

Self-Medication Practices with Antibiotics Among the General Population: A Questionnaire-Based Cross-Sectional Study

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Abstract:

Background: Antibiotics are essential in the treatment of bacterial infections; however, their misuse, particularly through self-medication, poses a significant global public health challenge. Inappropriate use contributes to antimicrobial resistance (AMR), treatment failure, and increased healthcare burden. Young adults are especially prone to self-medication due to convenience and lack of awareness.

Aim: To assess self-medication practices with antibiotics among individuals aged 18–35 years and evaluate their knowledge, attitudes, and practices using a questionnaire-based approach.

Materials and Methods: A cross-sectional study was conducted over three months among 500 participants aged 18–35 years selected through convenience sampling. A structured and pre-validated questionnaire assessed demographics, knowledge, attitudes, and practices related to antibiotic use. Data were analyzed using descriptive statistics and Chi-square tests, with a p -value < 0.05 considered statistically significant.

Results: Self-medication with antibiotics was reported by 75.6% of participants. A large proportion (87.2%) lacked awareness about appropriate antibiotic use and AMR. Misconceptions were common, with 62% believing antibiotics are effective against viral infections. Common sources of antibiotics included pharmacies without prescription (58.2%) and leftover medications (29.1%). Convenience (47.6%) and prior experience (31.7%) were major reasons for self-medication. A significant association was found between education level and self-medication practices ($p < 0.001$), whereas gender showed no significant association.

Conclusion: The study reveals a high prevalence of antibiotic self-medication among young adults, coupled with poor knowledge and inappropriate practices. There is an urgent need for public education, stricter enforcement of prescription regulations, and awareness programs to promote rational antibiotic use and combat antimicrobial resistance.

Keywords: Antibiotics, Self-medication, Antimicrobial resistance, Knowledge, Attitude, Practice, Cross-sectional study.

Introduction

Antibiotics are essential therapeutic agents for treating bacterial infections and have drastically reduced morbidity and mortality worldwide [1]. However, the misuse of these drugs, particularly through self-medication, is becoming a major public health concern [2]. Self-medication is defined as the use of drugs without professional consultation, often based on previous experience, advice from friends or family, or easy access to over-the-counter medications [3]. This practice is widespread globally and poses significant risks to both individual and public health.

Improper antibiotic use can result in adverse drug reactions, masking of severe infections, incomplete treatment, and importantly, contributes to antimicrobial resistance (AMR) [4]. AMR has been recognized by the World Health Organization as

one of the most serious global health threats of the 21st century [5]. Resistance leads to treatment failures, prolonged illnesses, higher healthcare costs, and increased mortality [6].

Young adults, particularly those aged 18–35, are highly susceptible to self-medication due to convenience, lack of awareness, and the misconception that antibiotics are effective against viral illnesses [7]. Previous surveys have shown that this age group often relies on leftover antibiotics, community pharmacies, or informal advice rather than consulting qualified healthcare professionals [8].

Public awareness and education about responsible antibiotic use are critical in mitigating this issue. Assessing the knowledge, attitudes, and practices (KAP) related to antibiotic use helps identify behavioral patterns that contribute to self-medication and the development of AMR [9].

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Considering these factors, the present study was conducted to evaluate the prevalence of self-medication with antibiotics among adults aged 18–35 years, assess their knowledge and attitudes, and identify sources and reasons for self-medication.

The Aim of the study is to assess self-medication practices with antibiotics among the general population aged 18–35 years using a structured questionnaire-based cross-sectional study.

Materials and Methods

This cross-sectional questionnaire-based study was conducted over a period of three months. A total of 500 participants, comprising both males and females aged 18–35 years, were recruited from the general population using convenience sampling. Healthcare professionals and individuals unwilling to participate were excluded to avoid bias.

A structured, pre-validated questionnaire was used to collect data. The questionnaire was divided into four sections: demographics, knowledge, attitudes, and practices regarding antibiotic use. Demographics included age, gender, and education level. Knowledge assessed participants’ understanding of antibiotics and antimicrobial resistance. Attitudes evaluated perceptions toward self-medication, and practices recorded behaviors related to antibiotic consumption, including sources and reasons for self-medication.

Participants completed the questionnaire voluntarily, either via online Google Forms or offline survey methods. All responses were kept anonymous and confidential.

Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics such as frequency and percentage were used to summarize responses. Associations between categorical variables were analyzed using the Chi-square test, and a p-value <0.05 was considered statistically significant.

Results

Demographics

Out of 500 participants, 260 (52%) were male and 240 (48%) were female. The majority of participants belonged to the 18–25 years age group (270 participants, 54%), while 230 participants (46%) were aged 26–35 years. Regarding education, 280 (56%) were undergraduates, 150 (30%) were graduates, and 70 (14%) had other qualifications.

Knowledge

A majority of participants, 436 (87.2%), were unaware of the proper use of antibiotics and the concept of antimicrobial

resistance. Only 64 participants (12.8%) reported awareness of the need for prescription before taking antibiotics. When asked about the effectiveness of antibiotics against viral infections, 112 participants (22.4%) answered correctly, while 388 (77.6%) were incorrect.

Attitudes

Regarding attitudes toward antibiotic use, 310 participants (62%) believed that antibiotics could treat viral infections. A total of 260 participants (52%) reported stopping antibiotics once symptoms improved. Additionally, 320 participants (64%) preferred to consult a doctor only when the illness worsened.

Practices

Self-medication was reported by 378 participants (75.6%). The sources of antibiotics included: pharmacy without prescription (220 participants, 58.2%), leftover drugs from previous treatments (110 participants, 29.1%), and advice from friends or family (48 participants, 12.7%). Reasons for self-medication included convenience (180 participants, 47.6%), previous experience with similar illness (120 participants, 31.7%), and perception of minor illness not requiring medical consultation (78 participants, 20.7%).

Statistical Analysis

There was a significant association between education level and self-medication practices (Chi-square = 28.4, p < 0.001), indicating that participants with higher education were less likely to self-medicate. Gender was not significantly associated with self-medication practices (Chi-square = 2.16, p = 0.14).

Table 1: Demographic Characteristics of Participants (n = 500)

Characteristic	Category	Number (%)
Gender	Male	260 (52%)
	Female	240 (48%)
Age (years)	18–25	270 (54%)
	26–35	230 (46%)
Education	Undergraduate	280 (56%)
	Graduate	150 (30%)
	Others	70 (14%)

Table 2: Knowledge About Antibiotics and AMR (n = 500)

Knowledge Question	Correct Response	Number (%)	Incorrect/Unaware	Number (%)
Awareness about antibiotic use and AMR	Yes	64 (12.8%)	No	436 (87.2%)
Antibiotics effective against viral infections	Correct	112 (22.4%)	Incorrect	388 (77.6%)

Table 3: Attitudes Towards Antibiotic Use (n = 500)

Attitude Statement	Agree	Number (%)	Disagree/Neutral	Number (%)
Antibiotics can treat viral infections	310 (62%)	190 (38%)		
Stopping antibiotics when symptoms improve	260 (52%)	240 (48%)		
Consulting doctor only when illness worsens	320 (64%)	180 (36%)		

Table 4: Self-Medication Practices (n = 500)

Practice Question	Category	Number (%)
Participants practicing self-medication	Yes	378 (75.6%)
	No	122 (24.4%)
Source of antibiotics	Pharmacy without prescription	220 (58.2%)
	Leftover drugs	110 (29.1%)
	Advice from friends/family	48 (12.7%)
Reason for self-medication	Convenience	180 (47.6%)
	Previous experience	120 (31.7%)
	Minor illness	78 (20.7%)

Table 5: Statistical Analysis of Self-Medication by Demographics

Variable	Chi-square	p-value	Significance
Education level	28.4	<0.001	Significant
Gender	2.16	0.14	Not significant

Discussion

The findings of this study indicate that self-medication with antibiotics is highly prevalent among adults aged 18–35 years, with more than three-quarters of participants practicing it. This is consistent with previous studies reporting self-medication rates between 50–80% in similar populations [10,11].

The high prevalence of self-medication is attributed to easy accessibility of antibiotics, inadequate regulation, and misconceptions about their effectiveness, especially for viral illnesses [12]. Our study also revealed that 87.2% of participants were unaware of AMR, highlighting a significant gap in public knowledge and awareness.

Education was significantly associated with self-medication; participants with higher educational levels were less likely to self-medicate, which underscores the importance of educational interventions [13]. The majority of participants relied on pharmacies without prescription or leftover antibiotics, reflecting gaps in regulatory enforcement and public awareness.

Improper practices, such as stopping antibiotics prematurely or using them for viral infections, can contribute to the global AMR crisis [14]. These results emphasize the need for targeted awareness campaigns, stricter enforcement of prescription regulations, and public education programs to reduce irrational antibiotic use [15].

Overall, the study highlights the urgent necessity for coordinated efforts at community and policy levels to mitigate self-medication and prevent escalation of AMR.

Conclusion

Self-medication with antibiotics is prevalent among young adults aged 18–35 years. The majority of participants are unaware of the risks associated with improper antibiotic use and the development of antimicrobial resistance. Educational interventions, public awareness campaigns, and stricter enforcement of regulations regarding prescription antibiotics are essential to curb self-medication practices and combat AMR effectively.

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