Review

Self-medication and self-prescription with antibiotics in the Middle East—do they really happen? A systematic review of the prevalence, possible reasons, and outcomes

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A R T I C L E   I N F O

S U M M A R Y

Objectives: There has been no review on the prevalence, possible causes, and clinical outcomes of self-medication with antibiotics (SMA) in the Middle East.
Methods: Databases were searched (January 2000 through June 2016) for articles on SMA among adults aged ≥18 years living in the Middle East. A hand search for relevant citations and key journals was also performed.
Results: Twenty-two studies were found. The prevalence of SMA ranged from 19% to 82%. Age, sex, and educational and income levels were the main determinants of SMA. Socio-cultural, economic, and regulatory factors were the most commonly cited reasons for SMA. Penicillins were the antibiotics most commonly used; the antibiotics were obtained mainly via stored leftover drugs, pharmacies without prescriptions, and friends/relatives. SMA was mainly for upper respiratory tract problems. The primary sources of drug information included relatives/friends and previous successful experience. Inappropriate drug use such as wrong indication, short and long duration of treatment, sharing of antibiotics, and storing antibiotics at home for use at a later time were reported. Negative and positive outcomes of SMA were identified.
Conclusions: It is important to understand the links between different factors promoting SMA and to assess the changing trends in order to derive strategies aimed at reducing drug-related health risks.

Contents

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Introduction

Self-medication can be defined as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms.[1] Self-medication involves obtaining medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle, or using leftover medicines stored at home.[1] The inappropriate use of antibiotics through self-medication may cause significant adverse effects, such as antibiotic resistance, treatment failure, and drug toxicity.[1–3] Antibiotic resistance has been determined to be one of the world's most pressing public health problems.[4] The appearance of multidrug-resistant bacterial strains, which are highly resistant to many antibiotic classes, has raised a major concern regarding antibiotic resistance worldwide.[5] This resistance may result in longer-lasting illnesses, more doctor visits, extended hospital stays, the need for more expensive medications, and even death.[4]

It has been estimated that more than 50% of antibiotics are purchased without a prescription and used over-the-counter in most parts of the world.[3,6–31] Inappropriate drug use in self-medication has also been identified,[30,31] which includes taking inadequate doses, sharing medicines, a short duration of treatment, and stopping treatment upon the improvement of disease symptoms. However, despite the widespread problem of irrational use of antibiotics, no systematic review has been conducted so far to examine antibiotic usage patterns in the Middle East. There is a need for evidence from well-designed studies on the use of antibiotics by the general public to help in planning and implementing specific strategies and interventions to prevent their irrational use and consequently to reduce the spread of antibiotic resistance.

Thus, this systematic review was conducted to (1) assess the extent of self-medication with antibiotics (SMA), (2) identify reasons for self-medication, (3) determine negative outcomes of SMA, and (4) identify recommendations made to reduce SMA. Information on risk factors influencing self-medication, the source of antibiotics, main indications for self-medication, most commonly used antibiotics, source and level of information on antibiotics, and antibiotic use practices are also summarized.

Materials and methods

Data sources, search terms, and search strategy

The PRISMA guidelines for reporting a systematic review and meta-analysis were followed.[32] Peer-reviewed research published between January 2000 and June 2016 was searched using the following electronic databases: PubMed (MEDLINE), ProQuest, Scopus (Elsevier), and Web of Science (Web of Knowledge). Search terms were derived from three main keywords: 'antibiotic', 'self-medication', and 'Middle East'. Lists of search terms associated with each keyword were generated from MeSH (medical subject heading) terms in PubMed and ProQuest. Relevant terms were also handpicked from the literature during the course of the review.[3,31] The different keywords used to search for relevant articles in this review are presented in Table 1. Keywords not listed as MeSH terms were searched as phrases using the free text search mode. The reference lists of articles retrieved and relevant review articles were examined manually to identify further relevant studies.

Selection criteria

The criteria for relevant studies were the following: (1) involved people aged ≥18 years; (2) published in the English language and conducted in the Middle East; (3) full-length articles, review articles, and original research dealing with antibiotic self-medication. Self-medication was defined as obtaining and consuming drugs without the advice of a physician to treat self-recognized illness or symptoms.[1] All articles focusing on antibiotic usage among adolescents (13–16 years) and children (<13 years) were excluded. In addition, editorials, letters to the editor, and comment publication types were also excluded. Studies on antivirals, antifungals, antiprotozoals, and topical antimicrobials were excluded. This is because antibiotics represent one of the most commonly overused drugs that can be obtained without a prescription in the countries of the Middle East.[6–31] Self-medication studies that measured knowledge only or attitude only or beliefs only and that did not determine community behaviour or practices were also excluded. Studies that used combined data, such as those on antibiotics, antimicrobials, prescription-only medicine (POM), and/or over-the-counter (OTC) medication, or on adolescents, children, and/or adults were excluded. A PRISMA diagram detailing the study identification and selection process is given in Figure 1.

Data extraction

Five reviewers (FA, ZA, RA, KA, LB) reviewed the titles and abstracts independently for consideration against the study inclusion criteria. Any articles that did not meet the inclusion criteria were excluded on initial review. Full texts were obtained either electronically or in a paper copy for articles marked for

Table 1
A list of the search terms used in this review (PubMed, ProQuest, Scopus, and Web of Science).

Search terms for 'antibiotics'	AND	Search terms for 'self-medication'	AND	Search terms for 'Middle East'
"antibiotic(s)" OR "Antibacterial(s)"		"self-medication" OR "self-treatment" OR "self-prescription" OR "rational use" OR "appropriate use" OR "non-prescription" OR "Misuse" OR "Abuse"		"Middle East" OR "Arabs" OR "Turkey" OR "Iran" OR "Saudi Arabia" OR "United Arab Emirate" OR "Kuwait" OR "Qatar" OR "Bahrain" OR "Oman" OR "Yemen" OR "Iraq" OR "Jordan" OR "Syria" OR "Lebanon" OR "Palestine" OR "Israel" OR "Egypt"