ORIGINAL ARTICLE

Factors affecting performance of village health volunteers in Sukhothai, Thailand

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ABSTRACT

This descriptive research aimed to investigate the factors affecting performance among village health volunteers (VHVs). The sample participants were 598 VHVs in Sukhothai Province, Thailand. They were selected by using the systematic random sampling technique. In this research, a questionnaire was employed for the data collection, after which the data were analysed by using percentage, mean, standard deviation, and stepwise multiple regression analysis. The study results showed that knowledge, role perception, social support, and work motivation were at a high level, whereas attitude and performance were at a moderate level. Work motivation was the strongest predictor of performance among VHVs, followed by role perception, number of other positions in the communities, knowledge, agricultural occupation, duration of being VHVs, and attitude. In combination, all these factors could predict the performance of the VHVs at 26.5% with a statistical significance of 0.05. According to the study results, related agencies should arrange training programs as a means of enhancing attitude towards work operation and role perception, and should create work motivation of VHVs to further increase their effectiveness of performance.

Key words: performance, village health volunteers, primary health care

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INTRODUCTION

After the International Conference on Primary Health Care in 1978 at Alma-Ata in the Union of Soviet Socialist Republics, the World Health Organisation (WHO) issued the Declaration of Alma-Ata by setting primary health care as the main strategy for the development of health for all people by the year 2000[1]. As a member of the WHO, Thailand signed the charter for WHO health development in 1980 and started to use it as a national health plan to drive the implementation of primary health care with Village Health Volunteers (VHVs). VHVs assume the roles of practitioners in Primary Health Care Centres (PHCC) in the villages around the country, and they are the main mechanism to increase health service access with fairness and people-centredness. They are helpful for problem management in terms of the shortage of health workers needed to achieve the goals for people's good health in developing countries[2-4]. Similarly, other low- and middle-income countries as well as Thailand have VHVs or Community Health Volunteers (CHVs) who are people in the community willing to commit to the service activities of their own communities. They understand their social context and cultures, thereby earning the trust of people in the community[5]. In addition, VHVs are a part of the Thai health workforce according to the systematic building blocks of the WHO framework[6]. Accordingly, Thailand is regarded by the WHO and its members as a country that has developed the best form of volunteerism in the world[7]. Particularly, the situation of the COVID-19 pandemic in 2019 has caused the World Health Organisation to admire the performance of VHVs in terms of the surveillance, prevention, and control of COVID-19 infections. To cope with COVID-19 infections, VHVs have been the main practitioners serving the government. They visit every house in communities in order to educate people, emphasise the importance of social distancing measures, as well as search for at-risk groups of people to access the medical treatment system. As a result, VHVs are recognised as the silent heroes fighting against the COVID-19 pandemic; the VHV system could be a good model for other countries aiming to control COVID-19 infection rates[8]. In addition, VHVs are also responsible for health promotion, including: disease surveillance, prevention and control; rehabilitation; and consumer health protection[9].

According to the overall assessment results of the VHV potential development at Regional Health 2 in 2015 – 2017, the percentages of VHVs who have passed the standard criteria (80% criteria) were 98.54%, 79.55%, and 83.63% respectively. In each province of Regional Health 2, the assessment results of the VHV potential development were as follows. The VHVs in Uttaradit Province who have passed the standard criteria were 98.55%, 75.13%, and 74.63%, respectively. The VHVs in Tak Province who have passed the standard criteria were 98.17%, 81.05%, and 78.41%, respectively. The VHVs in Sukhothai Province who have passed the standard criteria were 96.44%, 71.03%, and 73.48%, respectively. The VHVs in Phitsanulok Province who have passed the standard criteria were 100.00%, 82.85%, and 91.61%, respectively. Finally, the VHVs in Phetchaboon Province who have passed the standard criteria were 99.56%, 85.56%, and 100.00%, respectively[10]. It was found that the number of VHVs in Sukhothai Province who have passed the standard criteria in 2015 – 2017 was lower than the mean of Regional Health 2 and the lowest of the 5 provinces in Regional Health 2. Further, it did not pass the standard criteria in 2016 – 2017. These results were consistent with the results of the VHVs' performance according to the competency standard in

Sukhothai Province. Accordingly, the VHVs' performance was found at the 'moderate' level (60 – 79%) and the 'most' level (52.4%), followed by the 'high' level (80% upward) at 41.7%, and the 'least' level (less than 60%) at 5.9%[11]. Regarding the average responsibility of households, one VHV in Regional Health 2 was responsible for 18 households. In terms of each province in Regional Health 2, one VHV in Uttaradit, Tak, Sukhothai, Phitsanulok, and Phetchaboon was responsible for 15, 11, 18, 18, and 15 households, respectively[12]. The average responsibility for households by one VHV in Sukhothai Province was more than that of one VHV in Uttaradit, Tak, and Phetchaboon, but similar to the responsibility for the number of households by one VHV in Phitsanulok, Regional Health 2. According to these results, Sukhothai Province should be an area to develop VHVs' performance. However, Sukhothai Provincial Public Health Office[13] suggests research and development relating to VHVs' performance, so that the VHVs will be able to perform their work with more efficiency and effectiveness. In addition, according to the review of related papers and research, no study examined VHV performance on the main roles in health promotion; disease surveillance, prevention, and control; rehabilitation; and consumer health protection, or factors with effects VHV performance. Therefore, the researchers were interested in studying the factors affecting the performance of VHVs for developing a VHV operational model to improve VHVs' performance, develop guidelines for VHV potential development, and manage VHV resources. The purposes were to reinforce the quality of health service provision and quality health service access for people as well as to enhance people's self-reliance and further empower the government health workforce.

METHODS

This descriptive research aimed to investigate the factors affecting the performance of VHVs. The research was a part of an advanced mixed methods research design with a multistage evaluation design for a project called The Model of Performance Development for Village Health Volunteers. The study was considered and approved by the Naresuan University Institutional Review Board by using the expedited review method, COA No. 479/2019, IRB No. 0428/62.

The population of the study comprised 12,835 VHVs in Sukhothai Province, Thailand[10]. The sample size was calculated with the estimation formula of the population mean[14], and the resulting sample size was 598 VHVs, who were recruited using the systematic random sampling technique: 1) ranking all names of VHVs in Sukhothai Province based on the registration number; 2) calculating the sampling interval; 3) identifying the random start number, and 4) selecting the sample by using the sampling interval for achieving the required sample size as calculated.

The research instrument was designed by researcher on the basis of a literature review of the related concepts and theories. In the study, a VHV performance questionnaire consisting of 7 parts was distributed, as follows:

Part 1: The general Information section consisted of 14 items including gender, age, marital status, educational level, occupation, average monthly income, use of smartphones, duration of being VHVs, role in the family, number of family members, other positions in the communities, training, supervision, and the number of responsible households. The questionnaire items were presented in the form of multiple-choice items and fill in the blank items.

Part 2: The knowledge section contained 28 questions about: 1) health promotion, 2) disease surveillance, prevention, and control, 3) rehabilitation,

and 4) consumer health protection. The questionnaire items were closed-ended, and each item was in the form of multiple-choice questions with true-or-false answer options. Regarding the score, each correct answer was given 1 point, whereas each false answer was given no score. The content validity index[15] was at 0.67 – 1.00, and KR-21[16] was at 0.70. The resulting scores for knowledge were interpreted in 3 levels[17]: a high level at 80% and above , a moderate level at 60% – 79%, and a low level at less than 60%.

Part 3: The attitude section consisted of 17 questionnaire items: 1) health promotion, 2) disease surveillance, prevention, and control, 3) rehabilitation, and 4) consumer health protection. The questionnaire items were in the form of a rating scale with 5 levels: *absolutely agree*, *agree*, *uncertain*, *disagree*, and *absolutely disagree*. Regarding the scoring criteria, each positive item was given 5, 4, 3, 2, and 1, respectively, whereas each negative item was given 1, 2, 3, 4, and 5, respectively. The content validity index[15] was at 0.67 – 1.00, whereas the Cronbach's alpha coefficient[18] was at 0.84. The scores were interpreted in 3 attitude levels[17]: a high attitude level at 80% and above , a moderate attitude level at 60% - 79%, and a low attitude level at less than 60%.

Part 4: The role perception section included 18 questionnaire items: 1) health promotion, 2) disease surveillance, prevention, and control, 3) rehabilitation, and 4) consumer health protection. The questionnaire items were in the form of a rating scale with 5 levels: *most*, *much*, *moderate*, *little*, and *least* with the scoring criteria at 5, 4, 3, 2, and 1, respectively. The content validity index[15] was at 0.67 – 1.00, whereas the Cronbach's alpha coefficient[18] was at 0.94. The scores were interpreted in 3 role perception levels[17]: a high role perception level at 80% and above, a moderate role perception level at 60% - 79%, and a low role perception level at less than 60%.

Part 5: The social support section consisted of 20 questionnaire items concerning the support of emotions/feelings, value evaluation, resources, and information. The questionnaire items were in the form of a rating scale with 3 levels: *sufficient*, *insufficient*, and *never received* with the scoring criteria at 3, 2, and 1, respectively. The content validity index[15] was 0.67 – 1.00, whereas the Cronbach's alpha coefficient[18] was 0.88. The scores were interpreted in 3 social support levels[17]: a high social support level at 80% and above, a moderate social support level at 60% - 79%, and a low social support level at less than 60%.

Part 6: Work motivation contained 50 items of 2 motivation factors: 1) motivational factors in work success, respect, career path, and job description and responsibility; and 2) hygiene factors including salary or compensation, interpersonal relationships, work conditions, policy and management, work security, and administrative methods. The questionnaire items were in the form of a rating scale with 5 levels: *absolutely agree*, *agree*, *uncertain*, *disagree*, and *absolutely disagree* with the scoring criteria at 5, 4, 3, 2, and 1, respectively. The content validity index[15] was at 0.67 – 1.00, whereas the Cronbach's alpha coefficient[18] was at 0.96. The scores were interpreted in 3 motivation levels[17]: a high motivation level at 80% and above, a moderate motivation level at 60% - 79%, and a low motivation level at less than 60%.

Part 7: The performance of the Village Health Volunteers included 30 questionnaire items about their expression of knowledge, attitudes, and implementation in 1) health promotion, 2) disease surveillance, prevention, and control, 3) rehabilitation, and 4) consumer

health protection. The questionnaire items were in the form of a rating scale with 5 levels: *always*, *often*, *sometimes*, *seldom*, and *never* with the scoring criteria at 5, 4, 3, 2, and 1, respectively. The content validity index[15] was at 0.67 – 1.00, whereas the Cronbach's alpha coefficient[18] was at 0.98. The scores were interpreted in 3 VHVs' performance levels[17]: a high-performance level at 80% and above, a moderate performance level at 60% - 79%, and a low-performance level at less than 60%.

According to the data collection method, the researchers submitted a request for permission to the Sukhothai Provincial Public Health Office to collect data from the VHVs in all district public health offices, hospitals, Sawankhalok Municipality, and Sukhothaithani Municipality in October 2019. A self-administered questionnaire was used for data collection and the response rate was 100%. The participants' data were kept confidential and were not disclosed in this study to prevent any possible impact on the informants. When all the questionnaires were received, they were inspected for completion and accuracy before being used in the data analysis.

The data were analysed according to the study assumptions by using the statistical computer programs described in the following steps.

1. The informants' personal data were analysed for gender, age, marital status, educational level, occupation, average monthly income, role in the family, number of family members, use of smartphones, duration of being VHVs, and having other positions in the communities. Descriptive statistics were used to calculate percentage, means, standard deviation, minimum values, and maximum values.

2. The factors affecting the performance of the VHVs were analysed with stepwise multiple regression analysis.

3. Statistical significance was determined at 0.05 as the criteria for hypothesis acceptance.

RESULTS

1. Personal information of the informants

Most informants were females (90.0%) in the age range of 50 – 59 years (42.2%), followed by 40 – 49 years (25.4%), with the least being 70 – 79 years (2.1%). The minimum age was 23 years, the maximum age was 74 years, and the average age was 51.48 years. Regarding marital status, the majority were married (73.6%), followed by single (12.2%), and divorced (3.6%). The highest educational level was primary education (42.6%), followed by upper secondary education/vocational education certificate (27.5%), and master's degree education (0.5%). In terms of occupation, most were agriculturists (57.6%), followed by general employment (22.9%), and local politicians (0.3%). Mostly, the average monthly income was less than 5,000 baht (75.1%), followed by 5,001 – 10,000 baht (21.6%), and 15,001 – 20,000 baht (0.3%). The minimum average monthly income was 1,000 baht, the maximum average monthly income was 20,000 baht, and the average monthly income was 2,880.13 baht. The use of smartphones was 62.5%. The duration of being a VHV was mostly 1 – 10 years (39.2%), followed by 11 – 20 years (36.2%), and 31 – 40 years (5.1%). The minimum duration of being a VHV was 1 year, while the maximum duration of being a VHV was 40 years, and the average duration of being a VHV was 14.60 years. The role in families was mostly as family members (65.3%). The number of family members was mostly 4 people (30.7%), followed by 3 people (25.1%), and 8, 9, or 10 people (0.3%).

The other positions of the VHVs in the communities were family volunteers (FV) (35.1%), village fund committee members (VFC) (22.9%), committee members of the sub-district women empowerment funds (14.1%), village security team (VST) (5.9%), civil defence

volunteers (CDV) (6.7%), social development and human security volunteers (SDHSV) (8.2%), community development volunteers (CDV) (8.8%), village agricultural volunteers (VAV) (5.6%), sub-district medical practitioners (0.6%), village committee members (23.9%), community committee members (3.2%), village headmen (0.3%), assistant village headmen (3.8%), chairmen of community committees (1.4%), assistant chairmen of community committees (0.6%), members of the municipal council (0.5%), members of a sub-district administrative organisation (0.9%), deputy mayors (1.5%), and others (2.1%). Most of the participants were trained by public health officers (95.3%), and they were supervised by the public health officers as well (86.6%). Most of them were responsible for 11 – 20 houses (69.8%), followed by 1 – 10 houses (28.7%), and 21 – 30 houses (1.5%).

2. Knowledge, attitudes, role perception, social support, work motivation, and performance of the VHVs

The knowledge of the VHV samples was at a high level ($\bar{x}$ = 23.11, S.D. = 2.40); the work attitudes of the VHVs were at a moderate level ($\bar{x}$ = 62.99, S.D. = 4.98); the role perception about VHVs' work was at a high level ($\bar{x}$ = 73.61, S.D. = 10.08); the social support with effects on VHVs was at a high level ($\bar{x}$ = 53.51, S.D. = 6.58); the work motivation of VHVs was at a high level ($\bar{x}$ = 204.53, S.D. = 22.64); and the performance of the VHVs was at a moderate level ($\bar{x}$ = 97.21, S.D. = 24.64). Table 1 illustrates these results.

Table 1 Mean, standard deviation, and levels of knowledge, attitude, role perception, social support, work motivation, and performance of VHVs (n = 658)

Variables	$\bar{x}$	S.D.	Levels
Knowledge	23.11	2.40	high
Attitude	62.99	4.98	moderate
Role perception	73.61	10.08	high
Social support	53.51	6.58	high
Work motivation	204.53	22.64	high
Performance	97.21	24.64	moderate

3. Factors affecting the performance of the VHVs

The factors affecting the performance of the VHVs were arranged in descending order according to the explainable performance: 1) work motivation positively affected performance, 2) role perception positively affected performance, 3) number of positions in the communities have a positive effect on performance, 4) knowledge negatively affected performance, 5) participants in agricultural occupations showed lower performance than employees in the government agencies/ state enterprises, 6) duration of being VHVs had a positive effect on performance, and 7) attitude positively affected performance. In combination, all 7 variables could predict the performance of the VHVs at 26. 5% with a statistical significance of 0. 05. However, the other variables including social support, gender, age, marital status, educational level, average monthly income, use of smartphones, role in the family, number of family members, training, supervision, and the number of responsible households did

not have effects on the performance of the VHVs. Table 2 illustrates these results.

Table 2 The stepwise multiple regression analysis between the predictors and the performance of the VHVs (n = 658)

Predictors	b	s.e. of b	Beta	t	p-value
Work motivation	0.338	0.042	0.311	7.971	<0.001
Role perception	0.346	0.098	0.141	3.542	<0.001
Number of other positions in communities	1.835	0.471	0.135	3.894	<0.001
Knowledge	-1.151	0.358	-0.112	-3.218	<0.001
Agricultural occupation	-5.704	1.691	-0.115	-3.373	<0.001
Duration of being VHVs	0.297	0.094	0.111	3.176	<0.01
Attitude	0.403	0.185	0.081	2.182	<0.05

Constant (a) = 0.105, R = 0.514, R Square = 0.265, Adjusted R Square = 0.257, F = 33.397, P<0.001, MSE = 451.171

According to the analysis results, the equation to explain the performance of the VHVs in raw scores can be written as below.

Performance of VHVs = 0.105 + 0.338 (work motivation) + 0.346 (role perception) + 1.835 (number of other positions in communities) - 1.151 (knowledge) - 5.704 (agricultural occupation) + 0.297 (duration of being VHVs) + 0.403 (attitude)

DISCUSSION

According to the research results, there were 7 variables that had effects on the performance of the VHVs, presented in descending order: work motivation, role perception, the number of other positions in the communities, knowledge, agricultural occupation, duration of being VHVs, and attitude. In combination, these variables could predict the performance of the VHVs at 26.5% with a statistical significance of 0.05.

1. Work motivation[4,19-21] with a positive effect on the performance of the VHVs can be explained by the idea that an increase in motivation can increase performance since the VHVs have job satisfaction in performing their duties; they feel pride in implementing their work successfully. Therefore, their performance increased[22-24], and their motivation increased further from obtaining different types of welfare, encouragement, and compliments from the government agencies[25]. This result is consistent with the results of previous studies. It was found that work motivation had a positive effect on the VHVs' performance in terms of the rehabilitation of people with movement or physical disability[26]. In addition, work motivation was found to have a positive effect on VHVs' performance in family care teams[27]. Work motivation was also found to have a positive effect on VHVs' performance according to the standards of primary health care[28].

2. Role perception[29] with a positive effect on the performance of the VHVs can be explained by the notion that the increase in role perception can increase performance[30]. This result is consistent with the results of previous studies. Role perception was found to have a positive effect on VHVs' performance in the rehabilitation of people with movement or physical disability[26]. It was also found to have a positive effect on VHVs' performance according to the standards of primary health care[28]. In addition, VHV's role perception in contagious disease

control and prevention along the border lines had a positive effect on their participation in the management of contagious disease control and prevention along the borders[31]. Role perception also had a positive effect on VHVs' implementation in the context of duties in urban areas[32].

3. The number of other positions in the communities[24] with its positive effect on the performance of VHVs can be explained by noting that the increasing number of other positions in the communities can increase the performance of the VHVs. When there are elections or appointments of any positions in the communities[30], the VHVs are often assigned to such positions. The VHVs who have other positions in the communities can work well with various duties related to the same direction. This result is consistent with the results of previous research which showed that having other positions in the communities had a relationship with VHVs' performance at the low level[33].

4. Knowledge[3,24] with a negative effect on the performance of the VHVs can be explained by the notion that the increase in knowledge can decrease the performance of the VHVs. Although the VHVs gain more knowledge, they do not apply it in practice, so their performance decreases. This result is consistent with the results of previous studies that showed knowledge had a negative effect on the performance of VHVs in consumer health protection[35]. Therefore, VHVs should participate in training programs, workshops, and educational visits, and should develop their potential regularly and continuously. After such training, they should apply the new knowledge to real practice in villages/communities. Further, they should transfer such knowledge to their VHV peers and family volunteers[30-31,36].

5. The lower performance of the VHVs with agricultural occupations compared to the VHVs working in the government agencies/state enterprises can be explained by the fact that the VHVs working as agriculturists (57.6%) mostly spend time cultivating crops in their plantations. Thus, they do not always have time to perform VHV duties. Moreover, agricultural production can be highly uncertain, with uncertain prices, while the trend of the production cost is likely high. As a result, agriculturists have low and uncertain incomes which may be insufficient for adequate living. For such reasons, some agriculturists have to find part-time jobs in general employment or gain employment in other production sectors outside the agricultural season. Accordingly, their workload is higher and the VHVs working as agriculturists have less time to perform their VHV roles. Therefore, their performance is lower than the VHVs in the government agencies/state enterprises because they have more time to perform their VHV duties during their out-of-work periods or free time since the VHV work is not necessarily performed during working or official hours[25,37].

6. The duration of being VHVs[4,31] with a positive effect on the performance of the VHVs can be explained by the notion that the longer duration of being VHVs results in the increase of VHVs' performance due to the accumulation of VHV experience. This result is consistent with the guidelines and criteria for VHV selection and evaluation to give awards to outstanding, excellent, and extremely excellent VHVs. Regarding the criteria for selecting the national outstanding VHV, the nominee must have been a VHV for not less than 7 years to be eligible for nomination to receive the royal insignia[36]. Consistently, it was found that VHVs with different durations of being VHVs had different average performance levels in psychiatry and community mental health[38].

7. Attitude[3] with a positive effect on the performance of the VHVs can be explained by the fact that an increase in good work attitude can increase the VHVs' performance since VHVs with good attitudes have good human relationships with other people. Further, they often spend time on social benefits and self-development in a voluntary way[36]. Such VHVs are helpful in public health implementation. They intend or used to participate in public health implementation; they wish to develop their communities and spend time working in their VHV roles[36]. This result is consistent with a previous study which found that a good attitude in the implementation of contagious disease control and prevention along the border lines had a positive effect on VHVs' participation in the management to control and prevent contagious diseases along the border lines[32].

RECOMMENDATIONS

The variables of work motivation, role perception, and the number of other positions in the communities, as well as agricultural occupation, duration of being VHVs, and attitude, have effects on VHV performance. Therefore, related agencies should create programs or learning activities to build role perception, and good work attitudes together with creating motivation such as giving compliments or rewards for good performance of VHVs to build better performance. The focus should be on the VHV groups with fewer other positions in the communities, the VHVs working as agriculturists, and the VHVs with a short duration of being VHVs. For further study, other possible factors should be included together with a qualitative approach for better predicting the work performance of VHVs.

CONCLUSION

The results of this research revealed that the variables which have an effect on the performance of VHVs included work motivation, role perception, the number of other positions in the communities, agricultural occupation, duration of being VHVs, and attitude. In combination, these variables can predict the VHV performance at 26.5%. Therefore, future research should study other potential variables which may be expected to have an effect on the VHV performance in order to find the co-variables for predicting VHV performance more effectively, leading to guidelines that could be implemented to further develop the VHVs in a more complete and faultless way.

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