A survey of awareness related to the use of antibiotics for dental issues among non-medical female university students in Riyadh, Saudi Arabia

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ABSTRACT

Inappropriate use of antibiotics may lead to adverse side effects. This cross-sectional survey aimed to investigate the knowledge and attitude of female non-medical students regarding the medical and dental use of antibiotics. Four hundred validated self-administered questionnaires were distributed in Princess Norah Bint-Abdurrahman University, Riyadh, Saudi Arabia. The questionnaire included questions about accessibility, attitude toward usage, efficacy, side effects, resistance, and usage for dental issues. Knowledge was estimated for every respondent by counting the correct answers, which were considered as points. The scores were categorized as poor, moderate, and high. Of the respondents, 77.8% answered they get antibiotics according to a doctor’s prescription; however, 31% stops taking antibiotics when they feel well. Only 38.8% of respondents knew that antibiotics may cause allergic reactions while 59.8% believed the human body can be resistant to antibiotics. The percentages of answers related to dental issues were: antibiotics relieve dental pain (68.8%), antibiotics can be harmful for children’s teeth (27.3%), antibiotics are best avoided in pregnancy (56.7%) and no need for antibiotics after scaling (33.8%), root canal treatment (16%), or simple extraction (40.3%). Of respondents, 68% had poor scores about antibiotics efficacy, side effects, and resistance while 86.8% had poor scores related to dental problems. This study noticed a bad attitude related to antibiotics usage, with many misconceptions and poor knowledge. Moreover, the necessity of antibiotics for treatment of dental disease or after dental procedures was totally unclear for the respondents. Community campaigns are recommended every university semester to educate students about the indications, efficacy, and side effects of antibiotics.

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Introduction

The severity of infection has been decreased by the presence of antibiotics, which means “against life” [1]. However, patients’ inappropriate use of antibiotics may lead to adverse side effects that range from gastrointestinal disturbances to fatal anaphylactic shock [2]. Moreover, it increases the growth of resistant bacterial strains [2,3], as well as the costs of medicine and therapy [4].

The definition of “self-medication” by the World Health Organization (WHO) is “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms” [5]. The availability of non-prescription antibiotics and pharmaceutical marketing are important factors resulting in increased self-medication in communities [6,7]. In Saudi Arabia, dispensing antibiotics without a prescription is illegal and these medications must be prescribed by an authorized health professional. However, despite the regulation, self-medication is still a major problem [8]. The prevalence of self-directed use of antibiotics in Saudi Arabia is estimated at 48% [7]. This problem also exists in neighboring countries like Kuwait [9], Bahrain [10], Abu Dhabi [11], Jordan [12], and Lebanon [4].

Appearance of populations of antibiotic-resistant bacteria has become one of the major threats to public health in the 21st century [13]. Patients, pharmacists, and health professionals may contribute to the increase in antibiotics resistance. Self-medication
by patients, inadequate dosage [14], and not completing the course are factors for resistance [15]. Some health care professionals concentrate only on treating present symptoms without concern about antibiotics resistance [16,17]. Others prescribe broad-spectrum antibiotics to attain the patient’s satisfaction even if antibiotics are not indicated [18]. Dentists prescribe antibiotics for treatment and prevention of odontogenic and non-odontogenic infections. The literature provides evidence of inadequate practices by dentists, manifested by over-prescribing antibiotics due to inadequate knowledge or social factors [19].

Many studies in the literature have evaluated the knowledge and attitude of the community about the medical use of antibiotics. However, the studies related to dental issues have mostly been concerned with antibiotics prescriptions by dentists rather than self-directed use by the public. This study is directed to non-medical university female students as a part of the community and aimed at investigating their level of knowledge and attitude about medical and dental uses of antibiotics.

Materials and methods

This cross-sectional survey with a validated self-administered questionnaire was carried out from February 15, 2015, to April 15, 2015, among 400 female non-medical students in Princess Norah Bint Abdurrahman University, Riyadh, Saudi Arabia. Exclusion criteria included students younger than 18 years or older than 26 years. The Ethics Committee of the Colleges independently reviewed and approved the study. However, the Ethics Committee required verbal consent from every respondent before filling out the questionnaire. The study was conducted in full accordance with the World Medical Association Declaration of Helsinki and was registered in the College’s Research Center with a registration number of FIRP/2016/13.

The aim of the study was explained to the respondents and verbal consents were obtained before they filled out the questionnaire. The questionnaire was developed by reviewing questionnaires used in previous studies. It was written in English then translated into Arabic and both forms were available. The respondents could select their answer and choose between the response alternatives of yes, no, and unsure. The questionnaire comprised five parts; Part 1: Demographic data, Part 2: Accessibility of antibiotics, Part 3: Attitude toward antibiotics use, Part 4: Antibiotics efficacy, side effects, and resistance, and Part 5: Knowledge related to use of antibiotics for dental treatment. The answers of the respondents were analyzed by Chi-square test using the statistical software SPSS version 22.0 for Windows. P-values less than or equal 0.05 were considered significant.

Knowledge about antibiotics use and resistance was estimated for every respondent by counting the correct answers in parts 4 and 5 of the questionnaire. The correct answer was awarded one point for each right answer or eight points for unsure responses received zero points. Then the scores were categorized as poor (0–5), moderate (6–8), and high (9–11). In the same way, the knowledge related to antibiotics indication and usage in dental issues was estimated. The scores were categorized as poor (0–6), moderate (7–10), and high (11–13).

Results

Four hundred respondents were included in the study, 200 from the College of Art (G1) and 200 from the College of Science (G2). The age range of 18–20 included 162 students (40.5%), the age range of 21–23 included 200 students (50%), and the age range of 24–26 included 38 students (9.5%).

The respondents’ manner of obtaining antibiotics was estimated by statements dealing with the topic “Accessibility of antibiotics” (Table 1). More than half of the respondents (53%) had used antibiotics from 1 to 3 times in the last year and the difference between the two groups was significant (P = 0.023). However, 77.8% obtained antibiotics through a doctor’s prescription.

Fifty-three percent of the respondents stop taking antibiotics when they start to feel well and 47.8% keeps antibiotics at home. The percentages of all answers in this part are available in Table 2.

The percentage of respondents who knew that antibiotics kill bacteria was 41.1% while others thought they killed other types of microorganisms. Only 35.8% identified Amoxicillin as an antibiotic from a group of other medications. Full responses about the effectiveness and complications of antibiotics as well as P values are available in Table 3.

Knowledge about indications of antibiotics following dental procedures, dental diseases were evaluated (Table 4). Only 13.8% of the respondents disagreed that antibiotics can relieve dental pain while 68.8% agreed. The percentage of respondents who believed that antibiotics are not indicators after scaling, root canal treatment, and simple extraction were 33.8%, 16%, and 40.3%, respectively.

Sixty-eight percent of the respondents had poor knowledge scores about antibiotics efficacy, side effects, and resistance; how-

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Accessibility of antibiotics.</th>
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</thead>
<tbody>
<tr>
<td>Question</td>
<td>Answer</td>
</tr>
<tr>
<td>Average antibiotic consumption per year</td>
<td>Never</td>
</tr>
<tr>
<td></td>
<td>1–3</td>
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<td></td>
<td>4–6</td>
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<tr>
<td></td>
<td>&gt;6</td>
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<tr>
<td>How do you get your antibiotics?</td>
<td>Doctor’s prescription</td>
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<tr>
<td></td>
<td>Pharmacist’s advice</td>
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<td></td>
<td>Non-medical person’s advice</td>
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<td></td>
<td>Personal choice</td>
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<td>Reason for not consulting a doctor</td>
<td>Money</td>
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<td></td>
<td>Unavailability of doctors</td>
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<tr>
<td></td>
<td>Scared</td>
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<td></td>
<td>No need for a doctor</td>
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<td></td>
<td>No time</td>
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<tr>
<td>Waiting time before starting an antibiotic</td>
<td>Directly</td>
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<td></td>
<td>1–2 days</td>
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<td></td>
<td>3–4 days</td>
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<td></td>
<td>&gt;5days</td>
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</tbody>
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* G1: College of Art.
* G2: College of Science.
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