



## Research Article

# General Population's Perception and Utilization of Antibiotics as Self-Medication: A Knowledge, Attitude, Practice Study

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**Background:** Adequate knowledge, attitude, and practices about antibiotic use are crucial for effective treatment and disease cure. **Objective:** To assess knowledge, attitude, and practice (KAP) towards antibiotic use among the general population and identify significant associated factors. **Materials and Methods:** A seven-month cross-sectional study was conducted among 339 individuals from the general population. Socio-demographic details were collected using a well-designed form, and KAP was assessed using a previously validated questionnaire. **Results:** The sum of the participation 339 and Their mean value is 24.62, standard deviation is 7.29 and degree of significance is 0.40 (p value). The study compared knowledge, attitude, and practice (KAP) between working individuals and students. Working individuals showed slightly higher knowledge (73%) and practice (65%) levels than students (70.30%). Working individuals also demonstrated a more positive attitude (26% vs 59% participation, 88 vs 200 sum). **Conclusion:** The study's findings will provide a foundation for future initiatives aimed at enhancing public knowledge and awareness about antibiotic use, ultimately promoting responsible practices and improved health outcomes.

**Keywords:** Antibiotics, attitude, knowledge, practice, general population.

## INTRODUCTION

Antibiotics are powerful drugs that defeat bacterial infections by killing or hampering the growth of bacteria. Although they have substantially improved health outcomes, their vast usage has led to the threatening shadow of antibiotic resistance and emphasizes the need for their prudent use and development of new therapeutic strategies to preserve their utility [1]. It is an investigation on the KAP of the community about antibiotic self-medication. As self-medication is one of the significant factors triggering the development of antimicrobial resistance (AMR), it is considered a worldwide public health issue, particularly concerning antibiotics [2]. The aim of this research is to assess the knowledge of the people about the appropriate use of antibiotics, the attitude toward antibiotic resistance, and proper self

of antibiotics[3]. Antibiotics are important drugs. Bacterial infections are treated with a host of medications[4]. In addition, antibiotics may reduce the consequences of severe disease. But some of the drugs traditionally used to treat bacterial infections are becoming less effective[5]. In addition, a few of the drugs are completely ineffective for several microorganisms[6]. Bacteria are defined as antibiotic-resistant if they are no longer sensitive to the effects of antibiotics. The antibiotic resistance is one of the top health concerns around the world[7]. In 1928 the discovery of antibiotics by Sir Alexander Fleming transformed modern medicine[8]. AMR causes about 700,000 deaths annually, and estimates suggest that figure might rise to 20 million by 2050, with expenditures exceeding \$2.9 trillion, according to a 2019 World Health Organization (WHO) research[9]. As a result, it has become a serious problem that

jeopardizes both our economic stability and our health[10]. According to the 2022 Global Antimicrobial Resistance and Use Surveillance System (GLASS) report, "GLASS offers countries a standardized approach for the collection, analysis and sharing of data on antibiotic resistance"[11]. Results The results suggest alarming patterns of resistance among common bacterial infections. It preserves the integrity and representativeness of data by monitoring national surveillance systems. Some WHO regions provide technical support and encourage GLASS participation through existing surveillance networks[12]. Antibiotic resistance is a consequence of the general public misuse of antibiotics as self-medication. [13]. Misconceptions and over the counter availability of antibiotics drive self-medication that results in resistance, reactions, and delayed treatment[14]. Public awareness, regulations and better access of health care could encourage responsible use and address resistance. Public awareness and responsible usage are important for mitigating this emerging public health issue

## **MATERIAL AND METHODS:**

### **2.1 MATERIALS:**

Consent forms (English), google forms, answer feedback's.

### **2.2 METHODS:**

A semi-structured online survey that had been pre-tested was used to perform the study. questionnaire created using Google Forms to evaluate the general public's knowledge, attitudes, and usage of antibiotics Before the participants began the study, they were briefed on the details.

### **2.3 sample size/study population:**

Sample Size Calculation:

Desired sample size: 500

Confidence level: 95%

Margin of error (E): 5% ( $\pm 5\%$ )

$n=384.16$  (round up to 500 for desired sample size)

### **2.4 study design, duration, and ethical clearance**

The research was cross-sectional was conducted for a duration of seven months from September-24 to

march-25. after obtaining permission from the institutional ethics committee (Ref no

### **2.5 Development, validation, and reliability test of KAP questionnaire**

Preparation, validation, and reliability testing of a Knowledge, Attitude, and Practice (KAP) questionnaire on the antibiotic self-medication in Jordan is vital in order to produce a tool that is effective in measuring the general public perception and use of antibiotics for self-medication. In a first step a broad literature review will identify the aspects to be investigated leading to a expert panel discussion which establish the items within the different fields, i.e. knowledge of antibiotics, their use and self-medication. Questionnaire validation includes face validity for clarity and relevance among peers, content validity by expert panels with the aid of techniques such as CVR and CVI, and construct validity by statistical means such as factor analysis. Reliability included Cronbach's alpha and test-retest procedures, which reported internal consistency, and stability respectively.

### **2.6 Inclusion criteria and exclusion criteria**

The study's inclusion criteria comprise individuals aged 18-65 years who can understand and respond to the survey, are willing to provide informed consent, and are not healthcare professionals. Conversely, exclusion criteria include healthcare professionals, individuals with severe cognitive impairments, and those who refuse to provide informed consent, ensuring a representative sample of the general population is captured while maintaining the study's validity.

### **2.7 Data collection**

Data was collected among other things by the use of structured data collection form which covered socio-demographics such as age, gender, domiciliary status, educational status, occupation and social class. Then the KAP questionnaire was given in the language which was spoken by the subject to the subject and the subject marked the answers. This approach provided that the method of data collection was organized, complete, and available for proper examination of the participants' knowledge, attitudes and practices.

## 2.8 Data analysis

Statistical data analysis was performed using IBM SPSS statistics 22

## RESULTS

The study involved 339 respondents, consisting of 64% females and 36% males, were predominately from urban residence, mostly in 18-34 years of age group. Most had an undergraduate level of education and were students, suggesting a young and educated demographic. However, the fact that most participants (82.5%) in this study were young and

educated/modern may have influenced their responses regarding the knowledge, attitudes, and practices associated with self-medication with antibiotics. The results of the study are going to be heavily influenced by the views and actions of young, well educated people from cities. And this provides context for their views and practices about antibiotic use. Furthermore details of the demographic profile of the participants are provided in Table 1. The findings of the study can help devise methods for disseminating information, because it found the use of antibiotics in young, urban populations. The findings may help inform public health efforts aimed at this population.

**Table 1: comparison of socio-demographic characteristics with knowledge, attitude and practice.**

	knowledge			Attitude			Practice		
	Mean	standard	Percentage	Mean	standard deviation	percentage	mean	standard	percentage
Gender based analysis of subject distribution									
Male	25.31	6.12	3.83%	23.01	2.45	0.29%	30	2.66	3.09%
Female	24.88	8.41	9.44%	20	2.09	0.30%	20.25	1.09	1.18%
Age Group Based analysis Of subject distribution									
18-34	21.59	2.83	7.96%	22.67	3.91	85.84%	22.2	4.02	3.07%
35-49	40	3.54	1.18%	39.39	4.33	10.03%	3.9	4.56	2.76%
50-60	53	3.87	0.29%	52.6	1.85	1.47%	30.44	5	20.30%
Education qualification Based Analysis of subject distribution									
Higher secondary level	33	12	0.59%	29.96	10.66	7.96%	21	3.43	3.20%
Undergraduate level	23.31	7.2	9.44%	21.9	5.08	61.36%	25	5.24	2.36%
Postgraduate level	29.8	5.51	2.95%	27.64	5.73	20.65%	26.3	2.55	1.18%
Post graduate level & above	27	3.23	0.29%	30.73	9.64	9.73%	23.3	2.33	3.20%
Occupation based analysis of subject distribution									
Student	21.29	2.43	9.41%	20.53	2.18	59.59%	21.33	1.8	1.77%
Home maker	33	7.14	6.33%	33.78	6.16	6.78%	4	2.36	2.56%
self employees	39	2.33	4.22%	43.33	3.3	0.88%	19	1.57	2.00%
professional	13	2.55	1.36%	24.75	4.38	1.18%	28.4	2.87	1.47%
working	34.67	8.88	6.34%	30.13	8.1	29.50%	1.2	1	1
Domicillary status based on Analysis of subject distribution									
Urban	24.87	7.69	9.40%	24.62	7.29	8.50%	24.62	4.55	0.83%

Based on the provided data, the mean scores across all domains—Knowledge, Attitude, and Practice (KAP)—offer valuable insights into public perceptions and behaviors regarding antibiotic self-medication and antimicrobial resistance (AMR). Overall, the **mean knowledge scores** vary significantly across demographics, with the highest observed among the 50–60 age group (mean = 53) and homemakers (mean = 33), suggesting that older individuals and homemakers might possess better awareness, possibly due to greater healthcare exposure or responsibility. The **attitude scores** also peak in the older age groups and among self-employed individuals, indicating a more cautious or informed mindset toward antibiotic use. In contrast, **practice scores** are inconsistently distributed; males

(mean = 30) and the 50–60 age group (mean = 30.44) exhibit the most positive practices, whereas working individuals show the lowest mean (1.2), highlighting potential barriers to proper antibiotic use in active workforce populations. On average, higher education levels (postgraduates and above) correspond with stronger knowledge and attitude scores, though not always with improved practices. This underscores a gap between awareness and actual behavior. Taken together, the data suggests that while knowledge and attitude toward antibiotics may improve with age and education, they do not always translate into optimal practices—highlighting the need for targeted behavioral interventions. As per the results of the present study, there was a statistically significant difference between the mean knowledge scores of

gender, age, domiciliary status, education, occupation, and socio-economic-classwise distribution of the subjects. The mean attitude score demonstrated a statistically significant difference in age, domiciliary status, education, occupation, and socio-economic class whereas the mean practice score

had a statistically significant difference only in age, education, occupation, and socio-economic class. The details are summarized in Table 1.

**Participant Designation Distribution:**

**Table No: 2 Participants Involved In Different Roles.**

Designation	Sum of Participants	Percentage
Student	200	59.00%
Home maker	18	5.00%
Self-employee	28	8.00%
Professor	5	1.00%
Working	88	26.00%
Grand total	339	100%

Most of them were students (59%), and the second largest group were working professionals (26%). Eight percent of the sample consisted of self-employed individuals, and 5% and 1% were homemakers and professors, respectively. This distribution indicates a diverse participant base, predominantly skewed towards a younger demographic, and possibly a more education-orientated type of respondent, which could influence views on antibiotic use and self-medication practices.

In study of antibiotics as self-medication total respondents are n=339, where the student is involved in this area 200(59%) participants. In this survey the questionnaire attended by student. Towards the knowledge, attitude and practice of antibiotics as self-medication. As per knowledge questionnaire 70.30 %, in attitude 60.3% and practice 67.9% were gave the correct answer. From this we conclude that student has less attitude towards the self-medication as antibiotics compared with other groups.

**Student**

**Table: 3 Analysis of Antibiotics As Self-Medication**

Student	Percentage
Knowledge	70.30%
Attitude	60.30%
Practice	67.90%



**Fig No: 2 Graphical Analysis of Antibiotics As Self-Medication In Student**

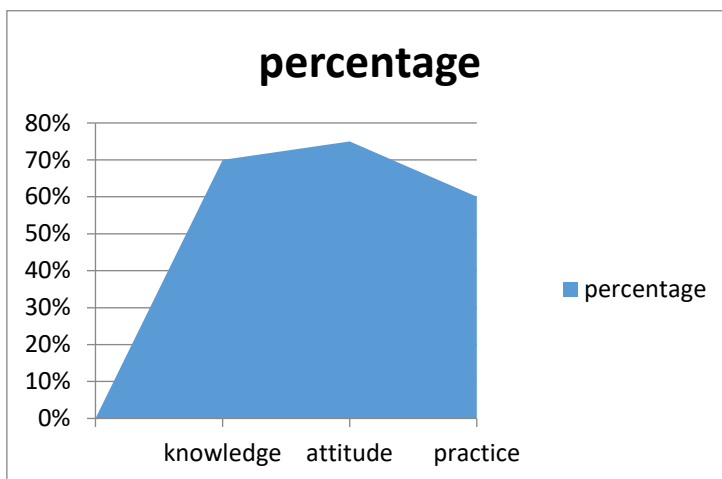
**Home Maker**

In this survey towards the Knowledge, attitude, and practice about antibiotics as self-medication. In 339 respondents, 5% (18) participants are home maker

responded to the questionnaire. Their knowledge about antibiotics as self-medication is 70%, Attitude of HAM is 75% and practice about self-medication are 60%. In these three categories, home maker has best attitude about antibiotics as self-medication.

**Table No: 4 Analysis of Antibiotics As Self-Medication**

Home maker	Percentage
Knowledge	70%
Attitude	75%
Practice	60%



**Fig No :3 Graphical Analysis Of Antibiotics As Self-Medication In Home Maker**

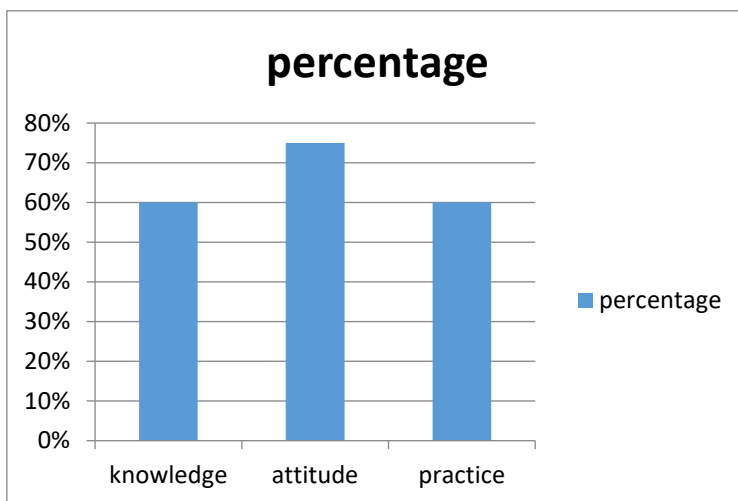
**Self-Employees**

Among the total study, In the total 339 responses. Self-employees are the medium number of respondents. In the survey self-employee are medium in numbers, total 8% (28) participants responded as self-employee. From three categories (knowledge,

attitude, practice). Self-employee knowledge towards antibiotics as medication are 60%, attitude towards antibiotics as medication 55% percentage, practice of antibiotics as medication is 60%. Comparing all three of the categories self-employee are aware of antibiotics as medication.

**Table No: 5 Analysis of Antibiotics as Self-Medication**

self-employee	Percentage
Knowledge	60%
Attitude	75%
Practice	60%



**Fig No:4 Graphical Analysis Of Antibiotics As Self-Medication In Self Employee**

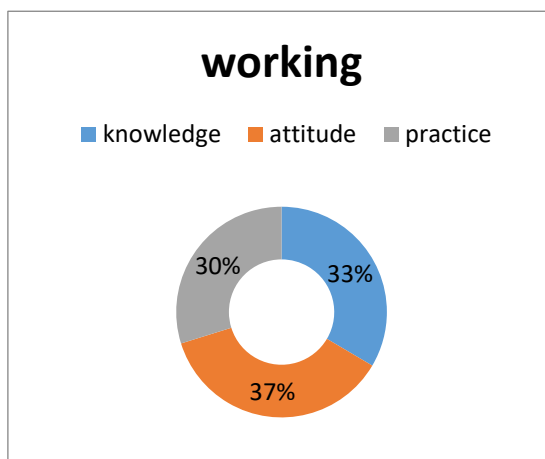
**Working:**

In the study of antibiotics as self-medication respects with the knowledge, attitude, and practice. In the total no of respondents (339). Their knowledge towards antibiotics as self-medication is (73%), Attitude

domain in antibiotics as self-medication is (80%) and practice is (65%). Analysing the responses from three categories practice towards is less than other two. Attitude about antibiotics as self-medication in working is good.

**Table No: 6 Analysis Of Antibiotics As Self-Medication**

Working	Percentage
Knowledge	73%
Attitude	80%
Practice	65%



**Fig No:5 Graphical Analysis of Antibiotics As Self-Medication In Self Employee**

**DISCUSSION**

Antibiotics as Self-medication is a practice among general population. For safety use medication, general population are expected to have a proper knowledge, attitude, and practice towards antibiotics as self-medication and its adverse effects. The study was

conducted among general population (students, home maker, self-employee, working) the aim of this study is to determine the knowledge, attitude, and practice of antibiotics as self-medication to know how aware about antibiotics and its characteristics using general population. The general population of 339 participants in whom the analysis of the data collected

revealed that to calculate the number of participants from each group: student (59%), home maker (5%), self-employee (8%), working (26%) and professor (1%) these numbers give an estimate of the participations from each group. The distribution among different designations student comprise the largest group then the other groups. The breakdown could inform resource allocation and training initiatives to ensure all healthcare professionals receive adequate support and development opportunities. The comparison study about working and students this study is based on the knowledge questionnaire is correct answering student knowledge (70.30%) and working knowledge (73%) the knowledge levels of working and student. working might be more knowledgeable than student. The attitude sum of the participation working (88) while student (200) and their percentage is 26% and 59%. It seems like working have a more positive attitude compared to student based on this study. In practice working scored 65%. This indicates that working have a slightly higher level of adherence to practices compared to student in this study. This study highlights that while the general population demonstrates moderate to good levels of knowledge and positive attitudes toward antibiotic self-medication, actual practices often do not align. Students, working professionals, homemakers, and self-employed individuals vary in their awareness and behavior, with working professionals showing slightly better knowledge and adherence. Despite favorable attitudes across most groups, consistent gaps between understanding and practice persist. These findings underscore the need for targeted educational initiatives to bridge this gap, promoting responsible antibiotic use and reducing the risk of antimicrobial resistance (AMR), which remains a growing global health concern.

## CONCLUSION

The study assessed the Knowledge, Attitude and Practice of Antibiotic Use among Study Participants. The sum of the participation 339 and Their mean value is 24.62, standard deviation is 7.29 and degree of significance is 0.40 (p value). These domains were highly influenced by socio demographic factors, and knowledge had a positive relationship with attitude and practice. The results indicate that knowledge improvement will be correlated with improvement in

the attitude and practices of the individual towards antibiotics. Our results would be useful for education intervention programs to increase public understanding and perceptions of antibiotic use thus improve health outcomes. These findings can help inform policymakers, healthcare professionals, and educators when designing effective approaches to address knowledge gaps and promote best practices in antibiotic use. Overall, the study has critical implications for public health efforts to appropriately use antibiotics and decrease harm from their misuse. In conclusion, enhancing knowledge, attitude, and practice towards antibiotics as self-medications among general population, particularly students and working, could contribute to improved patient outcomes and safety Collaboration and understanding of each profession's strengths and areas for improvement are essential for optimizing public healthcare delivery.

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