

# KNOWLEDGE, ATTITUDES AND PRACTICES ON ANTIBIOTIC USE OF A STUDENT POPULATION ATTENDING OPEN UNIVERSITY OF SRI LANKA (OUSL): A DESCRIPTIVE STUDY ON UNDERGRADUATE NURSING STUDENTS

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## INTRODUCTION

Antibiotics are drugs used in the treatment of microbial infections. They are substances produced by the microorganisms that are antagonistic to the growth of other microorganisms. The range of antibiotics is wide and selection of the antibiotic depends on the knowledge of the likely or proved pathogens and the factors relevant to the patient (Bennett P. N. and Brown M. J., 2003). According to WHO health reports, antibiotics are the most commonly prescribed and abused drugs for upper respiratory tract infections (URTIs) (World Health Organization, 1988, 1996).

More than 50% of antibiotics in the world are purchased privately without a prescription from pharmacies or street vendors in the informal sector (Cars, O. and Nordberg, P., 2005). In developing countries the use of antibiotics without medical guidance is largely facilitated by inadequate regulation of the distribution and sale of prescription drugs (Byarugaba, D. K., 2004) (Hart CA, *et al.*, 1998).

In the United States of America and Europe, self-medication is practiced particularly for colds and upper respiratory tract symptoms, which are self-limiting and mostly caused by viruses (Grigoryan, L., *et al.*, 2007) (Väänänen M. H., *et al.*, 2006) The emergence and spread of resistance related to the irrational use of antibiotics is a main global public health problem (World Health Organization; 2007).

## METHODOLOGY

A descriptive study was conducted to assess the knowledge, attitudes and practices on antibiotic use among the undergraduate students of nursing (Level 05) attending the Faculty of Natural Sciences, OUSL. The study group was already employed nurses at the government sector and they were diploma holders. Data were collected during the year 2013.

The sample size was calculated by considering confidence level: 95%, confidence interval: 5 and population size: 430. Calculated sample size (N) was 203. A pretested interviewer-administered questionnaire was used as the data collection tool and it was given after obtaining informed written consent. (n= number of participants responded)

The data were analyzed using EXCEL version 2010 and each question was analyzed individually. Ethical approval was granted by the Ethical Review Committee of the University of Sri Jayewardenepura, Sri Lanka.

## RESULTS AND DISCUSSION

### Demographic characteristics

The response rate was 100%. The median age of study participants was 30 years

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(IQR = 27–46 years). Female study participants accounted for 97.5% (n = 203). Majority of nurses (54.18%, n=179) were having income LKR. 21,000.00 to LKR.30, 000.00.

All of the study participants (100%, n= 203) responded that they have heard about antibiotics similar to the findings of Changhua *Chen et al.*, (2005). All the respondents had heard about Methicillin-Resistant *Staphylococcus aureus* (MRSA).

### **Knowledge on use of Antibiotics**

Majority of participants (70.3%, n=199) responded that microbes are used as a natural source of antibiotics. Only 48.6% (n=185) participants knew that antibiotics are needed for hepatitis while 99.5% (n=200) responded that antibiotics should be given to the sore throat caused by bacteria. Participants responded that antibiotics are not required for treatment of common cold (77.4%, n=186) and for every infectious disease (46.4%, n=194). Fifty seven percent of the participants (n=200) responded that antibiotics will not resolve the symptoms of flu and common cold. However common cold (32.0%) and sore throat (20.6%) has been identified as the most frequent indications for the use of self-medicated antibiotics according to Grigoryan L, *et al.*, (2007).

Participants responded for the commonly used antibiotics as Amoxicillin (98.5%, n=203), Penicillin (91.3%, n=184) and Cephalexin (92.0%, n=187). A study done by Grigoryan L, *et al.*, (2007) also found Amoxicillin as a commonly prescribed antibiotic. All participants responded (100%, n=203) that antibiotics should be given at the correct time interval and (100%, n=202) were known that some antibiotics may have side effects. This high level of knowledge may be due to the fact that the study group comprised of already employed nurses.

A majority of participants (81.5%, n=200) responded that antibiotics should be taken for the prescribed time duration. Eighty three percent (n=195) of participants knew that any antibiotic cannot be given to pregnant mothers while 75.6% (n=201) of participants responded that any antibiotic cannot be given to children (below 12 years). These high correct response rates may be due to the study group being already practicing nurses.

Further 99.4% (n=197) of participants responded that inappropriate use of antibiotics may lead to antibiotic resistance and 96.9% of the participants (n=199) responded that frequent administration of antibiotics without a correct cause, can develop resistance to antibiotics. Further the participants responded that the possibility of emergence of antibiotic resistant bacteria can be due to not administering at prescribed intervals (83.8%, n=201) and not administered for the prescribed time period (77.4%, n=195). Similar findings were found in studies done by Spellberg B., *et al.*,(2008) and de Silva N., *et al.* (1995)

### **Attitudes on use of Antibiotics**

The study findings indicated that majority of the sample agreed 90.1% (n=202) that antibiotics should be always prescribed by a physician and 64.9% (n=202) most of the upper respiratory tract infections are self-cured even without the use of antibiotics. Participants showed positive attitudes on completing the antibiotic treatment for the prescribed treatment schedule 89.6% (n= 201) even when symptoms decrease and 57% agreed on same fact in a study done among public in Kuwait (2015).

All participants agreed that 100.0% (n= 203) previous incidence of allergies should be informed to the doctor and 98.5% (n= 203) of respondents agreed that side effects due to antibiotics should be immediately reported to the doctor. However more than half of the participants disagreed on the fact that antibiotics can be used safely without previous consultation of a physician 85.1% (n=201), and correct time intervals is not important when taking antibiotics 92.4% (200). The high correct response rates may be due to the education given to the nurses and their experience. Seventy three percent (n=203) responded that antibiotic resistance is not a problem as there will be new antibiotics produced and are in

contrast to findings in a study done by Lilian M. Abbo., *et al* (2013) where it was responded as 20% by US medical students.

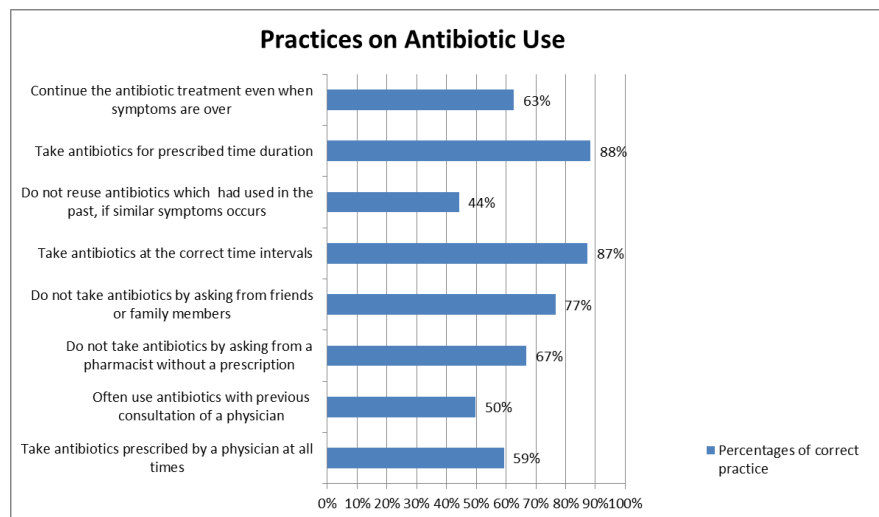
### Practices on use of Antibiotics

The findings of the practices on antibiotic use revealed the following (Figure 1).

More than 80% of the participants indicated that antibiotics should be taken at the correct time intervals (87%, n=198) and for prescribed time duration (88%, n=198)

Sixty three percent of the participants (n=109) continued the antibiotic treatment even when symptoms are over and they were taking antibiotics for prescribed by a physician at all times. Similar results were found in a study done on antibiotic resistance and usage by third and fourth year medical students in India by Rekha M.S., *et al.* (2014)

Fifty percent of the participants were often taking antibiotics with previous consultation of a physician, which was 64.29% in study done by Rekha M.S *et al.* (2014). However 44% (n=201) of the participants were reusing antibiotics which they had used in the past, if similar symptoms occurs which can be due to the knowledge and easy access to the medicines for nurses.



**Figure 1.** Nurses practices towards Antibiotic Use

### CONCLUSIONS / RECOMMENDATIONS

In conclusion, the study results indicated that the majority of nurses' had good level of knowledge regarding antibiotic use, correct time interval (frequency of administration), continuing the treatment for prescribed duration and side effects that might occur due to antibiotics. All the respondents had knowledge on antibiotic resistance due to inappropriate use of antibiotics and use of antibiotics for flu or cold conditions.

The study group had correct practices on continuation of antibiotic treatment for the prescribed duration, frequency and getting prescribed antibiotics always by a physician. Furthermore, it is recommended to compare the knowledge, attitudes and practices of these undergraduates nursing students with some other undergraduate student group.

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## **ACKNOWLEDGMENTS**

The director and the Ethical Review Committee and the all the participants of the study.