpatient clinics. The misuse and overuse of antibiotics are currently major public health problems worldwide. This study aimed to assess Saudi parents' knowledge, attitude, and practice (KAP) regarding the use of antibiotics in URIs in children.

This cross-sectional study was conducted in Saudi Arabia using a previously validated questionnaire, which was distributed using Twitter. A total of 385 individuals completed the questionnaire. For the majority of the participants (77%), physicians were the primary source of information regarding the use of antibiotics. Forty-four percent of parents agreed that most URIs are caused by viruses, and 81% were aware that inappropriate use of antibiotics leads to the development of antibiotic resistance. Fever was the primary symptom (27%) that led parents to ask for prescriptions for antibiotics. Although women had a higher attitude score ($p=0.01$), there was no difference between genders regarding knowledge and practice. Older participants (41 years or more) had a lower attitude score ($p=0.02$). Furthermore, participants with five children or more had lower attitude and practice scores ($p=0.006$, 0.04 , respectively). Participants who lived in large cities had greater knowledge compared to the inhabitants of small cities ($p=0.01$). In conclusion, the findings of this study demonstrated that most of the participants were educated but lacked knowledge regarding antibiotic use in URIs in children. This lack of knowledge led to inappropriate attitude and practice. Thus, launching public educational campaigns and encouraging physicians to educate parents regarding the proper use of antibiotics are recommended.

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Introduction

Upper respiratory tract infections (URTIs) are the most prevalent infectious diseases among the pediatric population with six to eight episodes per year [1]. URTI is considered as the most common cause for children's visits to the Emergency Department (ED) and Outpatient clinics [2]. These infections are a major cause of both absenteeism from school and unnecessary medical care, imposing a high cost on society and healthcare services [1].

Even though antibiotics are used mainly to treat bacterial infections, their use for treating URIs, which are mostly of viral origin, is a common ineffective practice in pediatric settings [3–5]. In primary health care clinics, antibiotics are one of the most commonly prescribed drugs for the pediatric population, with URIs being the main reason behind the majority of these prescriptions [6–8]. It is estimated that 33% of general practitioners' consultations regarding URTI in children ends up with antibiotic prescription [9]. In the United States, a study has been conducted to investigate the frequency and patterns of antibiotic prescriptions for children in ambulatory care, and it has been found that 23.4% of antibiotic prescriptions for URTI were not clinically indicated [10].

The misuse of antibiotics is currently one of the major public health concerns worldwide [11,12]. Antibiotic resistance is an increasingly major threat to global public health, and it is the most

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serious consequence of antibiotic misuse [13,14]. Both physicians and parents contribute significantly to the development of this problem by inappropriate and excessive use of antibiotics [15]. The misuse of antibiotics and the development of antibiotic resistance have been established by several studies [16,17]. The emergence of antibiotic-resistant organisms puts the community and individuals at a risk, as it increases the burden of serious infections that are difficult to treat and increases mortality rates and admissions to hospitals [18–20].

Misuse of antibiotics has arisen from interactions between multiple factors, such as physicians' knowledge and experience, wrong or uncertain diagnosis, and insufficient patient education [21]. Factors contributing to the unnecessary prescription of antibiotics include parent-related and physician-related factors [3,22]. Parent-related factors involve beliefs, attitude, and knowledge toward antibiotic use and practice, such as over-the-counter medication and self-medication [3]. One of the main causes of physicians' prescriptions of antibiotics is to satisfy parents' expectations [23]. Therefore, understanding parental knowledge, attitude, and practice (KAP) regarding antibiotics use for URTIs is important to decrease unwarranted antibiotic prescriptions [24].

In the central region of Saudi Arabia, Abobotain et al. conducted a study on the shopping malls of Riyadh city to assess parents' beliefs and practices regarding antibiotic use in children. The study showed that 11.4% of the parents reported self-prescription of antibiotics, and the majority of parents believed that antibiotic therapy is required to treat URTI symptoms in children [25]. Because of this topic's significance and the inadequacy of data related to it in Saudi Arabia, the aim of this study was to investigate Saudi parents' KAP regarding antibiotic use in URTIs in children.

Methods

Study setting and sampling technique

This cross-sectional study was conducted in the Kingdom of Saudi Arabia (KSA) using a validated questionnaire that was distributed via Twitter.

The questionnaire was distributed online among many Saudis, who have at least 10,000 followers on Twitter, to target various populations from all regions of KSA, namely, the central, western, eastern, southern, and northern regions. This study was conducted over a period of 3 months, extending from March 2016 to May 2016.

Sample size

The calculation of the sample size was done using a Raosoft sample size online calculator. A response distribution of 50%, with a 5% margin of error and a 95% confidence interval, was used. The required sample size was estimated to be 385 participants [27].

Questionnaire

A validated questionnaire was obtained from a study conducted in Greece [26], which was translated, modified, and validated via a Palestinian [27] study. The questionnaire was divided into four sections and consisted of 30 questions. The questionnaire assessed parents' KAP regarding the use of antibiotics for treating URTIs in children.

The first part of the questionnaire was composed of seven questions that were related to the demographic characteristics of the parents, such as nationality, age, gender, educational level, family income, region of residency in Saudi Arabia, and number of children. The second section was composed of another seven questions, which assessed the parents' knowledge regarding antibiotics in general, along with URTI. In addition, it evaluated some concepts

regarding antibiotic use in cases of URTI and the consequences of misuse of antibiotics. Finally, the third section was composed of 10 questions regarding the parents' attitude toward some ideas and behaviors about antibiotic use in URTI. The last part included six questions that showed parents' behavior regarding antibiotic use.

Data management and analysis

Data analysis was performed using the Statistical Package for Social Sciences (SPSS, version 22). Descriptive statistics were calculated to assess the baseline demographics and socioeconomic factors. The categorical variables are presented as frequencies and percentages, while the numerical variables are presented as the mean \pm standard deviation. Student's t-test and one-way ANOVA analysis were used to check for a significant association between the demographic factors and KAP.

The parents' responses regarding their knowledge (six questions) were recorded using a Likert scale from 1 to 5 (with 1 = Strongly Agree and 5 = Strongly Disagree). The questions regarding attitude were divided into two sections. The first one asked "How often would you give your child antibiotics without the pediatricians' advice...?" (for four different situations), with the responses ranging from 1 = Always to 5 = Never. The second set of questions regarding the attitude toward antibiotic use (five questions) were recorded on a Likert scale ranging from 1 to 5 (with 1 = Strongly Agree and 5 = Strongly Disagree). There were another four questions included for the practice of using antibiotics, using the scale of 1 = Always to 5 = Never.

The total KAP scores were calculated by summing up the Likert scale responses for each category (after reversing the scores for those that required either Strongly Agree or Always as the most appropriate answer). The average score (out of 5) for each section was determined by dividing the total score by the respective number of questions for that section. A p-value <0.05 was considered as statistically significant for all the statistical tests.

Results

The number of respondents included in the survey was 385, with the majority, 237 (62%), being female. The socio-demographic characteristics of the respondents are presented in Table 1. The mean age of the respondents was 36.8 ± 9.3 years, and most had one or two children (42%). More than half of the respondents had a college degree or higher. A total of 287 (75%) of the participants considered their income as moderate. The highest number of responses, 120 (31%), was from the central region, while the lowest, 28 (7%), was from the northern region.

Knowledge

Most of the respondents, 279 (77%), chose physicians as the main source of information about antibiotic use, followed by family relative, (72; 18.7%), television, (60; 15.6%), friends, (50; 14.3%), newspapers, (41; 10.6%), and radio, (7; 1.8%). A total of 169 parents (43.9%) agreed that most URTIs are viral in origin and self-limiting, requiring no antibiotic therapy. However, 116 parents (30.2%) believed that antibiotics should be given to all children who have fever. In addition, 228 participants (59.2%) thought that antibiotics would expedite the recovery period for children with flu-like symptoms. The vast majority of the respondents, 310 (80.5%), were aware of the fact that inappropriate use of antibiotics reduces antibiotic efficacy and drives bacterial resistance. Table 2 shows the participants' answers to the questions about knowledge.

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