



# Antibiotic dispensation by Lebanese pharmacists: A comparison of higher and lower socio-economic levels



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## KEYWORDS

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## Summary

**Introduction:** Indiscriminate use of antibiotics contributes to a global spread of antimicrobial resistance. Previous studies showed an excessive consumption of antibiotics purchased without medical prescription from community pharmacies, mainly in developing countries.

There is a shortage of studies revealing the role of community pharmacists in the overuse of antibiotics. Our objective is to study the dispensing policy of non-medical prescription antibiotics in community pharmacies, assessing the possible influence of the socio-economic level of the area over this practice.

**Methods:** A cross-sectional study was conducted between February and May 2011 among 100 pharmacists working in Beirut's pharmacies and its suburbs. Pharmacies were divided into 2 groups according to the socio-economic level of the population living in the pharmacy area. A self-administered questionnaire was filled by pharmacists.

**Results:** Over-the-counter antibiotic availability existed in both higher and lower socio-economic areas: on the whole, 32% of antibiotics were dispensed without medical prescription, with higher frequency in lower socio-economic areas ( $p=0.003$ ). Dispensing injectable antibiotics without medical prescription was significantly higher in lower socio-economic areas ( $p=0.021$ ), as well as dispensing an association of 2 antibiotics without medical prescription ( $p=0.001$ ). Pharmacists working in lower socio-economic areas recommended more frequent antibiotics to children and the elderly ( $p<0.001$  and  $p=0.004$ , respectively).

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*Conclusion:* Dispensing antibiotics without medical prescription in Beirut community pharmacies is a common practice, particularly in lower socioeconomic areas. This public health problem should be addressed at the social, educational, and legislative levels.

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## Introduction

More than 60 years ago, the introduction of penicillin played a decisive role in the treatment of infectious diseases [1]. Over the decades, antibiotic (ATB) overuse and misuse have unfortunately led to an increased rate of adverse side effects, a higher cost of treatment and a higher rate of antimicrobial resistance to community pathogens, a phenomenon which is now a worldwide public health problem [2]. In fact, the World Health Organization (WHO) selected combating antimicrobial resistance as the theme for World Health Day 2011 [3].

The ease of obtaining drugs without medical prescriptions can lead to the inappropriate use of ATBs [4], as over 50% of ATBs worldwide are purchased without a medical prescription [5]. The determinants of self-medication with ATBs are well documented: their over-the-counter (OTC) availability [6], the cost of medical consultation, low satisfaction with medical practitioners [7] and misconceptions regarding the efficiency of ATBs [8].

ATB OTC self-medication involves both the community pharmacist and the patient. While many studies have focused on self-medication, few have highlighted the role of the pharmacist in the process.

The cost of a medical consultation is also a determinant of self-medication, and many studies have shown that self-medication rates were inversely correlated to the socio-economic levels in the population.

In this context, we have decided to study the ATB dispensing policy of the community pharmacists in Beirut and its suburbs in the capital of Lebanon. We have also divided the region into high and low socio-economic areas to see if such disparities may have an influence on this policy, as Lebanon is a low- to middle-income country where socio-economic disparities are widespread.

## Materials and methods

### Study design

We conducted a descriptive cross-sectional study over a period of 4 months from February to May

2011 to assess the dispensing practices of OTC ATBs by community pharmacists. We compared the pharmacists' attitudes and knowledge of ATB use in higher and lower socio-economic population areas in the capital of Beirut and its suburbs.

### Study population

The pharmacists in our sample were chosen according to the socio-economic level of the population near the pharmacy. Because there is no official classification of the socioeconomic level areas in Lebanon, we included the districts of Beirut and its suburbs that are commonly known to be higher or lower socio-economic areas, while avoiding areas known to be of medium socio-economic status. In addition, we considered the views of the local pharmacists to ensure that the pharmacy in question does not have mixed socio-economic clientele.

Because there have been no previous studies in the country or the surrounding area as a whole regarding our objective, we used a pilot sample size of 100 pharmacists to allow for parametric statistical tests. Indeed, 110 pharmacists were approached, which allowed for a margin of 10 participants that may not complete the questionnaire. The questionnaires were filled in by the pharmacists without any intervention from the investigator, except to make sure that the pharmacist answered the whole questionnaire. The pharmacists were not aware of the exact objective of the study to avoid any information bias; they were told that the purpose of the questionnaire was to describe ATB sales in Lebanese community pharmacies.

### Questionnaire

The questionnaire was developed by the researchers for the purpose of the study; it has been translated to and from French and English to ensure identical versions of the questionnaire.

We made a clear differentiation between two actions, that of "dispensing" and of "prescribing" ATBs by the pharmacist. By "dispensing" we are referring to the pharmacist's action of delivering the ATB for a medical prescription or upon the

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