Pharmacy Practice
ISSN: 1885-642X
ISSN: 1886-3655
Centro de Investigaciones y Publicaciones Farmaceuticas

Jakupi, Arianit; Raka, Denis; Kaae, Susanne; Sporrong., Sofia K.
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Pharmacy Practice, vol. 17, no. 3, 1540, 2019, July
Centro de Investigaciones y Publicaciones Farmaceuticas

DOI: 10.18549/PharmPract.2019.3.1540

Original Research

Culture of antibiotic use in Kosovo - an interview study with patients and health professionals

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Received (first version): 2-May-2019 Accepted: 28-Jul-2019 Published online: 22-Aug-2019

Abstract

Background: Kosovo is a new state and has a high consumption of antibiotics in relation to other European countries. Existing quantitative studies have shown that practices exist that is not optimal when it comes to antibiotic use in Kosovo, this includes citizens' use of antibiotics, pharmacy practices of selling antibiotics without prescriptions and physicians' prescribing behaviours. To address these problems, there is a need for a deeper understanding of why antibiotics are handled in a suboptimal way.

Objective: The objective was to explore antibiotic users', community pharmacists' and prescribers' attitudes towards, experiences of, and knowledge about antibiotics in Kosovo.

Methods: Semi-structured interviews were conducted with patients who recently received an antibiotic prescription for an upper respiratory tract infection (URTI), patients who recently received antibiotics for a URTI without a prescription, community pharmacists, and physicians. Interviews were recorded, translated into English, and analysed using deductive content analysis.

Results: In total, 16 interviews were conducted in the period from 2015-2016. Five themes were identified: Obtaining antibiotics, Choice of antibiotics, Patient information, Patients' knowledge and views on when to use antibiotics, and Professionals' knowledge and attitudes towards antimicrobial resistance. Antibiotics were sometimes obtained without a prescription, also by patients who currently had received one. The specific antibiotic could be chosen by a physician, a pharmacist or the patient him/herself. Former experience was one reason given by patients for their choice. Patients' knowledge on antibiotics was mixed, however health professionals were knowledgeable about e.g. antimicrobial resistance.

Conclusions: There is currently a culture of antibiotic use in Kosovo, including attitudes and behaviours, and hence also experiences, which is possibly underlying the high consumption of antibiotics in the country. The culture is reproduced by patients, pharmacists and physicians. There is, however, an awareness of the current problematic situation among practitioners and policy makers; and as Kosovo is a new country, opportunities to effectively tackle antimicrobial resistance exist.

Keywords

Drug Resistance, Bacterial; Anti-Bacterial Agents; Respiratory Tract Infections; Drug Misuse; Attitude; Pharmacists; Pharmacies; Qualitative Research; Kosovo

INTRODUCTION

Antimicrobial resistance is a global problem. The WHO states that "Antibiotic resistance is one of the biggest threats to global health, food security, and development today".[1] Inappropriate use and misuse of antibiotics play a large role in this accelerating problem. Suboptimal use of antibiotics is affected by many stakeholders involved in the different steps of the medicine use chain, i.e., prescribers and their practices, the actual availability of antibiotics, pharmacy dispensing practices and patients' behaviours. Inappropriate use is influenced by both attitudes towards and knowledge of antibiotics, which are factors on an individual level; however, these factors are affected by the context in which patients and health care professionals live and practice.[2-6] For example, it has been shown that social norms influence prescribing behaviours.[6]

Kosovo is a new state and has a high consumption of antibiotics in relation to other European countries.[3] Additionally, the health care system is still under development, e.g., there is no reimbursement system, and regulations are not always followed.[3,7] A survey conducted with citizens of Kosovo in 2014 showed that 58,7% of respondents had used antibiotics during the last year and that 25% of the respondents obtained these antibiotics without a prescription, despite prescriptions being mandatory by law. To a large extent, the antibiotics were used to treat conditions that were most likely caused by viruses, e.g., the common cold, a sore throat, and the flu.[3]

Hence, in Kosovo, there is a problem with citizens' use of antibiotics, pharmacy practices of selling antibiotics without prescriptions and physicians' prescribing behaviours. To address these problems, there is a need for a deeper understanding of why these situations occur. The aim of the study was therefore to explore the attitudes, experiences and knowledge of users, pharmacists and prescribers towards antibiotics in Kosovo.

METHODS

As the aim was to, more in-depth, explore attitudes, experiences, and knowledge, a qualitative approach was most appropriate.[7] The qualitative study is part of a larger project with the aim of understanding the reasons for inappropriate use of antibiotics in non-EU eastern European countries.[2,9,10]

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Semi-structured, individual, interviews were conducted with four groups of people; these were: Patients who recently received a prescription for one of the antibiotics (see below), patients who recently received one of the antibiotics without a prescription (i.e., bought it directly at a pharmacy), community pharmacists, and physicians with recent experience of dispensing or prescribing antibiotics and hence were key persons in the process of handling and using antibiotics.

In all cases, the focus was on certain antibiotics, i.e., amoxicillin-clavulanic acid, azithromycin, ciprofloxacin or ceftriazone, for an upper respiratory tract infection (URTI). The specific choice of these antibiotics was based on a consumption survey in the area of south-eastern Europe, indicating that these types of antibiotics were used in a non-rational manner.[11] The choice of URTI was in order to better compare participants' attitudes and experiences of using antibiotics due to more homogeneous data and because symptoms related to URTI are often treated with antibiotics. Hence, patients were enrolled if they both had suffered from an URTI and used one of the four specific antibiotics to cure it.

The interview guides were developed in a larger project (please see Online appendix 1).[9] Here, a recognized physician and researcher within use of antibiotics and an experienced community pharmacist and researcher in social pharmacy (specialized in qualitative methods) developed the interview guides based on their knowledge of the research field.

The patient interviews included questions about their last experience of antibiotic use, including consultation with a physician (where relevant), communication with and experience of the pharmacy/pharmacist, and knowledge about and attitudes towards antibiotics, e.g., when they should or should not be used. In the pharmacist version of the interview guide, pharmacists were asked to give examples of and describe three consultations involving antibiotics for a URTI during the last week, including information about whether they themselves had diagnosed the patients, the choice of antibiotic (if not a prescription), and patient communication. Pharmacists were also asked about the use of guidelines, satisfaction with the procedures, attitudes towards the use of antibiotics, antimicrobial resistance, and information sources. For physicians, questions included how often they prescribed antibiotics for a URTI, what were their general attitudes towards antibiotics, when should they be used, and what were their sources of information. Physicians were also asked to describe three recent consultations that included an antibiotics prescription for a URTI, e.g., diagnosis, patient expectations, instructions given, and if guidelines existed and were used to guide the prescription process.

An effort was made to obtain a heterogeneous sample in terms of age and sex, e.g. purposive sampling. Respondents in the patient groups were however recruited mainly via snowballing. Interviewers (authors 1 and 2) asked people they knew to find someone who had recently taken antibiotics and who was willing to participate in the study. Respondents in the health professional groups were recruited within the interviewers' professional networks – direct collaborators or colleagues of these – while avoiding interviewing people personally known by the interviewers. Eligible persons were then informed about the study before being asked to participate.

Interviewers were specifically trained by researchers from Copenhagen University to conduct the interviews. The interviews with patients were conducted in the Albanian language at the patient's workplace or in a café. Interviews with physicians and pharmacists were conducted at their workplace. Interviews were documented thoroughly during and immediately after the interviews. The documentation was then translated into English by the second author before analysis.

The analysis was based on the topics in the interview guide (i.e., deductive or directed content analysis), first within each of the four groups of interviewees, and was conducted separately by authors 1, 2 and 4 and then processed in a consensus meeting.[12] This was followed by an analysis that merged the four groups, also in a consensus meeting. The analysers had different professional (pharmacists/social scientists) and cultural (Balkan/ Nordic) backgrounds, thus giving supplementary perspectives in the analysis and allowing more nuances to be identified.[9] During the analysis not only the words used but also the context was discussed. This was necessary but also advanced the analysis since the researcher who was 'naïve' in the context asked other questions to the material, while the researchers from within the context could interpret findings from inside the context. The knowledge of pharmacists and prescribers were assessed according to whether they made explicit comments about the difference between viruses and bacteria (and that antibiotics don´t kill viruses), and if antimicrobial resistance was recognized.

Ethical approval was not required for this study in Kosovo. However, ethical requirements were fulfilled; respondents were informed about the study, including that interviewers were pharmacists and part of an international research project. Respondents were also given assurance about their anonymity, and told that they had the right to withdraw. All respondents gave verbal consent to be included in the study before the interview. In Denmark, a permit was obtained from the Faculty of Health and Medical Sciences, University of Copenhagen on behalf of the Danish Data Protection Agency to analyse and store the data (j. nr. SUND2016-30).

RESULTS

In total, 16 persons were interviewed in the period from 2015-2016: 4 users/patients with prescriptions for antibiotics (age 24-43, two female), 4 users/patients without a prescription (age 34-46, two female), 4 pharmacists (age 27-42, one female), and 4 physicians (3 GPs and 1 specialist, age 34-64, one female). Four patients had a university degree; two of the pharmacists were pharmacy owners. Interviews lasted for approximately 30-40 minutes.

Quotes are used to illustrate the results. Each interviewee was given a number. It is documented which of the four groups the interviewee belonged to.

Obtaining antibiotics

According to both patients and pharmacists, symptoms for which antibiotics were used were typically a cough, sore throat and/or fever – also described as cold or flu/flu-like symptoms.

Patients with a prescription had typically waited 2-3 days before going to see a physician. Their expectations were to obtain a cure from the physician, i.e., a prescription for antibiotics. Rationales for not consulting a physician given by patients without a prescription included previous positive experiences with specific antibiotics and that their choice of antibiotics at the time was based either on their own experience or on advice from a colleague or family member. Additionally, negative experiences were used as rationales, such as previously having taken an antibiotics that did not help (i.e., not trusting the physician), not thinking a consultation would add anything, or that they had already received enough information about how to use the antibiotics from the pharmacist.

> "Each time I visited the doctor he prescribed me these antibiotics/…/so that's why I thought it was unnecessary to visit the doctor, because he would prescribe me the same antibiotic." (Patient nonprescr 4).

> "These were flu-like symptoms and I did not want to wait too long. I don't always go to the doctor – it's the dynamics of life. The pharmacy is near where I live and the pharmacist is very professional." (Patient nonprescr 2)

Some of the patients with a prescription reported that even if they had consulted a physician this time, they sometimes went directly to the pharmacy to buy antibiotics.

> "While I think that antibiotics should not be used without a doctor consultation, the majority of my friends and colleagues are ready to use antibiotics on their own initiative. I always consult with a professional, at least with the pharmacist/…/ [pharmacies] are a good place to go before taking antibiotics, because pharmacists have sufficient knowledge about drugs and diseases." (Patient 3)

The pharmacists' view was in line with the patients' view, i.e., that patients go directly to the pharmacy to get antibiotics because they either trust the pharmacist to have the knowledge necessary or they themselves have had experience and know what they want. "…enough with a pharmacist who is half a doctor." (Pharmacist 1)

However, pharmacists reported in some cases having tried to convince the patients not to take antibiotics or to go to a physician. This sometimes succeeded but mostly did not. "The patient was determined to get his antibiotic and he didn't want any advice." (Pharmacist 4)

Choice of antibiotic

All interviewees with a prescription stated that the specific antibiotic was chosen by the physician alone, without any involvement or pressure from the patient. When asked how the physician knew how to choose the antibiotic, the patients believed that it was from experience or from test results. This was in line with physicians' reporting about choosing antibiotics based on symptoms, knowledge and experience, although factors such as known allergies and the patients' economic situation were also mentioned by physicians as possible bases for choosing among antibiotics.

In the cases presented by the pharmacists, most often the patient had chosen the antibiotics themselves. "…he said 'I know what I have and what I should use'." (Pharmacist 4). The patients without a prescription also reported that they chose the medicine themselves. Former experience with the AB and their perception that the antibiotic was "strong" were mentioned by the patients as reasons behind their choices.

> "I heard that it was stronger and cephalexin didn't have an effect."(Patient nonprescr 1)

> "I selected this antibiotic [amoxicillin] because I think it is stronger than ampicillin, based on my experience." (Patient nonprescr 4)

However, pharmacists also reported that they sometimes chose the antibiotic or that the antibiotic was, directly or indirectly, chosen by a physician: directly in the sense that, in one case, the physician had told the patient what to use but had not written a proper prescription; indirectly, as in cases where the patients used earlier experiences with antibiotic prescribing "Because his idea is that doctors always prescribe the same antibiotic so he suggests taking amoxicillin or amoxiclav." (Pharmacist 2). When the pharmacists chose the antibiotic, they said they either made a choice based on experience or looked for the presence of purulent discharge on tonsils.

Patient information

Almost all patients said they received instructions from the physician (those who had visited a physician) as well as the pharmacist on how to use the antibiotic. Patients with a prescription reported that those instructions were similar from both professionals; at least they had not experienced receiving conflicting instructions or information.

The patients stated that they had followed the instructions. However, one patient also reported having increased the dose when the antibiotic did not help.

> "Actually, I started with one capsule three times a day, but my throat pain became more severe, so I increased the dosage to two capsules three times a day to get faster results." (Patient nonpresc 4).

Physicians and pharmacists also reported always giving instructions on how to use the medicine, and many specifically mentioned instructions about dosage.

Patients' knowledge and views on when to use antibiotics

When asked about how ABs work, there were examples of respondents who were clear about this. "Antibiotics fight the disease and eliminate bacteria." (Patient 1) and examples of those who were not as lucid "Antibiotics cure you, but how – I don't know." (Patient 4). However, other factors, such as time, were also mentioned: "[Antibiotics] have a faster effect." (Patient nonprescr 2).

Those who were more knowledgeable mentioned "when infected with bacteria." (Patient 3). "Antibiotics are used when we have bacteria in our body, when the disease does not go away by itself or when drinking tea, taking vitamins or eating fruit doesn't help." (Patient nonpresc 1)

When asked about sources of information, answers typically referenced family, physicians, pharmacists, the internet, patient information leaflets, magazines or experience. A television campaign from the Kosovo medical agency was also mentioned by a few of the patient respondents.

Patients' attitudes towards when antibiotics should be used were typically focused on severe diseases: "More problematic diseases" (Patient 1) and "Internal fever" (Patient 2). However, other reasons were also given: "I have used antibiotics before/…/ I purchased them only for throat problems." (Patient nonprescr 4).

One respondent specifically said that she was hesitant to give antibiotics to her children, for whom she wanted tests conducted and a physician's advice. However, for herself, it was a different matter: "For myself, I use antibiotics more freely, and I don't do blood analyses." (Patient 4).

Professionals' knowledge and attitudes towards antimicrobial resistance

Pharmacists said they updated their knowledge mostly through the internet but also relied on other methods, e.g., continuing education and discussions with colleagues. Physicians reported getting knowledge from education, colleagues, and experience.

All pharmacists and all the physicians but one stated there were no national guidelines available in the country. However, one physician mentioned the standard therapeutic guideline for primary care from the Ministry of Health.

Both professions were knowledgeable about when antibiotics should be used and also knew that they were being used in a suboptimal way in the country. They were also aware of antimicrobial resistance and considered it to be a problem in Kosovo.

> "Patients are used to abusing antibiotics, and they purchase them by themselves. However, I try to discourage such behaviour." (Physician 3)

The physicians considered pharmacies selling antibiotics without prescriptions and people using antibiotics abundantly as the main causes of overuse. Likewise, physicians were identified by the pharmacists as a cause; here, the influence of marketing activities from the pharmaceutical industry was specifically mentioned. However, pharmacists also reported the possible influence of the pharmaceutical industry on pharmacists.

> "[Antibiotics are] sold freely in pharmacies, especially amoxicillin/…/used for mild tonsillitis and for allergic rhinitis, and they are given by unprofessional people in pharmacies. In addition, people use antibiotics for a day or two and then stop the treatment."(Physician 2)

> "Unfortunately, even doctors get influenced by certain pharmaceutical companies to prescribe different antibiotics even for mild cases." (Physician 4)

> "Every day, a medical [industry] representative visits our pharmacy, but I don't think they have the intention to foster good practices. They are only there for marketing purposes." (Pharmacist 4)

All the pharmacists thought that antibiotics should only be sold with a prescription. However, even though they chose to sell without a prescription, some added that they tried to have a conversation with the patients to ensure that the antibiotic was the right treatment.

> "I try to fully respect good professional service, but there are some cases/…/when patients insist on taking an antibiotic, and if I don't give them, they will simply go to another pharmacy." (Pharmacist 3).

> "This [selling without a prescription] is the culture in our society." (Pharmacists 2)

DISCUSSION

The aim of this study was to explore antibiotic users', community pharmacists' and prescribers' attitudes towards, experiences of, and knowledge about antibiotics in Kosovo. Five themes were identified: Obtaining antibiotics, Choice of antibiotics, Patient information, Patients' knowledge and views on when to use antibiotics, and Professionals' knowledge and attitudes towards antimicrobial resistance. Results are further discussed below.

Some of the reasons behind the identified high consumption of antibiotics in Kosovo, appears to be based in the current practices of antibiotic use, in which antibiotic are used a great deal, and sometimes, they also seem to be the first choice for minor ailments, such as colds, coughs and "flu-like" symptoms.[7] This can be interpreted as a suboptimal antibiotic culture, which, when it comes to patients, also has been confirmed by other studies.[3,7] and it is, to some extent, also supported by the behaviours of pharmacists and physicians as reported in this study. This culture is reproduced e.g. when patients seek advice from family and unspecified web sites, and when pharmacies are selling antibiotics without prescriptions. There is seemingly not enough, or not strong enough opposition to this culture.

Hence, this study relying on a qualitative methodological approach contributed to the existing literature in the field by showing not only that, but how a culture of suboptimal use of antibiotics works and is reproduced. This kind of culture has also been shown to exist in other countries in the area, e.g., Serbia and Albania.[2,5] In a survey conducted with patients in Serbia, almost 60% believed that antibiotics could treat common colds.[5] A quantitative study in Albania showed that of 259 pharmacies visited, 80% dispensed antibiotics without a prescription, and a qualitative study in the same country reported how both patients and health care professionals found that antibiotics were the best remedy to use in the case of colds and flus, and like in this

study, that antibiotic treatment was sought after only a few days of symptoms.[2,13] Even if the problem is regional, national interventions are needed to change the current practice. In Kosovo, a television campaign about the use of antibiotics from the Kosovo medicines agency was mentioned by a few patients, and while this can be a first step, more fundamental changes are necessary.

Another potential problem seen was that microbiological tests were mentioned only occasionally as a basis for antibiotic prescriptions, but all respondent groups mentioned former experience more frequently. This could be because there is a lack of resources in the country, and hence, tests are not always available. The consequence of not using microbiological tests when diagnosing infections is uncertainty of appropriateness of antibiotic use, as it will not be clear if the infection is caused by a virus, for which antibiotics are ineffective, or bacteria. However, antibiotics are not always effective even if bacteria are involved, because of the bacterial resistance, which can only be detected by microbiological tests.

Only one physician mentioned the existence of guidelines for prescribing antibiotics. At the time of the interviews, the Ministry of Health had developed a draft of guidelines; however, they have not been officially implemented. A first step from the government would be to implement and inform health care professionals about these guidelines. However, there is a question about how much guidelines will affect prescribing behaviour and practice in pharmacies. Earlier studies have shown that colleagues' perceptions and behaviours may have more impact on physicians' prescribing behaviours than guidelines.[6]

At the time of the study, pharmacists in Kosovo seemed to dispense antibiotics without prescriptions and without a proper indication. This practice occurred in spite of pharmacists' knowledge about antibiotics and their awareness of the problems associated with antimicrobial resistance. It is illegal to sell antibiotics this way.[7] The reason given by pharmacist interviewees for this behaviour was pressure from the patient, but it is also possible that it directly or indirectly was influenced by factors related to the financial turnover of the pharmacy. This has also been shown in other settings.[10] The financial incentives are hard to work against. Since 2017, i.e., after data collection for this study was conducted, the pharmaceutical inspectorate of Kosovo has been auditing pharmacies for sales of antibiotics for which pharmacies have to provide a valid copy of a prescription. The outcome of these inspections has yet to be studied.

In the interviews, both physicians and pharmacists were, according to some respondents, influenced by marketing activities from the pharmaceutical industry. Hence, there are several mechanisms leading to financial incentives being more influential than health aspects. In a young country with a restrained economy, both on the state level and for many individuals, this is not surprising.

The influence of contextual mechanisms on antibiotic prescribing and dispensing were recently also described in a report by the Antimicrobial Resistance Centre at the London School of Hygiene & Tropical Medicine for the WHO.[14] The aim of the report was to situate awareness of antimicrobial resistance and knowledge of antibiotics within the lived experience of prescribing and dispensing across a range of Low and Middle Income Countries settings. The results showed that despite high level of knowledge of health care professionals and great awareness of antimicrobial resistance (like in this study), prescribing and dispensing practices were influenced by challenges of access to information on resistance patterns, next line antibiotics, diagnostics and patient records. Further, health care professionals reported that they were influenced by visits of representatives from the pharmaceutical industry.

In addition, the lack of a reimbursement system for medicines in Kosovo as well as the lack of general health insurance can be a driver for patients and pharmacies to maintain the current practice. A reimbursement system for pharmacies that is connected to a prescription service fee, rather than the product margin, could be a way to ensure proper antibiotic dispensing that would require a prescription to get reimbursement.

On the positive side, patients claim to have been given instructions to follow from physicians (for those with prescriptions) and pharmacists. Additionally, all professionals seem to be concerned about antimicrobial resistance, even if they blame others for the current practices that may add to the problem. Blaming others (other health care professionals or other persons within their own profession) can also be seen as not taking responsibility for their own conduct. This has been observed in studies regarding antibiotics both for physicians and pharmacists.[4,15,16] Hence, these professionals are important keys to fostering change. Professional organizations should take the lead in both practice changes and in policy discussions to counteract the financial incentives that drive suboptimal prescribing and selling of antibiotics.

In Kosovo, a first strategy document named "Strategy and action plan to combat antimicrobial resistance 2011 - 2015" has been published.[17] This has been followed by a strategy covering 2019-2021. Included in these documents are strategies for dispensing information and education on antimicrobials both for the population and for medical staff as well as the training of all medical staff and primary school teachers on antimicrobials. Hence, the situation is being taken seriously, and measures are being taken to improve the use of antibiotics.

Limitations

Limitations of this study include that few respondents were interviewed in each group; hence saturation was possibly not achieved. However, the reported practices were similar between the groups. Further, some results were validated by findings from other studies in the country and area. Recruitment was to a large degree carried out by convenience sampling, even though heterogeneity was strived for, and the interviews were only carried out in the capital, which reduces the transferability of the results. Using a qualitative methodology gave new insights into how a culture of antibiotics is working and reproduced.

CONCLUSIONS

There is currently a culture of antibiotic use in Kosovo, including attitudes and behaviours, and hence also experiences, which is possibly underlying the high consumption of antibiotics in the country. The culture is reproduced by patients, pharmacists and physicians. There is, however, an awareness of the current problematic situation among practitioners and policy makers; and as Kosovo is a new country, opportunities to effectively tackle antimicrobial resistance exist.

CONFLICT OF INTEREST

The WHO was not involved in writing the manuscript; hence, we declare no conflict of interest.

FUNDING

Travel expenses in connection with training for interviews (in Albania in 2014) and later conducting the analyses (in Denmark in 2015) were covered by the Health Technology and Pharmaceuticals group of the WHO, Regional Office for Europe.

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