

CHAPTER IV

RESULTS

Data Analysis Results

A total of 392 questionnaires were distributed among the sample, and 335 of them were returned, accounting for 85.80% of the total.

Part I: Demographic characteristics of the village health volunteers

There were 88 village health volunteers from the low-risk villages, and 247 village health volunteers from high-risk villages. The findings regarding their demographic characteristics are as follows:

As regards gender, more than three-quarters, or 79.5%, of the village health volunteers in low-risk villages were female, while 70.4% of those from high-risk villages were female. In terms of age, about two-thirds of the village health volunteers from both low-risk and high-risk villages were between 40 and 49 years old. Regarding marital status, most of them were married, accounting for 92.0% and 87.9% of those living in low-risk and high-risk villages, respectively. In addition, 65.9% and 62.3% of those living in low-risk and high-risk villages completed elementary education, respectively. As for occupation, 70.5% of those living in low-risk villages were agriculturists, and 13.6% were wage earners. On the other hand, 65.6% of those living in high-risk villages were agriculturists, and 15.8% were wage earners. When it came to income, approximately half, or 53.4%, of the village health volunteers in low-risk villages earned 3,001 to 5,000 baht per month, whereas about

two-thirds of those living in high-risk villages earned a monthly income ranging from 3,001 to 5,000 baht.

Concerning the duration of being village health volunteers, the findings indicated that about two-fifths of those in both low-risk and high-risk villages had been village health volunteers for five years or less. Moreover, with regard to other positions in the village, it was found that about two-thirds, or 67.0%, and more than half, or 57.9%, of those living in low-risk and high-risk villages did not have any other position in the community. Furthermore, equally 78.5% of those living in both low-risk and high-risk villages had previous training about dengue hemorrhagic fever. Finally, as for history of illness with dengue hemorrhagic fever, 85.0% and 83.0% of those living in low-risk and high-risk villages did not have history of illness, respectively. (table1).

Table 1: Number and percentage of village health volunteers categorized according to demographic characteristics of the subjects and the research setting (n = 335)

Characteristics	Low risk Village		High risk Village	
	Number	%	Number	%
Gender				
Male	18	20.5	73	29.6
Female	70	79.5	174	70.4
Age (years)				
20 – 29	6	6.8	17	6.9
30 – 39	27	30.7	82	33.2
40-49	35	39.8	104	42.1
50 – 59	15	17.0	33	13.4
Older than 60	5	5.7	11	4.5
$\bar{X} = 42.3$ S.D. = 8.7 Min = 20 Max = 67				
Marital status				
Married	81	92.0	217	87.9
Single	5	5.7	16	6.5
Divorced	2	2.3	14	5.7
Educational background				
No formal education	1	1.1	6	2.4
Elementary	57	64.8	148	59.9
Secondary	25	28.4	72	29.1
Certificate/Diploma	4	4.5	16	6.5
Undergraduate degree or higher	1	1.1	5	2.0
Occupation				
Agriculturists	62	70.5	162	65.9
Employees	12	13.6	39	15.9
Traders	7	8.0	27	17.0
Housewives	7	8.0	18	7.3
Income (baht/month)				
≤ 3,000	32	36.4	79	32.4
3,001-5,000	47	53.4	109	44.7
5,001-10,000	7	8.0	54	22.1
> 10,000	2	2.3	2	0.8
$\bar{X} = 4293.6$ S.D. = 1922.7 Min = 1000 Max = 15000				
Duration of being VHVs (years)				
1-5	37	43.0	99	40.1
6-10	30	34.9	89	36.0
11-15	7	8.1	38	15.4
16-20	8	9.3	12	4.9
≥ 21	4	4.7	9	3.6
$\bar{X} = 8.07$ S.D. = 5.5 Min = 1 Max = 26				

Table 1: (Continue) Number and percentage of village health volunteers categorized according to demographic characteristics of the subjects and the research setting (n = 335)

Characteristics	Low risk Village		High risk Village	
	Number	%	Number	
Duration of being VHVs (years)				
1-5	37	43.0	99	40.1
6-10	30	34.9	89	36.0
11-15	7	8.1	38	15.4
16-20	8	9.3	12	4.9
≥ 21	4	4.7	9	3.6
$\bar{X} = 8.07$ S.D. = 5.5 Min = 1 Max = 26				
Other positions in the community				
None	59	67.0	143	57.9
Members of groups or clubs	14	15.9	53	27.5
Village committee/Tambon Administration	9	10.2	39	15.8
Organization committee				
Community leader	6	6.8	12	4.9
Training in the previous year				
None	19	21.6	53	21.5
Once	36	40.9	87	35.2
Twice	19	21.6	70	28.3
Three times	10	11.4	26	10.5
Four times	2	2.3	8	3.2
Five times	2	2.3	3	1.2
History of DHF				
Yes	15	17.0	37	15.0
None	73	83.0	210	85.0

Part II: Role perception of village health volunteers as categorized according to types of villages

2.1 Collaboration to work in the community

For the village health volunteers living in low-risk villages, the item which received the highest number of correct answers was 'stimulating collaboration in the community for elimination of the breeding grounds of *Aedes aegypti* mosquitoes,

accounting for 93.2%. This was followed by 'talking about problems and drawbacks of dengue hemorrhagic fever' and 'coordinating with staff of health stations or hospitals to devise plans for prevention and control of dengue hemorrhagic fever,' which accounted for 86.4% and 78.4%, respectively. On the other hand, the item which received the highest number of correct answers from the village health volunteers in high-risk villages was 'stimulating collaboration in the community for elimination of the breeding grounds of *Aedes aegypti* mosquitoes, accounting for 90.3%. This was followed by 'talking about problems and drawbacks of dengue hemorrhagic fever' and 'coordinating with staff of health stations or hospitals to devise plans for prevention and control of dengue hemorrhagic fever,' both of which accounted for 86.2%.

In contrast, the item which received the highest number of incorrect responses from the village health volunteers in the low-risk villages was 'being leaders in the community to brainstorm ideas,' as 30.7% of them gave incorrect responses. Second came 'coordinating with other groups or clubs in the village,' making up 28.4%. On the other hand, the item which received the highest number of incorrect responses from the village health volunteers in the high-risk villages was 'coordinating with other groups or clubs in the village,' as 25.1% of them gave incorrect responses. This was followed by 'being leaders in the community to brainstorm ideas,' making up 21.5% (Table 2).

Table 2: Percentage of village health volunteers regarding role perception of collaboration to work in the community

Collaboration to work in the community	low risk Village		high risk Village		t	P
	yes N (%)	no N (%)	yes N (%)	no N (%)		
Stimulating collaboration in the community for elimination of the breeding grounds of <i>Aedes aegypti</i> mosquitoes	82 (93.2)	6 (6.8)	223 (90.3)	24 (9.7)	0.81	0.41
Talking about problems and drawbacks of DHF	76 (86.4)	12 (13.6)	213 (86.2)	34 (13.8)	0.03	0.97
Planning for prevention and control of DHF	69 (78.4)	19 (21.6)	213 (86.2)	34 (13.8)	-1.55	0.11
Coordinating with different groups or clubs in the community	63 (71.6)	25 (28.4)	185 (74.9)	62 (25.1)	-0.60	0.54
Coordinating with staff of health stations or hospitals for planning	74 (84.1)	14 (15.9)	213 (86.2)	34 (13.8)	-0.49	0.62
Being leaders in the community to brainstorm ideas	61 (69.3)	27 (30.7)	194 (78.5)	53 (21.5)	-1.64	0.10
Asking for advice or consultation from health stations or hospitals	69 (80.2)	17 (19.8)	208 (84.2)	39 (15.8)	-0.8	0.39

2.2 Dissemination of information for collaboration

The item which received the highest number of correct answers was 'teaching community members to observe for *Aedes aegypti* larvae,' as 89.86% of the subjects in the low-risk villages chose the correct responses to this item. This was followed by 'informing own and nearby communities of dengue hemorrhagic fever cases' and 'posting posters about dengue hemorrhagic fever in public places,' which accounted for 80.7% and 75.0%, respectively. On the other hand, the item which received the highest number of incorrect responses from the village health volunteers in the low-risk villages was 'disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower,' as close to half, or 44.3%,

gave incorrect answers. This was followed by 'organizing motivational activities such as publicizing the households with excellent work to eliminate the breeding grounds of *Aedes aegypti* larvae' at 35.2%.

As for the responses of the village health volunteers in the high-risk villages, the item which received the highest number of correct answers was 'teaching community members to observe for *Aedes aegypti* larvae,' accounting for 92.3%. Second and third came 'informing own and nearby communities of dengue hemorrhagic fever cases' and 'posting posters about dengue hemorrhagic fever in public places,' both of which made up 85.8%. On the other hand, the item which received the highest number of incorrect responses from the village health volunteers in the low-risk villages was 'disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower,' as 42.93%, gave incorrect answers. This was followed by 'organizing motivational activities such as publicizing the households with excellent work to eliminate the breeding grounds of *Aedes aegypti* larvae' at 35.2% (Table 3).

Table 3: Percentage of village health volunteers regarding role perception of dissemination of information for collaboration

Dissemination of information for collaboration	low risk Village		high risk Village		t	P
	yes N (%)	no N (%)	yes N (%)	no N (%)		
Disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower	79 (89.8)	9 (10.2)	228 (92.3)	19 (7.7)	-0.22	0.82
Informing own and nearby communities of DHF cases	71 (80.7)	17 (19.3)	212 (85.8)	35 (14.2)	-0.43	0.66
Posting posters about DHF in public places	66 (75.9)	21 (24.1)	193 (78.1)	54 (21.9)	0.28	0.77
Meeting community members to talk about prevention and control of DHF at different occasions	64 (72.7)	24 (27.3)	183 (74.1)	64 (25.9)	-1.07	0.28
Acquiring health education materials	62 (71.3)	25 (28.7)	172 (69.6)	75 (30.4)	0.37	0.70
Organizing motivational activities	57 (64.8)	31 (35.2)	167 (67.6)	80 (32.4)	-0.73	0.46
Giving advice on spraying to eliminate <i>Aedes aegypti</i> larvae	60 (68.2)	28 (31.8)	163 (66.0)	84 (34.0)	-0.24	0.80
Teaching community members to observe for <i>Aedes aegypti</i> larvae	49 (55.7)	39 (44.3)	141 (57.1)	106 (42.9)	-0.48	0.62

2.3 Elimination of the breeding grounds of *Aedes aegypti* mosquitoes

Regarding the village health volunteers in the low-risk villages, the item which received the highest number of correct answers was 'being role models for community members in preventing and controlling dengue hemorrhagic fever starting from eliminating the breeding grounds of *Aedes aegypti* larvae at home,' as 92.0% of the subjects chose the correct responses to this item. This was followed by 'cooperating with the community to continuously eliminate the breeding grounds of *Aedes aegypti* larvae in the neighborhood all year round' and 'providing abate sand to all households in the community,' which accounted for 84.1% and 72.7%,

respectively. On the other hand, the item which received the highest number of correct answers from the village health volunteers in the high-risk villages was 'cooperating with the community to continuously eliminate the breeding grounds of *Aedes aegypti* larvae in the neighborhood all year round, which accounted for 88.7%. Second came 'being role models for community members in preventing and controlling dengue hemorrhagic fever starting from eliminating the breeding grounds of *Aedes aegypti* larvae at home,' making up 87.9%.

On the contrary, the item which received the highest number of incorrect responses from the village health volunteers was 'not seeing the necessity to inform households to eliminate the breeding grounds of *Aedes aegypti* larvae every week,' as close to half, or 46.0%, gave incorrect answer. This was followed by 'eliminating the breeding grounds of *Aedes aegypti* larvae at temples, schools, and infant development centers continuously every week all year round' at 33.1% (Table 4).

Table 4: Percentage of village health volunteers regarding role perception of elimination of the breeding grounds of *Aedes aegypti* mosquitoes

Elimination of the breeding grounds of <i>Aedes aegypti</i> mosquitoes	low risk Village		high risk Village		t	P
	yes N (%)	no N (%)	yes N (%)	no N (%)		
Being role models for community members in preventing and controlling DHF	81 (92.0)	7 (8.0)	217 (87.9)	30 (12.1)	1.17	0.24
Cooperating with the community to continuously eliminate the breeding grounds of <i>Aedes aegypti</i> larvae in the neighborhood all year round	74 (84.1)	14 (15.9)	219 (88.7)	28 (11.3)	-1.62	0.10
Providing fish feeding on <i>Aedes aegypti</i> larvae in the community	64 (72.7)	24 (27.3)	186 (75.3)	61 (24.7)	-1.03	0.30
Providing abate sand to all households in the community	63 (71.6)	25 (28.4)	201 (81.4)	46 (18.6)	-1.01	0.31
Eliminating the breeding grounds of <i>Aedes aegypti</i> larvae at temples, schools, and infant development centers continuously every week all year round	55 (62.5)	33 (37.5)	169 (68.4)	78 (31.6)	-1.80	0.07
Cooperating with the Not seeing the necessity to inform households to eliminate the breeding grounds of <i>Aedes aegypti</i> larvae every week	34 (38.6)	54 (61.4)	120 (48.6)	127 (51.4)	-0.47	0.63

2.5 Levels of overall role perception of village health volunteers

When considering the levels of overall perception of village health volunteers, it was found that the level of perception of those living in high-risk villages was higher than that of the village health volunteers living in low-risk villages, accounting for 16.3% and 8.1%, respectively (Table 6).

Table 6: Levels of overall role perception of village health volunteers as categorized according to types of villages

Level of Perception	Low risk village		High risk village	
	N	%	N	%
Low	14	16.3	20	8.1
Moderate	21	24.4	75	30.4
High	51	59.3	152	61.5
Total	86	100.0	247	100.0

2.5.1 Level of perception of village health volunteers regarding collaboration to work in the community

When considering the level of perception of village health volunteers regarding collaboration to work in the community, it was found that for those in the low-risk villages, 64.0% had a high level of perception, while 23.3% had a moderate level of perception.

As regards those living in the high-risk villages, 69.2% had a high level of perception, whereas 23.9% had a moderate level of perception.(Table7).

2.4 Monitoring and surveillance of performance

The item which received the highest number of correct answers from the village health volunteers in the low-risk villages was 'informing public health officials of patients suspected to have dengue hemorrhagic fever,' as 93.2% of the subjects chose the correct responses for this item. This was followed by 'surveying *Adedes aegypti* larvae in own household every week' and 'collecting 'this house is free of *Adedes aegypti* larvae' cards for health officials at health stations or hospitals,' both of which accounted for 8.6%. On the contrary, the item which received the highest number of correct responses from the village health volunteers in the high-risk villages was 'surveying *Adedes aegypti* larvae in own household every week,' accounting for 92.7%. Second came 'informing public health officials of patients suspected to have dengue hemorrhagic fever,' as 91.9% of them chose the correct responses for this item.

In contrast, the item which received the highest number of incorrect responses from village health volunteers in low-risk villages was 'recording results of survey of *Adedes aegypti* larvae,' contributing 25.0%. This was followed by 'surveying *Adedes aegypti* larvae in households under responsibility every month,' at 22.7%. As for the village health volunteers in high-risk villages, the item which received the highest number of incorrect responses from village health volunteers in low-risk villages was 'recording results of survey of *Adedes aegypti* larvae,' contributing 25.0%. This was followed by 'making extra efforts to eliminate the breeding grounds of *Adedes aegypti* larvae in areas where children with mosquito bites were found,' at 18.6% (Table 5).

Table 5: Percentage of village health volunteers regarding role perception of monitoring and surveillance of performance

Monitoring and conducting surveillance	low risk Village		high risk Village		t	P
	yes N (%)	no N (%)	yes N (%)	no N (%)		
Informing public health officials of patients suspected to have DHF	82 (93.2)	6 (6.8)	227 (91.9)	20 (8.1)	-1.07	0.28
Surveying <i>Adedes aegypti</i> larvae in own household every week	78 (88.6)	10 (11.4)	229 (92.7)	18 (7.3)	-2.31	0.02
Collecting 'this house is free of <i>Adedes aegypti</i> larvae' cards for health officials at health stations or hospitals	78 (88.6)	10 (11.4)	228 (92.3)	19 (7.7)	-1.45	0.14
Making extra efforts to eliminate the breeding grounds of <i>Adedes aegypti</i> larvae in areas where children with mosquito bites were found	76 (86.4)	12 (13.6)	201 (81.4)	46 (18.6)	-0.60	0.54
Certifying 'this household is free from <i>Adedes aegypti</i> larvae	75 (85.2)	13 (14.8)	222 (89.9)	25 (10.1)	-0.45	0.64
Informing owners of the household to eliminate breeding grounds of <i>Adedes aegypti</i> larvae found	75 (85.2)	13 (14.8)	217 (87.9)	30 (12.1)	1.12	0.26
Summarizing operation outcomes and Problems during village meetings	74 (84.1)	14 (15.9)	195 (78.9)	52 (21.1)	0.38	0.70
Summarizing the operation outcomes and problems to plan for subsequent activities	73 (83.0)	15 (17.0)	210 (85.0)	37 (15.0)	-1.09	0.27
Surveying <i>Adedes aegypti</i> larvae in households under responsibility every month	68 (77.3)	20 (22.7)	219 (88.7)	28 (11.3)	-0.96	0.33
Recording results of surveys of <i>Adedes aegypti</i> larvae	66 (75.0)	22 (25.0)	204 (82.6)	43 (17.4)	1.09	0.27

Table 7: Level of perception of village health volunteers regarding collaboration to work in the community as categorized according to types of villages

Level of Perception	Low risk village		High risk village	
	N	%	N	%
Low	11	12.8	17	6.9
Moderate	20	23.3	59	23.9
High	55	64.0	171	69.2
Total	86	100.0	247	100.0

2.5.2 Level of perception of village health volunteers regarding dissemination of information for collaboration

When considering the level of perception of village health volunteers regarding dissemination of information for collaboration, it was found that for those in the low-risk villages, 42.5% had a high level of perception, while 31.0% had a moderate level of perception.

As regards those living in the high-risk villages, 41.7% had a high level of perception, whereas 38.1% had a moderate level of perception. (Table 8).

Table 8: Level of perception of village health volunteers regarding dissemination of information for collaboration as categorized according to types of villages

Level of Perception	Low risk village		High risk village	
	N	%	N	%
Low	23	26.4	50	20.2
Moderate	27	31.0	94	38.1
High	37	42.5	103	41.7
Total	87	100.0	247	100.0

2.5.3 Level of perception of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae

When considering the level of perception of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae, it was found that for those in the low-risk villages, 52.3% had a high level of perception, while 40.9% had a moderate level of perception.

As regards those living in the high-risk villages, 59.1% had a high level of perception, whereas 36.4% had a moderate level of perception. (Table 9)

Table 9: Level of perception of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae as categorized according to types of villages

Level of Perception	Low risk village		High risk village	
	N	%	N	%
Low	6	6.8	11	4.5
Moderate	36	40.9	90	36.4
High	46	52.3	146	59.1
Total	88	100.0	247	100.0

2.5.4 Level of perception of village health volunteers regarding monitoring and surveillance of performance

When considering the level of perception of village health volunteers regarding monitoring and surveillance of performance, it was found that for those in the low-risk villages, 78.4% had a high level of perception, while 12.5% had a moderate level of perception.

As regards those living in the high-risk villages, 79.8% had a high level of perception, whereas 15.4% had a moderate level of perception. (Table 10).

Table10: Level of perception of village health volunteers regarding monitoring and surveillance of performance as categorized according to types of villages

Level of Perception	Low risk village		High risk village	
	N	%	N	%
Low	8	9.1	12	4.9
Moderate	11	12.5	38	15.4
High	69	78.4	197	79.8
Total	88	100.0	247	100.0

Part III: Role performance of village health volunteers as categorized according to types of villages

3.1 Collaboration to work in the community

For the village health volunteers living in low-risk villages, the item which they did most frequently was ‘stimulating collaboration in the community for elimination of the breeding grounds of *Aedes aegypti* mosquitoes,’ accounting for 34.1%. This was followed by ‘planning for prevention and control of dengue hemorrhagic fever,’ and ‘coordinating with different groups or clubs in the community,’ which accounted for 30.7% and 29.5%, respectively. On the other hand, for the village health volunteers in the high-risk villages, the item which they did most often was ‘coordinating with staff of health stations or hospitals for planning, making up 38.9%. Second came ‘asking for advice or consultation from health stations or hospitals,’ which accounted for 38.1%.

In contrast, the item which the village health volunteers in the low-risk villages did least often was 'being leaders in the community to brainstorm ideas,' accounting for 26.1%. This was followed by 'coordinating with other groups or clubs in the village,' at 25.0%. On the other hand, the item which the village health volunteers in the high-risk villages did least often was 'coordinating with other groups or clubs in the village,' making at 25.1%. Second came 'being leaders in the community to brainstorm ideas' at 21.5% (Table 11).

Table 11: Percentage of village health volunteers regarding role performance of collaboration to work in the community

Performance	Low risk Village			High risk Village			t	P
	0	1	2	0	1	2		
Stimulating collaboration in the community for elimination of the breeding grounds of <i>Aedes aegypti</i> mosquitoes	8 (9.1)	50 (56.8)	30 (34.1)	16 (6.5)	114 (58.3)	87 (35.2)	-0.51	0.60
Talking about problems and drawbacks of DHF	16 (18.2)	54 (61.4)	18 (20.5)	33 (13.4)	145 (58.7)	69 (27.9)	-1.58	0.11
Planning for prevention and control of DHF	19 (21.6)	42 (47.7)	27 (30.7)	42 (17.0)	120 (48.6)	85 (34.4)	-0.95	0.34
Coordinating with different groups or clubs in the community	22 (25.0)	40 (45.5)	26 (29.5)	62 (25.1)	102 (41.3)	83 (33.6)	-0.42	0.67
Coordinating with staff of health stations or hospitals for planning	19 (21.6)	41 (46.6)	28 (31.8)	33 (13.4)	118 (47.8)	96 (38.9)	-1.78	0.76
Being leaders in the community to brainstorm ideas	23 (26.1)	41 (46.6)	24 (27.3)	53 (21.5)	121 (49.0)	73 (29.6)	-0.78	0.43
Asking for advice or consultation from health stations or hospitals	18 (20.5)	46 (52.3)	24 (27.3)	28 (11.3)	125 (50.6)	94 (38.1)	-2.42	0.01

0= never 1=sometimes 2=always

3.2 Dissemination of information for collaboration

The item which the village health volunteers in the low-risk villages did most frequently was 'teaching community members to observe for *Aedes aegypti* larvae,' making up 40.9%. This was followed by 'acquiring health education material' and 'posting posters about dengue hemorrhagic fever in public places,' which accounted for 25.0% and 20.5%, respectively. On the other hand, the item which the village health volunteers in the high-risk villages did most frequently was 'teaching community members to observe for *Aedes aegypti* larvae,' which made up 44.1%. Second and third came 'informing own and nearby communities of dengue hemorrhagic fever cases' and 'acquiring health education materials,' which accounted for 35.2% and 26.7%, respectively.

As for the item which the village health volunteers in the low-risk villages did least often was 'disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower,' at 48.9%. This was followed by 'Organizing motivational activities such as publicizing the households with excellent work to eliminate the breeding grounds of *Aedes aegypti* larvae' at 37.5%. On the other hand, the item which the village health volunteers in the high-risk villages did least often was 'disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower,' making up 44.5%. This was followed by 'organizing motivational activities such as publicizing the households with excellent work to eliminate the breeding grounds of *Aedes aegypti* larvae' at 38.9% (Table 12).

Table 12: Percentage of village health volunteers regarding role performance of dissemination of information for collaboration

Performance	Low risk Village			High risk Village			t	P
	0	1	2	0	1	2		
Teaching community members to observe for <i>Aedes aegypti</i> larvae	43 (48.9)	38 (43.2)	7 (8.0)	110 (44.5)	87 (35.2)	50 (20.2)	-1.98	0.04
Informing own and nearby communities of DHF cases	30 (34.1)	40 (45.5)	18 (20.5)	57 (23.1)	126 (51.0)	64 (25.9)	-1.87	0.06
Posting posters about DHF in public places	31 (35.2)	35 (39.8)	22 (25.0)	82 (33.2)	99 (40.1)	66 (26.7)	-0.39	0.69
Meeting community members to talk about prevention and control of DHF at different occasions	16 (18.2)	56 (63.6)	16 (18.2)	36 (14.6)	124 (50.2)	87 (35.2)	-2.52	0.01
Acquiring health education materials	37 (42.0)	39 (44.3)	12 (13.6)	74 (30.0)	120 (48.6)	53 (21.5)	-2.26	0.02
Organizing motivational activities	14 (15.9)	38 (43.2)	36 (40.9)	16 (6.5)	122 (49.4)	109 (44.1)	-1.60	0.11
Giving advice on spraying to eliminate <i>Aedes aegypti</i> larvae	25 (28.4)	50 (56.8)	13 (14.8)	52 (21.0)	142 (57.5)	53 (21.5)	-1.73	0.08
Disseminating knowledge about prevention and control of dengue hemorrhagic fever to the neighbors via the news tower	33 (37.5)	41 (46.6)	14 (15.9)	96 (38.9)	100 (40.5)	51 (20.6)	-0.36	0.71

0= never 1=sometimes 2=always

3.3 Elimination of the breeding grounds of *Aedes aegypti* mosquitoes

Regarding the village health volunteers in the low-risk villages, the item which they did most often was 'being role models for community members in preventing and controlling dengue hemorrhagic fever starting from eliminating the breeding

grounds of *Aedes aegypti* larvae at home,' accounting for 61.4%. This was followed by 'cooperating with the community to continuously eliminate the breeding grounds of *Aedes aegypti* larvae in the neighborhood all year round' and 'providing abate sand to all households in the community,' which accounted for 36.4% and 19.3%, respectively. On the other hand, the item which the village health volunteers in the high-risk villages did most often was 'being role models for community members in preventing and controlling dengue hemorrhagic fever starting from eliminating the breeding grounds of *Aedes aegypti* larvae at home,' which accounted for 64.4%. Second and third came 'cooperating with the community to continuously eliminate the breeding grounds of *Aedes aegypti* larvae in the neighborhood all year round' and 'providing abate sand to all households in the community,' which accounted for 44.1% and 31.6%, respectively.

On the contrary, the item the village health volunteers in the low-risk villages did least often was 'providing fish feeding on *Aedes aegypti* larvae in the community,' at 46.6%. This was followed by 'not seeing the necessity to inform households to eliminate the breeding grounds of *Aedes aegypti* larvae every week,' at 37.5%. As regards the village health volunteers in the high-risk villages, the item which they did least often was 'eliminating the breeding grounds of *Aedes aegypti* larvae at temples, schools, and infant development centers continuously every week all year round' at 34.0%. This was followed by 'providing fish feeding on *Aedes aegypti* larvae in the community,' at 30.4% (Table 13).

Table 13: Percentage of village health volunteers regarding role performance of elimination of the breeding grounds of *Aedes aegypti* mosquitoes

Performance	Low risk Village			High risk Village			t	P
	0	1	2	0	1	2		
Being role models for community members in preventing and controlling DHF	8 (9.1)	26 (29.5)	54 (61.4)	18 (7.3)	70 (28.3)	159 (64.4)	-0.61	0.54
Cooperating with the community to continuously eliminate the breeding grounds of <i>Aedes aegypti</i> larvae in the neighborhood all year round	33 (37.5)	42 (47.7)	13 (14.8)	71 (28.7)	96 (38.9)	80 (32.4)	-2.79	0.00
Providing fish feeding on <i>Aedes aegypti</i> larvae in the community	17 (19.3)	39 (44.3)	32 (36.4)	23 (9.3)	115 (46.6)	109 (44.1)	-2.14	0.03
Providing abate sand to all households in the community	31 (35.2)	41 (46.6)	16 (18.2)	84 (34.0)	106 (42.9)	57 (23.1)	-0.66	0.50
Eliminating the breeding grounds of <i>Aedes aegypti</i> larvae at temples, schools, and infant development centers continuously every week all year round	22 (25.0)	49 (55.7)	17 (19.3)	51 (20.6)	118 (47.8)	78 (31.6)	-1.90	0.05
Not seeing the necessity to inform households to eliminate the breeding grounds of <i>Aedes aegypti</i> larvae every week	41 (46.6)	31 (35.2)	16 (18.2)	75 (30.4)	115 (46.6)	57 (23.0)	-2.31	0.02

0= never 1=sometimes 2=always

3.4 Monitoring and surveillance of performance

The item which the village health volunteers in the low-risk villages did most often was 'surveying *Aedes aegypti* larvae in own household every week,' making up 60.2%. This was followed by 'collecting 'this house is free of *Aedes aegypti* larvae' cards for health officials at health stations or hospitals,' at 45.5% and 'informing public health officials of patients suspected to have dengue hemorrhagic fever,' at 40.1%. On the contrary, the item which the village health volunteers in the high-risk villages did most often was 'surveying *Aedes aegypti* larvae in own household every week,' accounting for 60.7%. Second and third came 'informing public health officials of patients suspected to have dengue hemorrhagic fever' and 'collecting 'this house is free of *Aedes aegypti* larvae' cards for health officials at health stations or hospitals,' at 53.4% and 46.6%, respectively.

In contrast, the item which the village health volunteers in low-risk villages did least often was 'summarizing the operation outcomes and problems to plan for subsequent activities,' which made up 26.1%. This was followed by 'making extra efforts to eliminate the breeding grounds of *Aedes aegypti* larvae in areas where children with mosquito bites were found,' at 20.5%. As for the village health volunteers in high-risk villages, the item which they did least often was 'summarizing the operation outcomes and problems to plan for subsequent activities,' contributing 17.0%. 'Making extra efforts to eliminate the breeding grounds of *Aedes aegypti* larvae in areas where children with mosquito bites were found' ranked second at 12.2% (Table 14).

Table14: Percentage of village health volunteers regarding role performance of monitoring and surveillance of performance

Performance	Low risk Village			High risk Village			t	P
	0	1	2	0	1	2		
Surveying Aedes aegypti larvae in own household every week	6 (6.8)	29 (33.0)	53 (60.2)	17 (6.9)	80 (32.4)	150 (60.7)	-0.05	0.90
Surveying Aedes aegypti larvae in households under responsibility every month	14 (15.9)	44 (50.0)	30 (34.1)	20 (8.1)	130 (52.6)	97 (39.3)	-1.64	0.10
Recording results of surveys of Aedes aegypti larvae	13 (14.8)	42 (47.7)	33 (37.5)	29 (11.8)	109 (44.1)	109 (44.1)	-1.14	0.25
Informing owners of the household to eliminate breeding grounds of larvae found	11 (12.5)	50 (56.8)	27 (30.7)	19 (7.6)	114 (46.2)	114 (46.2)	-2.59	0.01
Summarizing the operation outcomes and problems to plan for subsequent activities	12 (13.6)	52 (59.1)	24 (27.3)	25 (10.1)	123 (49.8)	99 (40.1)	-2.07	0.03
Making extra efforts to eliminate the breeding grounds of larvae in areas where children with mosquito bites were found	18 (20.5)	49 (55.7)	21 (23.9)	30 (12.2)	127 (51.4)	90 (36.4)	-2.55	0.01
Informing public health officials of patients suspected to have DHF	15 (17.0)	37 (42.0)	36 (40.9)	19 (7.7)	96 (38.9)	132 (53.4)	-2.66	0.01
Certifying 'this household is free from Aedes aegypti larvae	10 (11.4)	44 (50.0)	34 (38.6)	19 (7.7)	107 (43.3)	121 (49.0)	-1.77	0.07
Collecting 'this house is free of Aedes aegypti larvae' cards for health officials at health center	8 (9.1)	40 (45.5)	40 (45.5)	25 (10.1)	107 (43.3)	115 (46.6)	-0.01	0.99
Summarizing operation outcomes and Problems during village meetings	23 (26.1)	42 (47.7)	23 (26.1)	42 (17.0)	141 (57.1)	64 (25.9)	-1.01	0.28

0= never 1=sometimes 2=always

3.5 Levels of overall role performance of village health volunteers

When considering the levels of overall performance of village health volunteers, it was found that the level of performance of those living in low-risk villages was lower than that of the village health volunteers living in high-risk villages, accounting for 62.5% and 46.6%, respectively. (Table 15)

Table 15: Levels of overall role performance of village health volunteers as categorized according to types of villages

Level of Performance	Low risk village		High risk village	
	N	%	N	%
Low	55	62.5	115	46.6
Moderate	26	29.5	109	44.1
High	7	8.0	23	9.3
Total	88	100.0	247	100.0

3.5.1 Level of role performance of village health volunteers regarding collaboration to work in the community

When considering the level of performance of village health volunteers regarding collaboration to work in the community, it was found that for those in the low-risk villages, 50.0% had a low level of performance, while 28.4% had a moderate level of performance. On the other hand, as regards those living in the high-risk villages, 38.9% had a low level of performance, whereas 37.2% had a moderate level of performance. (Table 16)

Table 16: Level of role performance of village health volunteers regarding collaboration to work in the community as categorized according to types of villages

Level of Performance	Low risk village		High risk village	
	N	%	N	%
Low	44	50.0	96	38.9
Moderate	25	28.4	92	37.2
High	19	21.6	59	23.9
Total	88	100.0	247	100.0

3.5.2 Level of performance of village health volunteers regarding dissemination of information for collaboration

When considering the level of performance of village health volunteers regarding dissemination of information for collaboration, it was found that for those in the low-risk villages, 68.2% had a low level of performance, while 55.1% had a moderate level of performance. On the other hand, as regards those living in the high-risk villages, 55.1% had a low level of performance, whereas 29.6% had a moderate level of performance. (Table 17).

Table 17: Level of role performance of village health volunteers regarding dissemination of information for collaboration as categorized according to types of villages

Level of Performance	Low risk village		High risk village	
	N	%	N	%
Low	60	68.2	136	55.1
Moderate	23	26.1	73	29.6
High	5	5.7	38	15.4
Total	87	100.0	247	100.0

3.5.3 Level of performance of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae

When considering the level of performance of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae, it was found that for those in the low-risk villages, 55.7% had a low level of performance, while 31.8% had a moderate level of performance. On the other hand, as regards those living in the high-risk villages, 43.7% had a low level of performance, whereas 36.8% had a moderate level of performance. (Table 18)

Table 18: Level of role performance of village health volunteers regarding elimination of breeding grounds for *Aedes aegypti* larvae as categorized according to types of villages

Level of Performance	Low risk village		High risk village	
	N	%	N	%
Low	49	55.7	108	43.7
Moderate	28	31.8	91	36.8
High	11	12.5	48	19.4
Total	88	100.0	247	100.0

3.5.4 Level of performance of village health volunteers regarding

monitoring and surveillance of performance

When considering the level of performance of village health volunteers regarding monitoring and surveillance of performance, it was found that for those in the low-risk villages, 47.7% had a low level of performance, while 29.5% had a moderate level of performance. On the other hand, as regards those living in the high-risk villages, 39.3% had a moderate level of performance, whereas 30.4% had a low level of performance. (Table 19).

Table 19: Level of role performance of village health volunteers regarding monitoring and surveillance of performance as categorized according to types of villages

Level of Performance	Low risk village		High risk village	
	N	%	N	%
Low	42	47.7	75	30.4
Moderate	26	29.5	97	39.3
High	20	22.7	75	30.4
Total	88	100.0	247	100.0

Part IV: Relationships between study variables and role perception of village health volunteers regarding prevention and control of dengue hemorrhagic fever

The study variables included gender, marital status, educational background, occupation, position in the community, previous training on dengue hemorrhagic fever, history of dengue hemorrhagic fever, and type of the village. Chi-square test was used to analyze the relationship between the study variables and village health volunteers' role perception. The findings were as follows:

Gender was found to be associated with village health volunteers' role perception regarding prevention and control of dengue hemorrhagic fever with statistical significance (p -value < 0.05). In this study, 71.4% of the male village health volunteers had a good level of perception.

There was no statistically significant relationship between marital status and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p -value < 0.05).

There was no statistically significant relationship between educational background and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05).

There was no statistically significant relationship between occupation and village health volunteers' overall role perception regarding hemorrhagic fever (p-value < 0.05).

There was no statistically significant relationship between position in the community and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05).

There was no statistically significant relationship between previous training on dengue hemorrhagic fever and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05).

There was no statistically significant relationship between personal history and family history of dengue hemorrhagic fever and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05).

There was no statistically significant relationship between type of the village and village health volunteers' overall role perception regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05).

Table 20: Relationships between study variables and role perception of village health volunteers regarding prevention and control of dengue hemorrhagic fever according to demographic characteristics

Demographic characteristics Perception outcomes	Good Number(%)	Total Fair Number(%)	Poor Number(%)
Gender			
Male 91(100)	65(1.4)	22(24.2)	4(4.4)
Female 242(100)	138(57.0)	74(30.6)	30(12.4)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 7.33$; p-value = 0.02; df = 2			
Marital status			
Single and divorced 21(100)	16(76.2)	2(9.5)	3(14.3)
Married 312(100)	187(59.9)	94(30.1)	31(9.9)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 4.115$; p-value = 0.12; df = 2			
Educational background			
Elementary 210(100)	124(59.0)	68(32.4)	18(8.6)
Secondary 97(100)	64(66.0)	22(22.7)	11(11.3)
Certificate and higher 26(100)	15(57.7)	6(23.1)	5(19.2)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 5.808$; p-value = 0.21; df = 4			
Occupation			
Agriculturists 222(100)	140(63.1)	66(29.7)	16(7.2)
Traders 34(100)	18(52.9)	9(26.5)	7(20.6)
Wage earners 51(100)	33(64.7)	13(25.5)	5(9.8)
Housewives 25(100)	12(48.0)	7(28.0)	6(24.0)
Total 332(100)	203(61.1)	95(28.6)	34(10.2)
$X^2 = 11.829$; p-value = 0.06; df = 4			

Table 20: (Continue) Relationships between study variables and role perception of village health volunteers regarding prevention and control of dengue hemorrhagic fever according to demographic characteristics

Demographic characteristics Total	Perception outcomes		
	Good Number(%)	Fair Number(%)	Poor Number(%)
Position in the community	115(57.5)	59(29.5)	26(13.0)
No 200(100)			
Yes 133(100)	88(66.2)	37(27.8)	8(6.0)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 4.879$; p-value = 0.08; df = 2			
Previous training on DHF			
No 72(100)	36(50)	25(34.7)	11(5.3)
Yes 261(100)	167(64)	71(27.2)	23(8.8)
Total 333(100)	203(61)	96(28.8)	34(10.2)
$X^2 = 5.22$; p-value = 0.07; df = 2			
History of DHF			
No 281(100)	177(63.0)	76(27.0)	28(10)
Yes 52(100)	26(50.0)	20(38.5)	6(11.5)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 3.304$; p-value = 0.19; df = 2			
Type of village			
Low-risk 86(100)	51(59.3)	21(24.4)	14(16.3)
High-risk 247(100)	152(61.5)	75(30.4)	20(8.1)
Total 333(100)	203(61.0)	96(28.8)	34(10.2)
$X^2 = 5.017$; p-value = 0.08; df = 2			

In addition, Pearson's correlation coefficient was employed to determine the study variables of age, income, length of work as village health volunteers, and number of previous trainings and role perception of village health volunteers regarding prevention and control of dengue hemorrhagic fever. The results of the analysis were as follows:

There was no statistically significant relationship between age and village health volunteers' overall and each aspect of role perception regarding prevention and control of dengue hemorrhagic fever (p-value > 0.05).

Income was associated with village health volunteers' role perception regarding prevention and control of dengue hemorrhagic fever on the overall, on elimination of breeding grounds of *Aedes aegypti* larvae, and on monitoring and surveillance of performance with statistical significance (p-value < 0.05).

There was no statistically significant relationship between length of work as village health volunteers and village health volunteers' overall and each aspect of role perception regarding prevention and control of dengue hemorrhagic fever (p-value > 0.05).

Number of trainings was associated with village health volunteers' role perception regarding prevention and control of dengue hemorrhagic fever on the overall, on collaboration to work in the community, on elimination of breeding grounds of *Aedes aegypti* larvae, and on monitoring and surveillance of performance with statistical significance (p-value < 0.05).

Table 21: Correlation coefficient between age, income, length of work as village health volunteers, and number of previous trainings and role perception of village health volunteers regarding prevention and control of dengue hemorrhagic fever as analyzed with Pearson correlation coefficient

Factors related to role perception	Correlation coefficient (r)	p- value
Age (years)		
Overall	0.014	0.880
1. Collaboration to work in the community	0.066	0.226
2. Dissemination of information	0.001	0.990
3. Elimination of breeding grounds	-0.057	0.299
4. Monitoring and surveillance of performance	0.001	0.992
Income (baht/month)		
Overall	0.119	0.030*
1. Collaboration to work in the community	-0.001	0.990
2. Dissemination of information	0.056	0.310
3. Elimination of breeding grounds	0.150	0.006*
4. Monitoring and surveillance of performance	0.166	0.002**
Length of work as village health volunteers		
Overall	0.065	0.241
1. Collaboration to work in the community	0.048	0.388
2. Dissemination of information	0.057	0.303
3. Elimination of breeding grounds	-0.027	0.630
4. Monitoring and surveillance of performance	0.078	0.156
Number of previous trainings		
Overall	0.175	0.001**
1. Collaboration to work in the community	0.144	0.008*
2. Dissemination of information	0.097	0.076
3. Elimination of breeding grounds	0.129	0.018*
4. Monitoring and surveillance of performance	0.143	0.009**

* p-value < 0.05; ** p-value < 0.01

Part V: Relationships between study variables and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever

The study variables included gender, marital status, educational background, occupation, position in the community, previous training on dengue hemorrhagic fever, history of dengue hemorrhagic fever, and type of the village. Chi-square test was used to analyze the relationship between the study variables and village health volunteers' role performance. The findings were as follows:

There was no statistically significant relationship between gender and village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever ($p\text{-value} > 0.05$).

There was no statistically significant relationship between marital status and village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever ($p\text{-value} > 0.05$).

There was no statistically significant relationship between educational background and village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever ($p\text{-value} > 0.05$).

Occupation was related to village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever with statistical significance ($p\text{-value} < 0.05$). That is, 15.6% of village health volunteers who were agriculturists had a good level of role performance.

There was no statistically significant relationship between position in the community and village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever (p-value > 0.05).

Previous training on dengue hemorrhagic fever was related to village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever with statistical significance (p-value < 0.05). Village health volunteers who had undergone training had a good level of performance, making up 64% of the total.

There was no statistically significant relationship between personal history and family history of dengue hemorrhagic fever and village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever (p-value > 0.05).

Type of the village was found to be associated with village health volunteers' overall role performance regarding prevention and control of dengue hemorrhagic fever (p-value < 0.05). Village health volunteers who resided in a high-risk village had a good level of performance at 13.4%.

Table 22: Relationships between study variables and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever according to demographic characteristics

Demographic characteristics Total	Perception outcomes		
	Good Number(%)	Fair Number(%)	Poor Number(%)
Gender			
Male 91(100)	12(13.2)	33(36.3)	46(50.5)
Female 244(100)	30(12.3)	80(32.8)	134(54.9)
Total 335(100)	42(12.5)	113(33.7)	180(53.7)
$X^2 = 0.515$; p-value = 0.773; df = 2			
Marital status			
Single and divorced 21(100)	2(9.5)	5(23.8)	14(66.7)
Married 314(100)	40(12.7)	108(34.4)	166(52.9)
Total 335(100)	42(12.5)	113(33.7)	180(53.7)
$X^2 = 1.514$; p-value = 0.46; df = 2			
Educational background			
Elementary 212(100)	23(10.8)	75(35.4)	114(53.8)
Secondary 97(100)	14(14.4)	32(33.0)	51(52.6)
Certificate and higher 26(100)	5(19.2)	6(23.1)	15(57.7)
Total 335(100)	42(12.5)	113 (33.7)	180(53.7)
$X^2 = 2.850$; p-value = 0.58; df = 4			
Occupation			
Agriculturists 224(100)	35(15.6)	79(35.3)	110(49.1)
Traders 34(100)	3(8.8)	7(20.6)	24(70.6)
Wage earners 51(100)	2(3.9)	21(41.2)	28(54.9)
Housewives 25(100)	2(8.0)	6(24.0)	17(68.0)
Total 334(100)	42(12.6)	113(33.8)	179(53.6)
$X^2 = 12.575$; p-value = 0.05; df = 4			

Table 22: (Continue) Relationships between study variables and role performance of Village health volunteers regarding prevention and control of dengue hemorrhagic fever according to demographic characteristics

Demographic characteristics Total	Perception outcomes		
	Good Number(%)	Fair Number(%)	Poor Number(%)
Position in the community			
No 202(100)	19(9.4)	64(31.7)	119(58.9)
Yes 133(100)	23(17.3)	49(36.8)	61(45.9)
Total 335(100)	42(12.5)	113(33.7)	180(53.7)
$X^2 = 4.879$; p-value = 0.08; df = 2			
Previous training on DHF			
No 72(100)	36(50.0)	25(34.7)	11(5.3)
Yes 261(100)	167(64.0)	71(27.2)	23(8.8)
Total 333(100)	2.3(61)	96(28.8)	34(10.2)
$X^2 = 7.152$; p-value = 0.02; df = 2			
History of DHF			
No 283(100)	37(13.1)	93(32.9)	153(54.1)
Yes 52(100)	5(9.6)	20(38.5)	27(51.9)
Total 335(100)	42(12.5)	113(33.7)	180(53.7)
$X^2 = 0.865$; p-value = 0.64; df = 2			
Type of village			
Low-risk 88(100)	9(10.2)	21(23.9)	58(65.9)
High-risk 247(100)	33(13.4)	92(37.2)	122(49.4)
Total 335(100)	42(12.5)	113(33.7)	180(53.7)
$X^2 = 7.247$; p-value = 0.02; df = 2			

Besides, Pearson's correlation coefficient was employed to determine the study variables of age, income, length of work as village health volunteers, and number of previous trainings and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever. The results of the analysis were as follows:

There was no statistically significant relationship between age and village health volunteers' overall and each aspect of role performance regarding prevention and control of dengue hemorrhagic fever (p-value > 0.05).

Income was associated with village health volunteers' role performance regarding prevention and control of dengue hemorrhagic fever on the overall, on elimination of breeding grounds of *Aedes aegypti* larvae, and on monitoring and surveillance of performance with statistical significance (p-value < 0.05).

Number of trainings was associated with village health volunteers' role performance regarding prevention and control of dengue hemorrhagic fever on the overall, on collaboration to work in the community, on elimination of breeding grounds of *Aedes aegypti* larvae, and on monitoring and surveillance of performance with statistical significance (p-value < 0.05).

Table 23: Correlation coefficient between age, income, length of work as village health volunteers, and number of previous trainings and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever as analyzed with Pearson correlation coefficient

Factors related to role performance	Correlation coefficient (r)	p- value
Age (years)	0.00	0.96
Overall		
1. Collaboration to work in the community	0.06	0.24
2. Dissemination of information	0.01	0.85
3. Elimination of breeding grounds	-0.06	0.23
4. Monitoring and surveillance of performance	-0.00	0.87
Income (baht/month)		
Overall	0.11	0.04
1. Collaboration to work in the community	-0.02	0.69
2. Dissemination of information	0.04	0.42
3. Elimination of breeding grounds	0.15	0.00
4. Monitoring and surveillance of performance	0.06	0.00
Length of work as village health volunteers		
Overall	0.06	0.22
1. Collaboration to work in the community	-0.02	0.26
2. Dissemination of information	0.04	0.21
3. Elimination of breeding grounds	0.15	0.90
4. Monitoring and surveillance of performance	0.06	0.23
Number of previous trainings		
Overall	0.78	0.00
1. Collaboration to work in the community	0.00	0.92
2. Dissemination of information	0.52	0.00
3. Elimination of breeding grounds	0.47	0.00
4. Monitoring and surveillance of performance	0.143	0.00

* p-value < 0.05; ** p-value < 0.01

Part VI: Relationship between role perception and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever

Table 16 illustrates the relationship between means and standard deviations of role perception and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever. The findings indicated that role perception was statistically significantly related to role performance ($p < 0.01$).

Table 24: Relationship between role perception and role performance of village health volunteers regarding prevention and control of dengue hemorrhagic fever

role performance	<i>r</i>	p-value
Collaboration to work in the community	0.46	0.00
Dissemination of information	0.42	0.00
Elimination of breeding grounds of <i>Aedes aegypti</i> larvae	0.41	0.00
Monitoring and surveillance of performance	0.45	0.00
Overall	0.50	0.00

Part VII: Problems and obstacles and additional suggestions of village health volunteers regarding their role to prevent and control dengue hemorrhagic fever

Problems and obstacles

Table 17 below depicts opinions towards problems and obstacles in preventing and controlling dengue hemorrhagic fever. The data were collected from 92 village health volunteers who voiced their opinions. According to the findings, more than half of the village health volunteers (51%) experienced a lack of cooperation from villagers to survey *Aedes aegypti* larvae. Furthermore, the geographical characteristics made it difficult to control the birth of *Aedes aegypti* larvae, especially in the areas with ditches, rubber plantation, livestock farms, and households with aquariums for Siamese fighting fish where mosquito larvae are specially bred. Thus, the village health volunteers felt that it was not an easy task for them to ask for cooperation to eliminate the breeding grounds of *Aedes aegypti* larvae.

Table25: Number and percentage of village health volunteers who voiced their Opinions regarding problems and obstacles in preventing and controlling dengue hemorrhagic fever

Problems and obstacles	N	%
1. Lack of cooperation from villagers in surveying for <i>Aedes aegypti</i> larvae	47	51.0
2. Geographical characteristics difficult for control of <i>Aedes aegypti</i> larvae especially in rubber plantations and livestock farms	13	14.1
3. Popularity of Siamese fighting fish with breeding of <i>Aedes aegypti</i> larvae to feed the fish	8	8.7
4. Insufficient abate sand and guppy fish for every member in the community	7	7.6
5. Lack of support from community leaders and local Organizations	6	6.5
6. Lack of comprehensive dissemination of knowledge about dengue hemorrhagic fever through news towers	6	6.5
7. Lack of knowledge about dengue hemorrhagic fever	5	5.4