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Patterns of antibiotic use among adults and parents in the community: A questionnaire-based survey in a Greek urban population

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Abstract

The purpose of this study was to look for factors that affect attitudes to antibiotic use in Greek urban settings. By using a questionnaire-based survey, we conducted 323 face-to-face interviews (173 adults, 150 carers of children). In the adult group, 74.6% admitted using non-prescribed antibiotics, while only 22.7% of parents had administered non-prescribed antibiotics to their children. Around 50% of adults discontinued therapy earlier, more than 10% did not follow the correct dosage instructions and about 55% admitted using leftover antibiotics. Of the parents, 18.7% discontinued therapy earlier and 7.3% admitted keeping leftover antibiotics. Our results showed that adults were likely to show unsatisfactory compliance and to use non-prescribed antibiotics, while parents were less likely to use non-prescribed antibiotics for their children and were more compliant.

Keywords: Survey; Non-prescribed antibiotics; Antibiotic usage; Urban population

1. Introduction

About 80% of antibiotics are used in the community and the rest are used in hospitals [1,2]. It is estimated that 20–50% of all antibiotic use is inappropriate [1], resulting in an increased risk of adverse side effects, higher costs and higher rates of antimicrobial resistance of community pathogens [3]. The determinants of antibiotic use are thus of particular importance. They include factors as diverse as the physician–patient relationship, clinical microbiology, health economics, and the most basic definitions of illness and therapy [4]. Studies have identified and examined specific causes of antibiotic misuse. Patient demand for antimicrobials has been shown to increase unnecessary prescription [5], despite the doctor's assessment that no such need existed [6]. Such practices can, in turn, enhance patient belief of the need for antimicrobials even when they are not indicated, further increasing pressure on prescribers [7] or lead to self-administration of non-prescribed antibiotics [8].

This questionnaire-based study was undertaken in order to assess adult and parental attitudes regarding antibiotic use in Greek urban settings. By identifying weak areas and gaps in adults' and parents' knowledge, more appropriate educational efforts can be applied and a more rational antimicrobials use may be achieved.

2. Methods

2.1. Study design

The study was carried out in Patras (approximately 200,000 inhabitants), Greece from October 2002 through July 2003. Using a cross-sectional design, an interviewer-administered questionnaire was applied to a sample of 323 randomly selected participants in an attempt to obtain a representative sample of the urban population regarding, age,

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gender, residential district and socioeconomic status. The sample comprised of 173 adults aged 18–85 years and 150 primary carers of children younger than 12 years. Separate questionnaires were administered to adults and parents. For the parent survey, only parents, preferentially mothers, with at least one child younger than 12-year-old living in the household, were interviewed. If the mother did not live in the household, the father or the primary caregiver was surveyed.

A pre-test was applied on a pilot population ($n = 20$) to determine whether the data would provide reliable information. Consequently two revised 19- and 21-item questionnaires for adults and for parents, respectively, collected demographic data such as age, gender, marital status, place of residence, profession, level of education and type of insurance as well as attitudes and beliefs relating to antibiotic use. The questionnaires were anonymous and verbal consent was obtained before all interviews.

Interviewees were asked about the most common symptoms leading to antibiotic intake and their adherence to their most recent course of antibiotics—did they take the required number of daily doses over the full duration of the course? Participants were also asked different questions with regard to the source of prescribed and non-prescribed antibiotics (use of leftover antibiotics, over-the-counter acquisition) and their attitudes towards physicians (level of satisfaction and pressure for antibiotic prescription). Interviewees were also asked to name the most frequently used antibiotic (generic or commercial name). We examined respondents' attitudes toward, and awareness of, antibiotic use by their age, gender, education and medical insurance status.

2.2. Statistical analysis

Statistical analysis was performed using the SPSS for Windows release 10.0 (SPSS Inc., Chicago, IL, USA). Categorical data were presented as frequency of occurrence and were analysed by the χ-square test. Continuous data are presented as mean and standard deviations and were analysed by Student's *t*-test. All tests were two-tailed with alpha levels of 0.05 considered significant.

3. Results

The adult survey was completed by 173 (93.5%) of 185 individuals who were approached. Of those who did not agree to complete the survey, three were non-Greek speaking, six refused and three did not complete it for other reasons. The parent survey was completed by 150 (95.0%) of 158 individuals. The non-participants included three who refused, three who did not speak Greek and two who failed to complete the survey for other reasons. There were no overlaps between groups. All the respondents lived in urban areas and were white Caucasians.

3.1. Adult questionnaires

The demographic characteristics of the adult population are shown in Table 1 and the patterns of antibiotic use are presented in Table 2. Respondents with higher education tended to be more satisfied with their physicians ($P = 0.009$). Only 2.9% admitted of applying pressure to their doctor for antibiotic prescriptions. Men were more likely not to follow correct dosage instructions than women ($P = 0.048$). Around 75% admitted using non-prescribed antibiotics. The use of non-prescribed antibiotics was reported more frequently by women ($P = 0.027$), by individuals with higher education ($P = 0.02$) and by older age groups ($P = 0.007$). Nearly 20% did not check the expiry dates of left-over antibiotics, although individuals with higher education were more careful about this ($P = 0.043$).

The generic or market name of the antibiotic was correctly mentioned by 73.0%. The most commonly used was amoxi-

Table 1
Demographic characteristics of our adult and parent population

	Adults ($n = 173$)		Adult parents ($n = 150$)
Gender (male/female, %)	77 (44.5%)/96 (55.5%)		All females
Mean age in years (S.D.)	40.1 (19.8)		37.4 (4.24)
Age groups (%)			
<30	45.7	≤35[a]	42.0
30–49	22	>35[a]	58.0
50–70	20.2		
>70	12.1		
Marital status (%)			
Married	46.2		All married
Not married	53.8		
Number of offspring(s) (%)			
No children	60.1		N/A
1	9.2		14.7
2–3	27.2		72.7
>3	3.5		12.7
Occupation (%)			
Civil servant	20.2		
Business	12.1		N/A
Farmer	8.7		
Student	38.2		
Not employed	9.8		
Retired	11.0		
Education (%)			
No or primary	12.7	A[b]	38.7
Secondary	33.0	B[b]	38.0
Tertiary	54.3	C[b]	23.3
Insurance (%)			
Public	75.1		82.7
Private	12.1		10.0
Both	11.6		7.3
Uninsured	1.2		0.0

[a] Age groups in parent population.
[b] Education groups in parent population: (A) none of the parents with higher education (>12 years), (B) one parent with higher education and (C) both parents with higher education; (N/A) non-applicable/non-available.