

## ANTIBIOTICS USE BEHAVIOUR AMONG STUDENT OF SIRINDHORN COLLEGE OF PUBLIC HEALTH, UBONRATCHATHANI IN THE ACADEMIC YEAR 2014

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### ABSTRACT

Antibiotic resistance has been rising as a global problem. Appropriate antibiotic use would be the way out for this problem during the increasing use of antibiotics. The aims of this descriptive study were to investigate students' knowledge, behaviours on antibiotic use and also to study any factors affecting those behaviours. The students in the academic year 2014 of Sirindhorn College of Public Health were selected in the research. Stratified random sampling was employed to collect the sample of 223 students. The questionnaire was measured using the Kuder Richardson 20 (KR20, for measures with dichotomous choices) which was reliability coefficients at 0.60 and Cronbach's Alpha (for non-dichotomous choices measures) which was reliability coefficients at 0.83. The data was statistically analyzed using percentage, mean, standard deviation, Pearson Correlation, One-way ANOVA and T-test. The findings indicated that 72.7% of respondents was high knowledgeable about antibiotics ( $18.15 \pm 2.77$ ) and 69.5% had appropriate behaviour on antibiotic use at good level ( $42.00 \pm 4.43$ ). Students' knowledge about antibiotics was significantly correlated to behaviour on antibiotic use ( $p < 0.0001$ ). Moreover the factors including gender, age, experience of antibiotic, academic year, study program and personal advice were significantly associated to knowledge score and behaviour on antibiotic use ( $p < 0.05$ ). In conclusion, educational program should be developed to promote the proper use of antibiotic and to prevent misconceptions, misuse and its related risks of antibiotic use.

KEYWORDS: *antibiotics, antibiotics use behaviours, personal factors*

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### INTRODUCTION

The increase and spread of antibiotics resistance is the most urgent public health problem. This irrational use arises from the economical factors, health policies concerning medical insurance, lack of physicians' concerns about long term resistance and effect versus treating current symptoms, pharmaceutical marketing and the sale of antibiotics without prescription in some countries [9,10]. In Thailand, physicians or pharmacy personnel prescribe antibiotics to more than half of the adults with an influenza-like illness or for the common cold [1,3]. Inappropriate use of antibiotics increases

the development of resistant strains of pathogens [5]. The prevalence of penicillin-resistant *Streptococcus pneumoniae* isolates in Thailand has increased from 63% in 2002-2003 to 69% in 2004-2005 [13].

Factors associated with the unnecessary use of antibiotics include: health providers' knowledge, perceived patient demand, and patient expectations [8,11,15]. Specifically, physicians frequently state that patient expectations influence their prescribing decisions [8]. Numerous studies have reported that patients often have misconceptions on indications for necessary antibiotic use, and this contributes to a greater expectation for using antibiotics [12,15].

The level of patient education may be related to these factors. Knowledge and attitudes towards antibiotic use has been shown to be a good predictor of the correct use of antibiotics by patients [4,16]. However, these studies have primarily been done in developed countries. A better understanding of patients' knowledge, attitudes, and behaviours about antibiotic use in developing countries should be gained. In Sirindhorn College of Public Health, the appropriate use of antibiotics is part of the curriculum and taught in students for all programs. Students will be worked in public health field after they graduated and they should be a good role model in health. The aim of study was to investigate level of knowledge, antibiotics use behaviour and factors affecting knowledge and antibiotics used behaviours of students in Sirindhorn College of public health, Ubonratchathani concerning the use, awareness about resistance toward and self-medication.

## MATERIALS AND METHODS

The study was carried out by stratified random sampling of 223 students from pharmacy technician and emergency medical technician diploma, bachelor of community public health and dental public health program at Sirindhorn College of public health, Ubonratchathani in the academic year 2014. The self-reported questionnaires were analyzed by Kuder Richardson 20 was 0.60 and Cronbach's alpha coefficient was 0.83. The data were analyzed using percentage, mean, standard deviation, Pearson Correlation, One-way ANOVA and t-test. The Ethics Committee of Sirindhorn College of public health, Ubonratchathani approved this study (SCPHUB S014/2557) on April 8, 2014.

## RESULTS AND DISCUSSION

The majority of respondents (63.7%) were female, age 18-20 years (73.5%). The year of studying and study program were explored as shown in Table 1. More than half of respondents (58.2%) claimed that they had used antibiotics at least once during the past year, one-quarter (22.0%) are using antibiotics whiles this study and antibiotics such as amoxicillin, dicloxacillin and penicillin are the most frequently used.

**Table 1.** Demographic data of respondents (n=223)

	n (%)
<b>Gender</b>	
Male	81(36.3)
Female	142 (63.7)
<b>Age</b>	
18-20 years	164(73.5)
21-23 years	51(22.9)
24-26 years	3(1.3)
≥ 27 years	5(2.3)
<b>Study year</b>	
1 <sup>st</sup> year students	81(37.7)
2 <sup>nd</sup> year students	75(33.6)
3 <sup>rd</sup> year students	44(19.7)
4 <sup>th</sup> year students	20(9.0)
<b>Study program</b>	
Bachelor of community public health	81(36.3)
Bachelor of dental public health	70 (31.4)
Diploma of pharmacy technician	39(17.5)
Diploma of emergency medical technician	33(14.8)

However, 3.1% of respondent shown drug allergy and drug hypersensitivity from penicillin. The main sources of antibiotic information were physicians pharmacist and others medical personnel (94.6%), family members (4.5%) and friends (0.9%). According to scoring of respondents' knowledge of antibiotics, the most of respondents (72.7%) had been good knowledge (8.15 ± 2.77). The majority of the respondents (97.3%) knew that antibiotics can cause ADRs such as rash, diarrhea, abdominal pain, nausea/vomiting, drug fever, hypersensitivity (allergic) reactions. The respondents' knowledge and believes of antibiotics are shown in Table 2. On average, 69.5% of all respondents had the appropriate behaviours of antibiotics use in good level (42 ± 4.43).

**Table 2.** Respondents' knowledge and believes of antibiotics

Knowledge and Believes	n (%)
Antibiotics are effective in treating bacterial but not viral infections	204 (91.5)
Unnecessary use of antibiotics causes drug resistance	185 (83.0)
Antibiotics can cause adverse drug reactions (ADRs)	
Yes	217 (97.3)
No	6 (2.7)
Antibiotics could be harmful for children's teeth	
Yes	164 (73.5)
No	59 (26.5)
Frequent incomplete the treatment course of antibiotics contributes to the drug resistance	
Yes	185 (83.0)
No	38 (17.0)

However, respondents' knowledge given low related with antibiotics use behaviour (r =.363) as represented in Table 3. The experience of antibiotic used, study year and age were associated with knowledge of antibiotics (Table 4) and also factors such us gender, experience of antibiotic used, study year and personnel advise were related to antibiotics used behaviours, Table 5. The results show that: gender, age, experience of antibiotic, academic year, study program and personal advice were

significantly associated to knowledge score and behaviours on antibiotic use ( $p < 0.05$ )

**Table 3.** Relation of knowledge associated with antibiotics use behaviours

Behaviour of antibiotics use	Knowledge of antibiotics use	
	Pearson Correlation (r)	Sig.
	0.363	0.000**

$p < 0.01$

The uncontrolled use of antibiotics is a well-established reason for antibiotic resistance due to the emergence of virulent strains of resistant microbes, which seriously jeopardizes health [2, 6,7,14]. The results of this study indicated that knowledge and attitude of respondents did not necessarily reflect on their behaviours. This was evident by the high rate (58.2%) of consumption of antibiotics among students, as well as their self-medication, and irregular patterns of antibiotic use.

**Table 4.** Factors associated with knowledge of antibiotics

Variable	t-value	Sig.
Experience of antibiotic used	4.477	0.000**
	F-value	Sig.
Study year	6.525	0.000**
Age	2.745	0.044*

$p < 0.05$

**Table 5.** Factors related with antibiotics use behaviours

Variable	t-value	Sig.
	4.477	0.000**
Gender	-2.809	0.005**
Experience of antibiotic use	-2.550	0.011*
	F-value	Sig.
Study year	6.525	0.000**
Personnel advise	3.520	0.031*

$p < 0.05$

## CONCLUSION

Knowledge, attitudes, and behaviours regarding antibiotic use are found to be inappropriate among students in Sirindhorn College of Public Health, Ubonratchathani. The educational program for students should be developed to promote the proper use of antibiotic and to prevent misconceptions, misuse and its related risks of antibiotic use. Praboromarajchanok Institute for Health Workforce Development, Ministry of Public Health should inspect knowledge of student, especially those who study in others programs; community public health, dental public health and emergency medical technician. Furthermore, the content of antibiotic use should be taken into account in health education. Health education, including information on the issue of antibiotic resistance, is important among

consumers. Targeted strategies in the college could include written information using newsletter, brochures, media via radio, television, e-learning and media of the Antibiotics Smart Use program.

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