

## Knowledge on Rational Drug Use among Village Health Volunteers in a Municipal Hospital in Thailand: A Cross-Sectional Study

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### Abstract

**Objective:** To assess the knowledge on rational drug use of all village health volunteers (VHVs) affiliated with a municipal hospital, Nakhon Si Thammarat province. **Methods:** The researcher measured the knowledge on rational drug use by using the scale on health literacy and health behaviors among VHVs and adult with working age developed by the Department of Health Services Support, Ministry of Public Health. This questionnaire consisted of 5 domains including drug use according to the instruction on labels and containers, advertising literacy, drug purchasing and use, understanding the meaning of medical terms, and access to drug information. **Results:** Of all 139 VHVs who participated, the average knowledge score on rational drug use was 16.51 (SD = 5.79) out of 28. The average score on drug use according to the instruction on labels and containers was 4.31±1.74 out of 6. The average score on understanding of the medical terms was 7.17±3.00 out of 10. The average score on drug purchasing and use was 3.31±1.07 out of 5. The average score on advertising literacy was 2.34±1.36 out of 7. **Conclusion:** VHVs affiliated with this municipal hospital should attend additional training on drug purchasing and use, and advertising literacy.

**Keywords:** knowledge on rational drug use, rational drug use, village health volunteer, antibiotic stewardship

Received: Dec 14, 2021, Revised manuscript received: Feb 2, 2022, Accepted: Feb 6, 2022

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## ความรู้เกี่ยวกับการใช้ยาอย่างสมเหตุสมผลของอาสาสมัครสาธารณสุขประจำหมู่บ้าน ณ โรงพยาบาลเทศบาลแห่งหนึ่งในประเทศไทย: การศึกษาแบบภาคตัดขวาง

ศิราณี ยงประเดิม, กันต์ฤทธิ์ สังฆะโน, ชุติกาญจน์ สุขทิพย์, ชนาภรณ์ ไกรมาก,  
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### บทคัดย่อ

**วัตถุประสงค์:** เพื่อประเมินความรู้ความเข้าใจในการใช้ยาอย่างสมเหตุผลของอาสาสมัครสาธารณสุขประจำหมู่บ้าน (อสม.) ทั้งหมดที่สังกัดโรงพยาบาลเทศบาลแห่งหนึ่งในจังหวัดนครศรีธรรมราช **วิธีการ:** ผู้วิจัยประเมินความรู้ด้วยแบบสอบถามเกี่ยวกับการใช้ยาอย่างสมเหตุผลด้วยแบบประเมินความรอบรู้ด้านสุขภาพและพฤติกรรมสุขภาพของอาสาสมัครสาธารณสุขและประชาชนวัยทำงานที่พัฒนาโดยกรรมสัมปันธ์ บนบริการสุขภาพ กระทรวงสาธารณสุข แบบสอบถามประกอบด้วยคำถาม 5 ด้าน ได้แก่ การใช้ยาตามจลักษณ์ของยา การรู้ทันสื่อโฆษณา การเลือกซื้อและใช้ยา การเข้าใจความหมายของคำศัพท์ และการเข้าถึงข้อมูลสุขภาพ **ผลการวิจัย:** อสม. ตอบแบบสอบถามทั้งหมด 139 ราย ได้คะแนนเฉลี่ยรวมทั้งหมด 16.51 (SD = 5.79) จากคะแนนเต็ม 28 คะแนน ความรู้ด้านการใช้ยาตามจลักษณ์ของยาเฉลี่ย คือ  $4.31 \pm 1.74$  (คะแนนเต็ม 6 คะแนน) การเข้าใจความหมายของคำศัพท์เฉลี่ย คือ  $7.17 \pm 3.00$  (คะแนนเต็ม 10 คะแนน) การเลือกซื้อและใช้ยาเฉลี่ย คือ  $3.31 \pm 1.07$  (คะแนนเต็ม 5 คะแนน) และการรู้ทันสื่อโฆษณาเฉลี่ย คือ  $2.34 \pm 1.36$  คะแนน (คะแนนเต็ม 7 คะแนน) **สรุป:** อสม. ประจำโรงพยาบาลเทศบาลแห่งนี้ควรได้รับการอบรมความรู้เพิ่มเติมเรื่องการเลือกซื้อและใช้ยาและเรื่องการรู้ทันสื่อโฆษณาให้มากขึ้น **คำสำคัญ:** ความรู้เกี่ยวกับการใช้ยาอย่างสมเหตุผล การใช้ยาอย่างสมเหตุผล อาสาสมัครสาธารณสุขประจำหมู่บ้าน การใช้ยาต้านจุลชีพอย่างสมเหตุผล

## Introduction

Nowadays, in Thailand, primary healthcare services including treatment, prevention, promotion, and rehabilitation are part of the responsibility of Village Health Volunteers (VHVs). VHVs are ordinary persons in the villages who volunteer to be trained in basic health knowledge following the curriculum established by the Ministry of Public Health (1). The roles of VHVs include providing health services such as first aid and basic pharmacologic treatment within the scope specified by the Ministry of Public Health.

Several studies indicated the important roles of VHVs in surveillance and preventing health problems in the village (2), such as diabetes mellitus and other chronic diseases (3,4). Moreover, success in controlling the spread of the Coronavirus disease (COVID -19) was partly due to the VHVs (5,6). Hence, VHVs should have enough knowledge, especially the appropriate use of medicines and health products, in order to be able to support rational drug use among people.

World Health Organization has set the Rational Drug Use scheme a priority since 1985 (7). In Thailand, the government has established the rational drug use strategy as a part of national drug system strategy since the fiscal year of 2017. One of the factors that the Ministry of Public Health has set as an indicator of the rational drug use is "knowledge of reasonable drug use", which is defined as an individual's ability to access, understand health product data, scrutinize, evaluate and make decision, in order to modify their health behavior, choose appropriate health services and products (8).

There are many studies on the health literacy of VHVs, including the knowledge of chronic disease prevention (9), dengue fever (10), and avian influenza (11). However, the literacy in rational drug use of VHVs still has not well studied. To the best of our knowledge, there were only a few studies relating to rational drug use which were published in Thailand, and none of them was conducted in Nakhon Si Thammarat province.

Therefore, this study aimed to investigate the level of knowledge on rational drug use of VHVs in Nakhon Si Thammarat province. The results from this study can be used for organizing activities to improve the knowledge of rationale drug use among VHVs in this area, and then improve population's medication use in this area.

## Methods

The study was approved by the Ethics Committee on Human Research, Walailak University, Nakhon Si Thammarat province (WU-EC-PH-2-226-62). The study was performed in accordance with the Declaration of Helsinki.

### Participants

This cross-sectional descriptive study was conducted in all VHVs affiliated with a municipal hospital in Nakhon Si Thammarat. The population in this study was all VHVs who were registered in the hospital and worked between January and February 2020. There was no sample size calculation in this study. During our survey, there were only 145 VHVs who met the recruitment criteria. The informed consent was obtained from all the participants.

### Instrument

The questionnaire used for assessment of knowledge on rational drug use in this study was developed by the Rational Drug Use in Community Committee, which was nominated by the Ministry of Public Health. The responsibility of this committee included developing, and testing validity, reliability, and difficulty of the questionnaire. The questionnaire consists of six parts including general information of the respondents, use of drugs according to labels, knowledge about advertising media, drug purchasing and use, understanding the meaning of medical terms, and access to information on drugs and health products. All questions are in multiple-choice format, except for those on access to information on drugs and health products being on 5 points Likert scale. Overall total score of the measure is 28 points, with 6 points for use

of drugs according to labels, 7 points for knowledge about advertising media, 5 points for drug purchasing and use, and 10 points for understanding the meaning of medical terms.

#### **Data collection**

The researchers contacted the study hospital in advance to ensure that a large number of VHV stayed in the hospital at the time and date of data collection. The questionnaire was provided to the VHV who were willing to participate the study. Each person had 15 minutes to complete the questionnaires and handed it to the researchers. The participants were not allowed to look for the answer in any sources or use any equipment for finding the answers.

#### **Data analysis**

The data collected from the questionnaire were analyzed using descriptive statistics.

## **Results**

### **Participants**

Table 1 describes general characteristics of all respondents. Of all 139 VHV participated the questionnaire, 128 (92.1%) was female. There were 36.0%, 27.3%, 26.6% of respondents in the age ranges of 51-60 years old, over 60 years old, and 41-50 years old, respectively. The occupations of most VHV were temporary employee (36.7%), private business (28.8%) and farmer (12.2%). In addition, most of them graduated from primary school (46.8%), followed by high school (21.6%) and secondary school (10.1%), respectively.

### **Knowledge**

Knowledge scores of VHV were shown in Table 2. VHV had the highest knowledge in drug use according to the instruction appeared on labels and in understanding of medical terms (71.83% and 71.70%, respectively). Knowledge of purchasing and using drug was  $3.31 \pm 1.07$  out of 5 (66.20%), and of advertisement assessment was  $2.34 \pm 1.36$  out of 7 (33.42%). The overall knowledge score was poor with the average

score of  $16.51 \pm 5.79$  out of 28 (58.96%). The number of respondents with correct answer in each question was shown in Table 3.

**Table 1.** General characteristics of VHV (n=139).

characteristics	number	percentage (%)
gender		
female	128	92.1
male	11	7.9
age (years)		
21 – 30	1	0.7
31 – 40	13	9.3
41 – 50	37	26.6
51 – 60	50	36.0
>60	38	27.4
highest level		
education	65	46.8
primary school	14	10.1
secondary school	30	21.6
high school	10	7.2
vocational	7	5
certificate	12	8.6
vocational	1	0.7
undergraduate		
postgraduate		
occupation		
temporary	51	36.7
employee	40	28.8
company	17	12.2
employee	13	9.4
farmers	3	2.2
unemployed	2	1.4
private business	1	0.7
pensioner	12	8.6
government officer		
other		
chronic disease		
yes	54	38.8
no	80	57.6
not specified	5	3.6

**Table 2.** Scores of knowledge on rational drug use among VHV (n = 139)

domain	full score	Max	Min	Mean±SD	Percentage of full score
appropriate drug use following the labels	6	6	0	4.31±1.74	71.83
advertising media assessment	7	6	0	2.34±1.36	33.42
purchasing and using of drugs	5	5	0	3.31±1.07	66.20
understanding of medical terms	10	10	0	7.17±3.00	71.70
overall	28	26	0	16.51±5.79	58.96

**Table 3.** Number of respondents with correct answers

domain	question	Number of VHV with correct answers	Number of all respondents	%
appropriate drug use according to the labels	how to take paracetamol	107	132	81.1
knowledge about advertisement assessment	how to administer pediatric medicines (solution)	99	129	76.7
drug use	choosing dose measurement devices	83	112	74.1
the labels	calculation of water volume for oral rehydration salts	89	129	69.0
	selection of suitable solvent for oral rehydration salts	120	132	90.9
	explanation of drug expiration date	99	127	78.0
knowledge about advertisement assessment	evaluating information on traditional medicine labels	34	129	26.4
drug purchasing and use	searching information of traditional medicine	43	132	32.6
the medical terms	verification of the FDA registration no. for traditional medicines	68	126	54.0
	assessment of drug advertisement via radio	25	125	20.0
	evaluating the dietary supplement labels	58	128	45.3
	understanding the Thai FDA sign	37	127	29.1
	understanding the announcement of the FDA	55	121	45.5
drug purchasing and use	medicines for cold and sore throat	118	129	91.5
the medical terms	medicines for muscle aches	108	132	81.8
	medicines for diarrhea	119	131	90.8
	matching generic drug names and their trademarks	30	125	24.0
	law on drug distribution	65	121	53.7
understanding the medical terms	paracetamol	115	122	94.3
	calories	100	115	87.0
	cholesterol	100	115	87.0
	steroid	93	116	80.2
	amoxicillin	55	111	49.5
	milliliter	105	114	92.1
	virus	111	117	94.9
	sodium	81	114	71.1
	drug allergy	112	117	95.7
	antibiotic	61	117	52.1

**Table 4.** Sources of health information that respondents had previously obtained or searched for (n = 139).

sources of health information	number of VHVs who received information (%)	number of VHVs who search information (%)
healthcare professionals	85 (80.2%)	62 (65.3%)
family/neighbors	46 (43.4%)	29 (30.5%)
online media	42 (39.6%)	50 (52.6%)
print media	36 (34.0%)	27 (28.4%)
radio/television media	34 (32.1%)	0 (0.0%)
other	6 (5.7%)	3 (3.2%)

Regarding the access to information on medicines and health products, 5% of respondents had never received any information and 10.1% of respondents had never searched for information on medicines and health products by any means such as internet, books, or expert opinion. Among those who had received the information, most of them had received from health professionals (80.2%), followed by family/neighbors (43.4%), online media (39.6%), print media (34.0%), radio/television media (32.1%), and other media (5.7%). Likewise, the VHVs with experiences in searching information on drugs and health products were most likely to obtain the information from health professionals (65.3%), followed by online media, family/neighbors, print media, and other media (52.6%, 30.5%, 28.4, and 3.2%, respectively) (Table 4).

## Discussion

Based on the results from this study, the knowledge score on appropriate drug use according to the labels among VHVs in a municipal hospital in Thailand was 4.31 out of 6 marks. This was sensible since VHVs have responsibility for providing health education and advice to people in community, using medicines following the indications and instructions on the drug labels should be the expertise of most VHVs. A study by Komwong and Sangkhawat also found that the VHVS in Bo Kwang Thong sub-district, Bo Thong district, Chonburi province, had a good level (mean

score of 82.8%) of drug use behavior including correct drug use (13). Similarly, this study indicated that most VHVs knew how to use simple medicines such as paracetamol, to administer solution for pediatrics, to use dose measurement devices, to dissolve the Oral Rehydration Salts, and to tell drug expiration date.

The knowledge on medical terms was the other aspect that most VHVs correctly answered. Nevertheless, fewer participants correctly answered the questions on antibiotic or antimicrobial drugs than the questions on other drugs and health products. Similar results were reported in the study by Wattanakul et al. VHVs in Don Kaeo sub-district, Mae Rim district, Chiang Mai province, had a moderate level of knowledge on antibiotics (14). Other studies have also reported low to moderate levels of knowledge on antibiotics among VHVs (15,16). This emphasizes the importance that VHVs in Nakhon Si Thammarat and probably other provinces in Thailand really need to be trained more on antibiotic usage.

With regard to the aspect of drug purchasing and use, participants in this study had the mean score of 66.20%. Unlike these results, a previous study found that most of VHVs in Ban Khai district, Rayong province, had the knowledge score of 58.0% on safe and appropriate use of drug. The mean score of behavior on safe and appropriate use of drug was 69.14% (17). It should be noted that, however, the mentioned study used different measures which might result in differences in the conclusion from this study. Therefore,

more training relating to drug purchasing and using should be provided to VHVs at least in Nakhon Si Thammarat province, but could also to all VHVs in Thailand.

The domain that the respondents received the lowest scores was media literacy with the average score of 33.42%, implying that they might not be familiar with evaluation of the advertising of health products. According to the study by Tachavijitjaru et al., all VHV training courses in Thailand were arranged as lectures to transfer ready-to-use knowledge with no session to practice critical thinking skills (18). Therefore, skills in application of the acquired knowledge to real situations might not be adequate in the trained VHVs. In addition, the average age of the participants in this study was over 51 years, consequently having slow learning ability and less memorizing ability (15). These factors might contribute to the lack of media literacy skills among VHVs. According to the results in this present study, rigorous training of news and advertisement evaluation is strongly recommended to all VHVs in Thailand in order to prevent them from spreading fake news to other people in the villages.

The majority of VHVs received and needed to obtain information from healthcare professionals such as physicians, pharmacists and nurses. These results spotlighted the essence of contact between VHVs and other healthcare professionals. VHVs are people who volunteered to be shortly trained in order to help other healthcare professionals, so healthcare professionals should frequently provide them updated and more health information to maximize their capability to help patients and other people in their villages.

There were some limitations that should be discussed in this study. Firstly, this study was performed in VHVs in only one setting with small sample size, so the results might not be generalizable to VHVs in other areas in Thailand. However, according to the previous studies (13,14,17), the literacy of most VHVs in Thailand was approximately at moderate level. Secondly, this

study did not aim to find an association between the knowledge of VHVs and their characteristics. Indeed, some characteristics such as highest education and number of training course might correlate to the knowledge of respondents, thus further studies should consider these factors.

## Conclusion

The average knowledge score of rational drug use among VHVs in a municipal hospital in Nakhon Si Thammarat was 16.51 out of full score of 28 with 4.31 out of full score of 6 in knowledge of drug use according to the instruction on the labels and 7.17 out of full score of 10 in understanding of medical terms. The respondents had an average score of 3.31 out of full score of 5 in knowledge on drug purchasing and use and 2.34 out of full score of 7 on knowledge about advertising literacy. Therefore, the training courses for VHVs in Nakhon Si Thammarat should strengthen the skills in the domains with low scores such as drug purchasing and use, and advertising literacy.

## Acknowledgement

The authors would like to thank all participants who made the study possible.

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