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UNVEILING ANTIBIOTIC MISUSE IN SAUDI ARABIA: ANALYZING PATTERNS, ROOT CAUSES, AND HEALTH CONSEQUENCES – A SYSTEMATIC REVIEW AND META-ANALYSIS

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Abstract

Background: Antibiotic misuse and prescribing errors are a significant concern in clinical practice, contributing to unnecessary antibiotic exposure, increased adverse effects, rising healthcare costs, and the escalation of antibiotic resistance. Understanding the prevalence, patterns, and risk factors of these prescription errors is essential for improving patient safety and healthcare efficiency.

Objectives: This study aimed to evaluate the prevalence, patterns, and risk factors of antibiotic prescription errors in Saudi Arabia.

Methods: A comprehensive search of three databases (PubMed, Scopus, and ProQuest) was conducted to identify eligible cohort and cross-sectional studies in Saudi Arabia. The primary outcome was the prevalence and patterns of inappropriate antibiotic use, while secondary outcomes included the pooled prevalence of specific errors (e.g., selection, dose, duration, and frequency). Study quality was assessed using the Newcastle–Ottawa Scale. The review was registered in PROSPERO (CRD42024611747).

Results: A total of 14 studies were included (2 cohort and 12 cross-sectional). Study settings included emergency departments, intensive care units, and outpatient clinics. The pooled prevalence of antibiotic prescription errors was 42.7% (95% CI: 37.5–47.8). The most common errors were related to dosage (29.3%), duration (24.3%), antibiotic selection (15%), and frequency (11.1%). Overall, the quality assessment indicated a low risk of bias for most studies, with only one study classified as high risk.

Conclusions: Antibiotic prescription errors are highly prevalent in Saudi Arabia. Strengthening antibiotic stewardship programs, enhancing clinician training, and promoting adherence to evidence-based guidelines are essential to reduce prescribing errors and combat antibiotic resistance.

Keywords: Antibiotic misuse; Prescribing errors; Antibiotic resistance; Antibiotic stewardship.



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