

# Knowledge, Attitude, and Practice toward the Usage of Antibiotics among Public in Al-Ahsa, Saudi Arabia

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## Abstract

**Background:** Antibiotic resistance has become a worldwide public health problem, the World Health Organization has reported the increase in antibiotic resistance worldwide and this problem leads to an excess in the morbidity and mortality. The resistance increased due to the inappropriate use of antibiotics. In Saudi Arabia, there are no much such studies published and no data available.

**Objective:** This study was designed to assess the knowledge, attitude, and practice toward the usage of antibiotics in Al-Ahsa.

**Materials and Methods:** A cross-sectional study was conducted in Al-Ahsa, Kingdom of Saudi Arabia in the period from July to September 2016. A pretested standardized questionnaire was used to collect information on knowledge, attitude, and practice toward the usage of antibiotics, data entry was performed using SPSS Version 22 software.

**Results:** The responses of 420 of which 185 male and 235 female, 122 (29%) have high school degree, 257 (61.2%) have bachelor's degree, and 41 (9.8%) have master or Ph.D. degree. The mean age of the respondents was 31.1 years and all of the respondents from Al-Ahsa. The prevalence of nonprescription antibiotic use was 121 (28.8%) the main source of nonprescribed antibiotics were from pharmacist. 61.5% of respondents believed that antibiotics used to treat viral infection such as common cold and influenza. 28.6% of respondents discontinued the antibiotics when they felt better. Trust in doctor's decision and doctors often take time to consider carefully the need for an antibiotic were 67.4% and 32.1%, respectively.

**Conclusions:** The study shows that the population has inadequate knowledge about the probable usage of antibiotics, it is important to generate more awareness regard this issue, educational campaigns are important to increase the knowledge about the appropriate use of antibiotics.

**Key words:** Al-Ahsa, Antibiotics, Antibiotics resistant, Kingdom of Saudi Arabia, Self-medication

## INTRODUCTION

Antibiotic resistance has become a worldwide public health problem with a substantial economic and clinical burden.<sup>1</sup> The World Health Organization (WHO) has reported the increase in antibiotic resistance worldwide and this problem leads to an excess in the morbidity and mortality.<sup>2</sup>

Antibiotic resistance increased due to the inappropriate use of antibiotics, and this occurs through several things like using of antibiotics from previously prescription, from relatives friends or without prescription.<sup>3</sup> One of the factors that some physician prescribed antibiotics for a patient who present with viral infection (such as common cold, influenza, and acute tonsillitis) which are self-limiting diseases.<sup>4</sup> Approximately, two-thirds of all antibiotics used in the world are gained without a prescription and are used improbably.<sup>5</sup>

In Saudi Arabia, antibiotics are the third most common prescribed medications,<sup>6</sup> therefore, it is necessary to determine the knowledge level of our population and to educate theme. Most of the people who used the

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antibiotics have deficiency in medical knowledge about antibiotics, which will make them to experience medical side effects of the antibiotics.<sup>7</sup> Problems associated with the rampant use of antibiotics include antibacterial resistance, increasing the chance of chronic diseases, and getting side effects (e.g., gastrointestinal effects).<sup>8</sup> Education to the public population the correct use of antibiotics should be corroborative.<sup>9</sup> The WHO also prompts member countries to educate patients and general population about antibiotics resistance.<sup>10</sup>

In Saudi Arabia, there are not many such studies published and no data available. Therefore, this study was designed to determine the knowledge, attitude, and practice toward antibiotic use among the public in Al-Ahsa.

## MATERIALS AND METHODS

### Study Design

A cross-sectional study was conducted in Al-Ahsa, Kingdom of Saudi Arabia, in the period from July to September 2016.

### Target Population

Adult from the age of 15-55 years in different areas in Al-Ahsa, Kingdom of Saudi Arabia, were targeted to assess their knowledge, attitude, and practice toward the usage of antibiotics.

### Data Collection

A standardized questionnaire was used to collect information on knowledge, attitude, and practice toward the usage of antibiotics.

The questionnaire consisted of five sections: (i) Sociodemographic data, (ii) source of antibiotics, (iii) clinical indications for antibiotic use, (iv) knowledge on side-effects of antibiotic treatment and antibiotic resistance, and (v) expectations from doctors, doctors' habits and the doctor-patient relationships. The questionnaire was pretested and translated into Arabic language and then back-translated to English to validate the translation. The questionnaire was constructed based on similar research conducted in Sweden<sup>11</sup> but modified to suit the Saudi context. Verbal informed consent was obtained. Ethical approval for this study was obtained from the Human Ethical Committee. The sample size was determined using the Raosoft sample size calculator using a margin of error of 5%, a confidence interval of 95%, a population size of 1,063,112 people, and an expected response of 50%.<sup>12</sup> The minimum sample size estimated for the study was 385. Assuming a response rate of 50%, a larger sample size of 420 people were enrolled in the study.

### Data Analysis

Data entry was performed using SPSS Version 22 software.

## RESULTS

A total of 420 participants were included in this study, all of them from Al-Ahsa city which is located in the eastern region in Saudi Arabia.

### Demographic Data

The total of 420 persons participated in the study of which 185 (44%) male and 235 (56%) female. The mean age was 31.1 years. Out of the total participants, 29% have high school degree, 61.2% have bachelor degree, and 9.8% have master or Ph.D. degree (Table 1).

### Source of Antibiotics

About 71.2% of the respondents had prescribed antibiotics by a physician while (28.8%) of the respondents had self-medicated which obtained mainly from private pharmacies by pharmacist 54 (12.9%) without a prescription. Other sources included friends 12 (2.9%), previous prescription 3.8% or by self 38 (9%) (Table 2).

### Clinical Indications for Antibiotic Use

About 24.3% of respondents agreed that antibiotics should be used to treat cough, 55.2% of the respondents incorrectly agreed that antibiotics speed up the recovery from sore throat, for influenza most of the respondents

**Table 1: Demographic characteristics**

Characteristics	%
Gender	
Male	185 (44)
Female	235 (56)
Age (years)	
<20	64 (15.2)
20-29	157 (37.4)
30-39	114 (27.1)
40-49	58 (13.8)
>50	27 (6.1)
Education level	
High school	122 (29)
Bachelor's degree	257 (61.2)
Master or Ph.D. degree	41 (9.8)

**Table 2: Source of antibiotics**

Source	n (%)
Prescribed	
By physician	299 (71.2)
Nonprescribed	
By Pharmacists	54 (12.9)
By friends	12 (2.9)
By previous prescription	16 (3.8)
By self	38 (9)

67.9% agreed that antibiotics are effective in the treatment of influenza. Positive response for respiratory infections was 67.9%. 25.5% of participants did not agree that “antibiotics must be used postoperatively.” 49.8% of respondents agreed that antibiotics should be used to treat gastroenteritis. 57.1% disagreed to give antibiotics in bone infection. As for urinary and ear infections, it was 69% agree, 31% disagree and 68.8% agree, 31.2% disagree, respectively (Table 3).

### Knowledge on Side-effects of Antibiotic Treatment and Antibiotic Resistance

About 28.6% of the respondents agreed to stop taking the antibiotics when they felt better. Most of the respondents correctly agreed that if they get some kind of skin reaction from an antibiotic, they should not use the same antibiotic again, also 82.1% of the respondents agreed that if they get side effects during a course of antibiotics they should stop the antibiotics immediately. 26.7% of respondents did not agree that antibiotics can cause an imbalance in the body's own bacterial flora. 26% of participants did not agree on the statements: “The unnecessary use of antibiotics can increase the resistance of bacteria to them.” 21.4 of the respondents disagreed that the use of antibiotics can reduce the boy's own capacity to fight off infections (Table 4).

### Expectations from Doctors, Doctors' Habits, and the Doctor-Patient Relationships

About 32.1% of respondents agreed that doctors often take time to consider carefully whether antibiotics are needed or not. 67.4% of respondents indicated trusting the doctor decision. A significantly higher percentage (71.2) of participants agreed that pharmacists often tell them how antibiotics should be used. 56.4% of the respondents know if they need antibiotics or not before meeting the doctor (Table 5).

## DISCUSSION

Knowledge about the use of antibiotics among population in Saudi Arabia is limited. Therefore, this study aimed to collect data reflecting the state of knowledge, attitude, and practice of antibiotics in Al-Ahsa community. The study shows that population have inadequate knowledge about the use of antibiotics specially the indications of antibiotics. For instance, most of respondents agreed to use antibiotics to treat viral infection such as sore throat and influenza. The result is much higher when compared to a study conducted by Belkina *et al.*, 2014.<sup>13</sup> Another study about the knowledge, attitude, and practice toward antibiotic use among public in Kuwait by Awad and About 2015,<sup>14</sup> showed that 27.5% of the respondents were self-medication with antibiotics to treat mainly common

**Table 3: Clinical indications for antibiotic use**

Characteristics	n (%)	
	Yes	No
Cough (75.7)	102 (24.3)	318 (75.7)
Sore throat	232 (55.2)	188 (44.8)
Influenza	285 (67.9)	135 (32.1)
Respiratory infection	285 (67.9)	135 (32.1)
Postoperatives	313 (74.5)	107 (25.5)
Gastroenteritis	209 (49.8)	211 (50.2)
Bone infection	180 (42.9)	240 (57.1)
Urinary tract infection	290 (69)	130 (31)
Ear infection	289 (68.8)	131 (31.2)

**Table 4: Side-effects of antibiotics and antibiotic resistance**

Statements	n (%)	
	Yes	No
I stop taking antibiotics when I feel better	120 (28.6)	300 (71.4)
If you get some kind of skin reaction when using an antibiotic, you should not use the same antibiotic again	344 (81.9)	76 (18.1)
If you get side effects during a course of antibiotics treatment you should stop taking them immediately	345 (82.1)	75 (17.9)
Antibiotics can cause imbalance in the body's own bacterial flora	308 (73.3)	112 (26.7)
The unnecessarily use of antibiotics can increase the resistance of bacteria to them	311 (74)	109 (26)
Use of antibiotics can reduce the boy's own capacity to fight off infections	330 (78.6)	90 (21.4)

**Table 5: Doctor-patient relationships**

Statements	Yes	No
Doctors often take time to decide if I need an antibiotic or not	135 (32.1)	285 (67.9)
I trust the doctor's decision when s/he prescribes antibiotics	283 (67.4)	137 (32.6)
Pharmacy staff often tell you how antibiotics should be used	299 (71.2)	121 (28.8)
I know if I need antibiotics or not	237 (56.4)	183 (43.60)

cold, sore throat, and cough. Lack of education about the difference between viral and bacterial infection has caused this misunderstanding. Regarding the source of antibiotics 28.8% of the respondents had self-medicated which is close to a similar study conducted in Riyadh, Saudi Arabia by Al Barakh *et al.*, 2014,<sup>15</sup> showed that 23.6% used nonprescribed antibiotics. In 2014, Belkina *et al.*<sup>13</sup> conduct a similar study showed that 38.8% of the respondents stop taking antibiotic if they feel better. In comparison with our results, in this terms, we have a better result this indicates that most of the respondents have a good awareness in this issue. Regarding the patient doctor relationship our respondents is less satisfy in compare to a research conducted in Kuwait 2015.<sup>14</sup>

## CONCLUSION

We concluded the study by highlighting the need to educate population regarding the usage of antibiotics and the complications of the misuses and what are the indications of antibiotics, use only doctor prescription to get antibiotics. We health authorities are to dedicate and arrange public campaigns and workshops to raise the awareness of the general population. Eventually improve their attitudes toward nonprescription antibiotics. We also advise the pharmacists to only sale antibiotics to the patients with prescription, because the availability of nonprescription antibiotics leads to inappropriate self-medication.

## Limitation

This study was conducted in different locations in urban areas. Therefore, the result of this study may not represent the entire city. To improve this issue, a larger scale study needs to be performed in different places, including rural areas, to obtain a diversified study population.

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