



**ORIGINAL RESEARCH PAPER**

**Pharmacology**

**KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ANTIBIOTIC USE AMONG RURAL INDIAN POPULATION: A QUESTIONNAIRE BASED STUDY**

**KEY WORDS:** Antimicrobial resistance; Knowledge; Practices; rural population

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**ABSTRACT**

**OBJECTIVE:** To assess the knowledge, attitude, and practices (KAP) of the rural population of Nuh regarding antibiotic resistance.

**METHODS:** A cross sectional, questionnaire based survey was conducted among the local Nuh population, whereby their KAP regarding antibiotic use and resistance was assessed. The data was analyzed by using simple descriptive statistics.

**RESULTS:** The majority of population had a poor understanding of the effects and uses of antibiotics and had misconceptions regarding antibiotic use. 64 % of the people stopped the antibiotic treatment as their symptoms are relieved, 69% gave their antibiotics to their relatives and 71% used the left over antibiotics contributing to the development of resistance.

**CONCLUSIONS:** Our survey revealed that most of the people were not aware of the antimicrobial abuse and its consequences. Further educational interventions are necessary to improve their understanding and perceptions on antibiotic resistance, as well as their attitude towards antibiotic use.

**INTRODUCTION**

Antibiotics have revolutionized medicines saving countless lives since their discovery in the 20<sup>th</sup> century. But, the successful use of any therapeutic agent is compromised by the development of resistance to it. Antimicrobial resistance (AMR) has become a serious global problem that poses a threat to all branches of medical and public health practice. Resistance to antibiotics costs money, livelihoods and threatens to undermine the effectiveness of health delivery programmes. It is a threat to global stability and national security<sup>1</sup>. Resistance is the ability of the micro-organisms to resist the effects of medication that once could successfully treat the micro-organisms. The introduction of every antimicrobial agent into clinical practice has been followed by the detection of its resistant strains in the laboratory. Resistance acquired may be a characteristic associated with a particular species or can emerge in strains of a normally susceptible species through mutation or gene transfer<sup>2</sup>.

All antimicrobial agents have the potential to select drug resistant subpopulations of microorganisms, which has escalated with the widespread antimicrobials' use. The prevalence of resistance varies between geographical regions but later resistance emerges to every antimicrobial. The development and distribution of antibiotic resistant microbes worldwide are the results of the selection pressure occurring due to a combination of factors like antibiotic overuse, particularly for minor infections, misuse and underuse due to lack of financial support. Thus, inappropriate use of antimicrobial agents is associated with the emergence of resistance. For this reason, improving use is a priority if the emergence and spread of resistance is to be controlled.<sup>3</sup> Campaigns should be undertaken to improve public's misconceptions regarding antibiotic use and promote their rational use.

Thus, our objective was to assess the KAP regarding antibiotic usage in the rural population of Nuh to assess the various factors that contribute to the inappropriate antibiotic use and to provide a baseline data for local educational activities regarding appropriate antibiotic use in future.

**MATERIALS AND METHODS**

This is a cross sectional study conducted on the rural population of Nuh. A pre-validated questionnaire was used and adapted from former studies. It was modified and made suitable for use among the local population<sup>4</sup>. The questionnaire comprised of 10 questions 4 for knowledge, 3 for practice and 3 for attitude. The knowledge and attitude based questions were responded as "agree", "disagree" and

"not sure". The practice based questions had options aimed to assess the source and reason for antibiotic use.

A random sample of 120 people was included in this study. The sample comprised of the residents of Nuh. People were surveyed in the street and in their homes by going street to street. People more than 18 years of age were included. They were explained briefly before filling the form and their identity was kept anonymous. Data were compiled, entered in Microsoft Excel sheet by using SPSS version 19 and analyzed by descriptive statistics.

**RESULTS**

This KAP study was carried out in a rural area of Haryana, a total of 120 forms were included for analysis.

The response to knowledge based questions show that majority of people (81.67%) think that antibiotics can also cure viral infections. 74.17% believed that antibiotics can cure all infections, while 61% believed that antibiotics can treat pain and fever. This reflects a lack of basic knowledge among the residents. (Table 1)

**Table 1: Response for knowledge based questions**

S.No	Questions	Agree	Disagree	Not Sure
1.	Antibiotics kill bacteria	91 (75.83%)	18 (15%)	11 (9.2%)
2.	Antibiotics treat viral infections like cold	98 (81.67%)	19 (15.83%)	3 (2.5%)
3.	Antibiotics cure all infections	89 (74.17%)	24 (20%)	7 (5.8%)
4.	Antibiotics reduce pain, fever and inflammation	61 (50.83%)	49 (40.83%)	10 (8.3%)

**Table 2: Response for attitude based questions**

S.No.	Questions	Agree	Disagree	Not Sure
1.	I normally stop taking antibiotics when I start feeling better	77 (64.16%)	39 (32.5%)	4 (3.3%)
2.	I usually give my antibiotics to a sick family member	69 (57.5%)	45 (37.5%)	6(5%)
3.	I use left-over antibiotics if I get the same illness again	71 (59.17%)	36 (30%)	13 (10.83%)

The practice based questions show that only 49% of the population took antibiotics on a doctor's prescription. Only 30% of the people consulted a doctor when they were sick.

Also, 20% of the people cited the unavailability of the doctor as the reason. (Table 3)

**Table 3: Response for practice based questions**

S. NO.	QUESTIONS		% Response
1.	How do you get your antibiotics?	Doctor's prescription Pharmacist's advice Non-medical person's advice Personal Choice	59(49.17%) 30(25%) 27(22.5%) 4(3.33%)
2.	Do you consult a doctor when you're sick?	Never Rarely Sometimes Always	1(83%) 6(5%) 76(63.33%) 37(30.83%)
3.	Reason for not always consulting a doctor	Money Unavailability of doctors Scared No need for a doctor No time	45(37.5%) 25(20.83%) 12(10%) 17(14.17%) 21(17.5%)

**DISCUSSION**

The current study aimed to analyze knowledge, attitudes and practices concerning antibiotic use in the rural population of Nuh. The study reveals major factors responsible for antibiotic abuse such as taking antibiotics without prescription and using leftover antibiotics. Studies conducted in other countries also reveal that the use of leftover antibiotics is very common<sup>5</sup>.

The study revealed that people had misconceptions regarding the effects of antibiotic use believing that antibiotics could cure viral infections and fever too. Similarly, a cross-sectional KAP study in Malaysia showed that people believed that antibiotics were helpful in the treatment of fever<sup>8</sup>.

The findings of this study show that people lack basic knowledge about antibiotics, therefore there's a need to educate them. Doctor's and pharmacists' should counsel them regarding appropriate antibiotic use by discouraging early discontinuation and reuse of left over antibiotics. Also, health services should be made more accessible and better law enforcement to prevent antibiotics sale without a doctor's prescription<sup>7,8</sup>. National campaigns should be conducted to educate the masses and to modify the public's misconceptions regarding the effectiveness of antibiotics<sup>9,10</sup>. This will promote appropriate antibiotic use and prevent the development of antibiotic resistance.

The study has several limitations such a small sample size and it covered a relatively smaller area. Similar, studies should be conducted which would give an insight of the local problems that could be tackled accordingly.

**CONCLUSION**

The KAP study revealed that majority of the people had limited knowledge about antibiotics thus contributing to the development of antibiotic resistance. Therefore, it is strongly recommended to educate the population about the safe and effective use of antibiotics. Additionally, improving the health services and legal enforcements to stop over the counter sale of antibiotics would definitely promote a rationale and safe antibiotic use.

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