Knowledge of Rational Drug Use Among Village Health Volunteers in a Municipal Hospital in Thailand

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Abstract

Village health volunteers (VHVs) are key factors to improve and maintain health status in the Thai population, especially in rural areas. Knowledge in rational drug use of VHVs is essential to help Thai people use medicines appropriately. Therefore, this study aimed to investigate the literacy of VHVs relating to rational drug use in a municipal hospital, Nakhon Si Thammarat province, Thailand. The literacy score was assessed using the questionnaire that was developed based on the Rational Drug Use Manual by the Ministry of Public Health. This questionnaire consists of 5 aspects, including the understanding of drug labels, advertisement evaluation, drug purchasing and using, understanding the meaning of medical terms, and access to drug information. The results were analyzed and described as frequency and percentage. Of all 139 VHVs who participated in the questionnaires, the average score of rational drug use literacy was 16.51 (SD = 5.79) out of 28 (58.96%), which was defined as poor level. Considering by aspects, it was found that the scores in the drug label literacy and understanding of the medical terms were at good levels. Drug purchasing and using aspect was at a moderate level. The advertisement assessment aspect was at a poor level. In conclusion, the results in this study indicated that VHVs in a municipal hospital, Nakhon Si Thammarat province, Thailand, should strengthen the knowledge relating to evaluation of advertising media and purchasing and using of drugs.

Introduction

Nowadays, in Thailand, primary healthcare services including treatment, prevention, promotion, and rehabilitation are responsibility of health officers in Sub-district Health Promoting Hospitals (SDHPHs). The ratio of population per SDHPH is approximately 10,000 and the number of healthcare professionals in each SDHPH varies from 4–14 persons depending on size of hospitals. Generally, a healthcare personnel in SDHPH has to perform several health-relating activities, so the system of Village Health Volunteers (VHVs) was developed to be the important assistants in primary healthcare system of Thailand.

Village Health Volunteers are normal persons in the villages who volunteer to be trained in basic health knowledge following the curriculum established by the Ministry of Public Health (1). In order to be the VHVs, they must attend the training course and pass the tests. Additionally, the VHV certificate lasts only 4 years and VHVs must be trained and reassessed to continue their job. The roles of VHVs are changing patient's wrong health behavior, providing public health information, and planning and coordinating public health promotion activities. In addition, other 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. The performance of VHVs is closely supervised by healthcare officers in SDHPHs.

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 Coronavirus disease (COVID – 19) was partly due critically to the VHVs (5, 6). One VHV is responsible for caring of approximately 10–15 households, resulting in closely monitoring in

holistic health. 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 Rational Drug Use scheme a priority since 1985. The Rational Drug Use was defined as "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (7). For 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 have not well studied. Therefore, this study aimed to investigate the level of knowledge on rational drug use of VHVs in a municipal hospital, Nakhon Si Thammarat province, Thailand. The results from this study can be a guidance for organizing activities to improve the knowledge of rationale drug use among VHVs in Thailand.

Materials And Methods

This cross-sectional descriptive study was performed among VHVs in a municipal hospital, Nakhon Si Thammarat province, Thailand. One hundred and forty-five village health volunteers who worked between January and February 2020 were recruited. The methodology of the study was approved by the Ethics Committee on Human Research, Walailak University, Nakhon Si Thammarat province (WU-EC-PH-2-226-62).

The questionnaire for assessment of rational drug use literacy was developed. The form consists of six parts including general information of the respondent, 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. Total score of the questionnaire was 28. The difficulty of developed questionnaire was assessed based on the Difficulty Index formulation by Hopkins and Antes (12). The difficulty index of the aspects of drug use following labels, assessment of advertisement, selection and use of drugs, and understanding of medical terms were 0.22, 0.64, 0.32, and 0.20, respectively. The results, therefore, indicated that the developed questionnaire was not too difficult to make all respondents unable to answer questions correctly.

Data from the questionnaire was analyzed using descriptive statistics. The results were reported as percentage, mean, and standard deviation. The obtained knowledge scores were categorized into levels based on the standard literacy classification criteria of Ministry of Public Health (13); the scores were classified into poor (< 60%), moderate (60 - <70%), good (70 - <80%), and excellent ($\geq$ 80%) levels.

Results

Table 1 describes general characteristics of all respondents. Of all 145 VHVs registered at the hospital, 139 VHVs participated the questionnaire with 92.1% 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 VHVs 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.

Table 1 General characteristics of village health volunteers who responded to the questionnaire (*n* = 139).

Characteristics	Number	Percentage (%)
Gender		
Female	128	92.1
Male	11	7.9
Age		
21 – 30	1	7.0
31 – 40	13	3.9
41 – 50	37	6.26
51 – 60	50	36.0
>60	38	27.4
Highest level education		
Primary school	65	46.8
Secondary school	14	10.1
High school	30	21.6
Vocational Certificate	10	7.2
Vocational	7	5
Undergraduate	12	8.6
Postgraduate	1	0.7
Occupation		
Government Officer	1	0.7
Private business	40	28.8
Temporary employee	51	36.7
Company employee	3	2.2
Farmers	17	12.2

Characteristics	Number	Percentage (%)
Unemployed	13	9.4
Pensioner	2	1.4
Other	12	8.6
Chronic disease		
Yes	54	38.8
No	80	57.6
Not specified	5	3.6

The knowledge scores of VHVs and the levels of knowledge are shown in Table 2. When classified by topic, it was found that VHVs had the highest literacy in drug use following labels and in understanding of medical terms (71.83% and 71.70%, respectively). Knowledge of purchasing and using drug was at a moderate level (66.20%), and of advertisement assessment was at a poor level (33.42%). The overall knowledge score of all four aspects was at poor level with the average score of 16.51 ± 5.79 out of 28 (58.96%). The number of respondents who answered each question correctly is provided in Table 3.

Table 2 Maximum score, minimum score, mean, standard deviation, percentage and knowledge level of all participated village health volunteers ($n = 139$)

Aspects of assessment	Total score	Maximum score	Minimum score	Mean $\pm$ SD	Percentage of responses with full marks	Level of rational drug literacy
Appropriate drug use following the labels	6	6	0	4.31 $\pm$ 1.74	71.83	Good
Advertising media assessment	7	6	0	2.34 $\pm$ 1.36	33.42	Poor
Purchasing and using of drugs	5	5	0	3.31 $\pm$ 1.07	66.20	Moderate
Understanding of medical terms	10	10	0	7.17 $\pm$ 3.00	71.70	Good
All aspects	28	26	0	16.51$\pm$5.79	58.96	Poor

Table 3 Number of respondents who correctly responded to the questionnaire by aspect

Aspect	Topic of question	Number of correct answers	Number of all respondents	Percentage of correct respondents
Appropriate drug use according to the labels	How to take paracetamol	107	132	81.1
	How to administer pediatric medicines (solution)	99	129	76.7
	Choosing dose measurement devices	83	112	74.1
	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
	Searching information of traditional medicine	43	132	32.6
	Verification of the FDA registration numbers 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 using	Medicines for cold and sore throat	118	129	91.5
	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

Aspect	Topic of question	Number of correct answers	Number of all respondents	Percentage of correct respondents
	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

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. 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 VHV's with experience in searching information on drugs and health products most likely searched 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).

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

Sources of health information	Number of those who received information (%)	Number of those 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%)

Discussion

The results showed that the literacy of drug use following labels and understanding of medical terms among VHVs in a municipal hospital in Thailand was at good level. 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 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 (14). Furthermore, the above-mentioned tasks of VHVs made them familiar with many medical terms such as calories, cholesterol, virus, drug allergy, as well as drug terminology, e.g. steroids, amoxicillin, and antibiotics. Therefore, high number of correct responses to the questions of medical terms was observed in this study.

However, considering the questions relating to antibiotic or antimicrobial drugs, fewer number of participants answered these questions correctly than the questions about drugs and other health products. Similar results were reported in a study by Wattanakul et al; VHVs in Don Kaeo sub-district, Mae Rim district, Chiang Mai province, had moderate level of knowledge of the rational antibiotic use (15). Also, other studies have reported low to moderate levels of knowledge about antibiotics among VHVs (16, 17).

With regard to the aspect of drug purchasing and using, participants in this study had moderate level of knowledge (mean score of 66.20%). Unlike these results, a previous study found that most of VHVs in Ban Khai district, Rayong province, had a high level (mean score of 58.0%) of knowledge about using drug safely and appropriately. Also, the behavior of using drug safely and appropriately was at high level (mean score of 69.14%) (18). It should be noted that, however, the mentioned study used different questionnaire and criteria for level classification, which might result in differences in the conclusion from this study.

The aspect that the repondents received the lowest scores was media assessment literacy with th average score of 33.42%; meaning is might not be familiar with evaluation of the advertised information of health products. According to the study by Tachavijitjaru and colleagues, all VHV training courses in Thailand were performed as ready-to-use knowledge to memorize and there was no sesstion to practice critical thinking skills of the trainees (19). Therefore, skills in application of the acquired knowledge to real situations might not be developed in the trained VHVs. In addition, the average age of the participants in this study was over 51 years, consequently slow learning ability and less memorizing ability (16). These factors might contribute to the lack of advertising media assessment skills among VHVs.

Based on the results from this study, over 80% of participants were previously informed and searched for information about drugs and other health products. The information was mostly obtained from health professionals by either informed or searching because VHVs had to work closely to medical staff to provide health information publicly. Furthermore, healthcare professionals were highly reliable source, so most VHVs chose to consult them for health information. It is worth to mention that 52.6% of the

respondents had searched some health information via online because access to the internet was more convenient than contacting medical staff. However, in case if the receivers had lack of skills to assess the reliability of the received online information, there was a high risk that they would achieve fraud or incorrect information (20). Because of the low level of media assessment literacy among the respondents, the awareness of getting health information from the internet should be raised among all VHVs in Thailand.

There were some limitations that should be discussed in this study. Firstly, this study were performed in VHVs in only one setting with small sample size, so the results might not be able to be applied on VHVs in other areas in Thailand. However, according to the previous studies (14, 15, 18), the literacy of most VHVs in Thailand should be at moderate level. Secondly, this study did not aim to find an association between the literacy 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.

Conclusions

The average knowledge of Rational Drug Use among VHVs in a municipal hospital in Nakhon Si Thammarat, Thailand, was at moderate level with a good knowledge of drug use following the labels and understanding of medical terms. The respondents had moderate level of knowledge about drug purchasing and using and poor level of knowledge about advertisement evaluation. Therefore, the Ministry of Public Health might improve the training courses for VHVs in Thailand using the results in this study, especially emphasis on thinking and evaluating skills of the trainees.

Abbreviations

COVID -19	Coronavirus disease 2019
SDHPH	Sub-district Health Promoting Hospital
VHV	Village Health Volunteer

Declarations

Ethics approval and consent to participate

This study has been approved by the Ethics Committee on Human Research, Walailak University, Nakhon Si Thammarat province (WU-EC-PH-2-226-62). All participants in the study had to give consent documents to the researchers before answering the questionnaire.

Consent for publication

Not applicable

Availability of data and materials

The datasets used and analysed during the current study are available from the corresponding author on reasonable request because these data relate to the specific hospital.

Competing interests

The authors declare that they have no competing interests.

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All fundings involving this study were from Walailak University. The funding body, however, had no involvement in the design of the study, data collection, analysis, and interpretation of data.

Authors' contributions

S.Y. and K.S. conducted the concept of the study and organized all process of study. S.U. wrote the main manuscript text and prepared all tables. All authors reviewed the manuscript.

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