CHAPTER IV

RESULTS

The research applied the participation of family health volunteers in controlling of Aedes aegypti larvae in Muang District, Nakorn Si Thammarat Province. The quantitative procedures were used in this study by collecting data form: the questionnaires, which it were used for assessing the effectiveness of a health education program, Which was divided into seven parts as follows:

1. Socio - demographic characteristics.

2. Knowledge of Dengue Haemorrhagic Fever and Aedes aegypti larvae

    2.1   Comparative difference of the knowledge mean score within the experimental and the comparison groups, before and after the program.

    2.2   Comparative difference of the knowledge mean score between the experimental and the comparison groups, before and after the program.

3. Perceived susceptibility of Dengue Haemorrhagic Fever.

    3.1   Comparative difference of perceived susceptibility of Dengue Haemorrhagic Fever mean score within the experimental and the comparison groups, before and after the program.

3.2 Comparative difference of perceived susceptibility of Dengue Haemorrhagic Fever mean score between the experimental and the comparison groups, before and after the program.

4. Perceived severity of Dengue Haemorrhagic Fever.

4.1 Comparative difference of perceived severity of Dengue Haemorrhagic Fever mean score within the experimental and the comparison groups, before and after the program.

4.2 Comparative difference of perceived severity of Dengue Haemorrhagic Fever mean score between the experimental and the comparison groups, before and after the program.

5. Perceived cost - benefits in control of Aedes aegypti larvae.

5.1 Comparative difference of perceived cost- benefits in control of Aedes aegypti larvae mean score within the experimental and the comparison groups, before and after the program.

5.2 Comparative difference of perceived cost- benefits in control of Aedes aegypti larvae mean score between the experimental and the comparison groups, before and after the program.

6. Aedes aegypti larvae control practices

7. Larvae index analysis

Part 1: Number and percentage of the samples by Socio – demographic characteristics

In the experimental group for they are gender, age, marital status, education, occupation, Dengue Haemorrhagic Fever illness experience in family or villages, experience in survey of Aedes aegypti larvae and prevent of mosquitoes bite.

Gender. The experimental group mostly there was female 86.2%, male 13.8% The comparison group mostly there was female 55.6%, male 44.4% The detail has been show in Table 2.

Age. The experimental group and the comparison group there was mainly among 40-59 years. The mean of experimental group was 47 years, the youngest was 17, while the oldest was 77 years. The mean of comparison group was 46 years old, the youngest was 15 years and the oldest was 76 years.

Education. The most of experimental group was primary school 66.1%, high school level 27.5% and the most comparison group was primary school 66.7%, high school level 22.2% .The detail has been show in Table 2.

Occupation. The most of experimental group was agriculture 49.5%, the minor are housewife 18.4%, the most of comparison group was agriculture 61.6%, employees 17.2%. The detail has been show in Table 2.

Marital status. The majority of experimental group was couple 75.2%, widows 13.8%, single 5.5%, divorce or separate 5.5%. The majority of comparison group was couple 78.8%, widows 10.1%, single 10.1%, divorce or separate 1.0%. The detail has been show in Table 2.

Income per month. The most of experimental group was the whole family income which cannot be distinguished 43.1%, the second was 4,999 bath/ month and below 22.0%, the most of comparison group was whole family income 34.3%, the second was 4,999Bath/month and below 30.3%

DHF illness by one – self and member in household the past annual. The most of experimental group had not DHF experience 88.1% and the case of DHF in family found 8.3% which was the offspring of family health volunteers. The comparison group had not DHF experience 88.9% and the case of DHF in family members found 9.1% which was the child of family health volunteers.

DHF illness by the neighbor the past annual. The most of experimental group had not DHF experience with their next door family 69.7%, the neighbor was 25.7%, families in the area 4.6% For the comparison group had not DHF experience with their next door family 79.8%, the neighbor was 14.1%, families in the area was 6.1%. The detail has been show in Table 2.

The experience in survey of Aedes aegypti larvae The most of experimental group was never 22.9%, twice 22.9% and more than four times was 22.0%, the most of

comparison group was never 44.4%, only once 34.3%, twice 15.2%. The detail has been show in Table 2.

The measurement to prevent mosquitoes bite The most of the experimental group sleep in mosquitoes nets 25.7%, the minor they light the mosquitoes repelling stick 23.9%, the most of comparison group sleep in mosquitoes nets 29.3%, the minor turning on the electric fan 23.2%. The detail has been show in Table 2.

Table 2: Number and percentage of the samples by socio-demographic characteristics

Socio- demographic Characteristics	Experimental group		Comparison group	
	n	%	n	%
Gender				
Male	15	13.8	44	44.4
Female	94	86.2	55	55.6
Age				
Under20 years	1	0.9	2	2.0
20 -29	5	4.6	8	8.1
30-39	16	14.7	21	21.2
40-49	38	34.7	26	26.3
50-59	38	34.9	23	23.2
60 years and more	11	10.1	19	19.2
Total	109	100	99	100

Table 2: (Cont.) Number and percentage of the samples by socio-demographic characteristics

Socio- demographic Characteristics	Experimental group		Comparison group	
	n	%	n	%
Mean	47.5		46.7	
Standard deviation	10.6		13.1	
Min	17		15	
Max	77		76	
Educational Level				
Primary school	72	66.1	66	66.7
Secondary school	30	27.5	22	22.2
Certificate	5	4.6	7	7.1
Bachelor degree or higher	2	1.8	4	4.0
Total	109	100	99	100
Occupation				
Agriculture	54	49.5	61	61.6
Housewife	20	18.4	6	6.1
Commercial	18	16.5	11	11.1
Employee	13	11.9	17	17.2
Student	2	1.8	1	1.0
Government official	2	1.8	2	2.0
Unemployed	0	0	1	1.0
Total	109	100	99	100

Table 2: (Cont.) Number and percentage of the samples by socio-demographic characteristics

Socio- demographic Characteristics	Experimental group		Comparison group	
	n	%	n	%
Marital status				
Married	82	75.2	78	78.8
Widow	15	13.8	10	10.1
Single	6	5.5	10	10.1
Divorced/separated	6	5.5	1	1.0
Total	109	100	99	100
Income per month (Bath)				
4,999 -lower	24	22.0	30	30.3
5,000-9,999	22	20.2	17	17.2
10,000-14,999	8	7.3	4	4.0
15,000 and higher	2	1.8	5	5.1
No income	6	5.5	9	9.1
Total family - income	47	43.1	34	34.3
Family member ever been sick with DHF the past annual				
No	96	88.1	88	88.9
Yes	13	11.9	11	11.1
Child	9	8.3	9	9.1
Self	2	1.8	0	0
Family member	2	1.8	2	2.0
Total	109	100	99	100

Table 2:   (Cont.) Number and percentage of the samples by socio-demographic characteristics

Socio- demographic Characteristics	Experimental group		Comparison group	
	n	%	n	%
Neighbor ever been sick with DHF in the past annual				
No	76	69.7	79	79.8
Yes	33	30.3	20	20.2
The next door	28	25.7	14	14.1
Neighbor the area around	5	4.6	6	6.1
Total	109	100	99	100
The experience in doing the survey mosquito larvae				
Never	25	22.9	44	44.4
Ever				
Once	16	14.7	34	34.3
Twice	25	22.9	15	15.2
3 times	11	10.1	3	3.0
4 times	8	7.3	3	3.0
More than 4	24	22.0	0	0
Total	109	100	99	100

Table 2: **(Cont.) Number and percentage of the samples by socio-demographic characteristics**

Socio- demographic Characteristics	Experimental group		Comparison group	
	n	%	n	%
Methods for preventing mosquitoes bite				
- Mosquitoes net	75	68.8	69	69.7
- Insect repellent, Burnt stick	26	23.9	20	20.2
- Window and Door screen	22	20.2	17	17.2
- Electric fan	19	17.4	23	23.2
- Chemical spray	13	11.9	9	9.1
- Do not prevent	1	0.9	1	1.0

Part 2:   Knowledge of Dengue Haemorrhagic Fever and Aedes aegypti larvae control

The knowledge about Dengue Haemorrhagic Fever and controlling Aedes aegypti larvae of family health volunteers, there were full score =16 scores. In general, the experimental group had a good knowledge the mean score they got in the test was to prevent Aedes aegypti lay their egg in water containers mean score was 0.97, to prevent mosquitoes bite mean score was 0.91, and to prevent Aedes aegypti lay their eggs in drinking or consuming water containers mean score was 0.90. Poor knowledge and the lowest mean score they got was the habitat of mosquitoes that spread DHF mean score was 0.19, adult mosquitoes allotted span mean score was 0.25 and egg to

adult grow up time mean score was 0.29. Knowledge of Dengue Haemorrhagic Fever in comparison group. They are good knowledge general, the mean score they got the communication of Dengue Haemorrhagic Fever mean score was 0.96, to prevent Aedes aegypti lay their eggs in drinking or consuming water containers mean score was 0.95 and the seasons that usually Aedes aegypti spread disease like bite people mean score was 0.91, poor knowledge and the lowest score they got are the habitat of mosquitoes that spread DHF mean score was 0.18, adult mosquitoes allotted span mean score was 0.20 and to control Aedes aegypti larvae in ant trap mean score was 0.43 (The detail was summarized in Appendix A. Table 11).

2.1   Comparison of difference of the knowledge mean score of Dengue Haemorrhagic Fever and the control of Aedes aegypti larvae for DHF within the experimental and the comparison groups, before and after the program.

Before the experimentation the mean score of experimental group was 9.70, standard deviation 2.12, the mean score of comparison group was 9.48 and standard deviation 2.52 which there was difference with no statistical significant at p-value 0.492.

After the experimentation the mean score of experimental group increase to 14.06 and the standard deviation 1.52, the comparison group mean score was 9.51 and standard deviation 2.51 To compare the difference in statistic, found the experimental group has increased their mean score of knowledge more than the comparison group

which there was difference with statistical significant at p-value < 0.001 as shown the detail in Table 3.

2.2   Comparison of difference of the knowledge mean score of Dengue Haemorrhagic Fever and the control of Aedes aegypti larvae for DHF between the experimental and the comparison groups, before and after the program

The experimental group The mean score of the experimental group, before the Experimentation was standard deviation was 2.12, after the experimentation the mean score increased to 14.06 and the standard deviation was 1.52, in comparison of both events it is found that the Knowledge increase in significant statistic after the experimentation with statistical significant at p-value < 0.001 as shown the detail in Table 3.

The comparison group the mean score of the comparison group, before the experimentation was 9.48, standard deviation was 2.52, after the experimentation the mean score increased to 9.51 and the standard deviation was 2.51, which there was difference with no statistical significance at p- value = 0.259 as shown the detail in Table 3.

Table 3: Knowledge of DHF and Aedes aegypti larvae control, between and within the experimental and comparison group, before and after the program

Knowledge	n	$\overline{X}$	S.D	t-value	df	p-value
Between Groups						
Before the experimentation						
Experimental group	109	9.70	2.12			
				0.689	206	0.492
Comparison group	99	9.48	2.52			
After the experimentation						
Experimental group	109	14.06	1.52			
				15.767	206	<0.001*
Comparison group	99	9.51	2.51			
Within Groups						
Experimental group						
Before the experimentation	109	9.70	2.12			
				18.312	108	<0.001*
After the experimentation	109	14.06	1.52			
Comparison group						
Before the experimentation	99	9.48	2.52			
				1.136	98	0.259
After the experimentation	99	9.51	2.51			

* Significant differences at p- value < 0.05

Part 3: **Comparative difference of perceived susceptibility of Dengue Haemorrhagic Fever mean score before and after the experimentation in the experimental and comparison group.**

The perceived susceptibility of Dengue Haemorrhagic Fever to be inquired by 10 items, estimating scale 1-3, the score to be given to each item was 1-3 score, the score range 10-30. In general the experimental group they got rather high score in perceived susceptibility of DHF in especially for the Aedes aegypti bite by day time can get more chance of DHF the mean score was 2.82. The next was good perception about the season which is the peak for DHF spreading, the mean score was 2.63, the breeding place for Aedes aegypti mean score was 2.61. The experimental group was low in perceived susceptibility of DHF that was only children that ill affected by DHF. The mean score was 1.89, in case of family member ill from DHF it was possible that it spreads to whole village mean score was 1.91, people only once bitten by Aedes aegypti that carry virus can be the case of DHF illness mean score was 2.07.

Perceived susceptibility of DHF, the comparison group general they was rather high in perceived susceptibility of DHF to the in concerning the incubation place of Aedes aegypti larvae they got highest mean score was 2.88, the next was about children bitten by Aedes aegypti during daytime can get more chance of DHF the mean score was 2.81, people only once bitten by Aedes aegypti that carry virus can be case of illness the mean score was 2.56, the comparison group got low score in perceived susceptibility to the about saying that only children can be the case of DHF the mean score was 1.95, in case of family member ill from DHF it was possible that it spreads to

whole village the mean score was 2.17 and about the season of DHF spreading the mean score was 2.20 the detail in Appendix II Table 13.

3.1 Comparative difference of perceived susceptibility to DHF between the experimental group and the comparison group, before and after the experimentation

Before the experimentation. The mean score on perceived susceptibility of DHF to the experimental group was 23.36, standard deviation was 2.59, the comparison group have their mean score was 24.0, standard deviation was 2.09, which there was difference with no statistical significance at p-value = 0.058.

After the experimentation. The mean score on perceived susceptibility of DHF to the experimental group increase to 27.97, standard deviation was 1.57, the comparison group mean score was 24.04, standard deviation was 2.10 which there was difference with statistical significance at p- value<0.001 as shown the detail in Table 4.

3.2 Comparative difference of perceived susceptibility to DHF within the experimental group and the comparison group, before and after the experimentation

Experimental group. It was found that before the experimentation the mean score in perceived susceptibility of DHF was 23.36, standard deviation was 2.59, after the experimentation the mean score increased to 27.97, standard deviation was 1.57 which there was difference with statistical significance at p- value < 0.001 the detail in Table 4.

Comparison group. It was found that before the experimentation the mean score in perceived susceptibility of DHF was 24.0, standard deviation was 2.09, after the experimentation the mean score was 24.04, standard deviation was 2.10 which there was difference with no statistical significance at p- value = 0.103 the detail in Table 4.

Table 4: **Comparative differences of perceived susceptibility to DHF, between and within the experimental group and comparison group, before and after the experimentation**

Perceived susceptibility	n	$\overline{X}$	S.D	t-value	df	p-value
Between Groups						
Before the experimentation						
Experimental group	109	23.36	2.59			
				1.908	206	0.058
Comparison group	99	24.00	2.09			
After the experimentation						
Experimental group	109	27.97	1.57			
				15.167	206	<0.001*
Comparison group	99	24.04	2.10			
Within Groups						
Experimental group						
Before the experimentation	109	23.36	2.59			
				16.292	108	<0.001*
After the experimentation	109	27.97	1.57			
Comparison group						
Before the experimentation	99	24.0	2.09			
				1.648	98	0.103
After the experimentation	99	24.04	2.10			

* Significant differences at p- value < 0.05

Part 4:   Comparative differences of perceived severity of DHF mean score in the experimental and comparison group, before and after the experimentation

Perceived severity of DHF, there are 10 items with estimating scale 1-3 the score given in each item was 1-3 total was 10-30 scores. Perceived severity of DHF, the experimental group got high score in saying the DHF was severe in symptom and take long time in the remedy, the mean score was 2.8, the next they know that the severe symptom can cause shock, the mean score was 2.81, in most severity of DHF there always be a bleeding spot on skin, the mean score was 2.73. The lowest mean score perceived severity of experimental group was 1.23, in the matter of DHF in mostly cases die of excessive fever. All cases of DHF have to admit in the hospital the mean score was 1.52, DHF costs a lot of money in the remedy with the mean score was 2.13.

Perceived severity in comparison group they got the highest mean score in the matter of severe case of DHF there always bleeding spots on skin the mean score was 2.84, the next was patients may lose their lives in case of missing the treatment in at once the mean score was 2.84, in the matter of severe symptom can cause shock the mean score was 2.79. The comparison group was lowest score perceived severity about the matter of DHF in mostly cases die of excessive fever they got mean score was 1.30, come later was all cases of DHF have to admit in the hospital with mean score was 1.59, DHF costs a lot of money in the remedy, with the mean score was 2.17, the detail in summary are shown in Appendix B Table 15 in the comparison of mean score.

4.1 Comparison difference of perceived severity to DHF mean score within the experimental and the comparison groups, before and after the program

Before the experimentation the mean score perceived severity of the experimental group was 23.00 the standard deviation was 2.60, while the comparison group mean score was 23.28 and standard deviation was 2.05 which there was difference with no statistical significance at p- value = 0.407.

After the experimentation the mean score perceived severity of the experimental group increased to 26.19, standard deviation was 1.65, while the comparison group was 23.26 and standard deviation was 1.91. To compare the difference in statistic found the increase in mean score of the experimental group which there was difference with statistical significance at p-value<0.001 the detail in Table 5.

4.2 Comparison difference of perceived severity to DHF mean score between the experimental and the comparison groups, before and after the program

Experimental group the mean score perceived severity in experimental group before the experimentation was 23.0, standard deviation was 2.60. The mean score after the experimentation increased to 26.19, standard deviation was 1.65. To compare the difference in statistic before and after the experimentation found that the mean score perceived severity of experimental group higher than the mean score before the experimentation which there was difference with statistical significance at p-value <0.001.

Comparison group the mean score perceived severity in comparison group before the experimentation was 23.28, standard deviation was 2.05, after the experimentation the mean score was 23.26, standard deviation was 1.91 which there was difference with no statistical significance at p- value = 0.765 the detail in Table 5.

Table 5:   Comparative difference of perceived severity of DHF between and within the experimental group and comparison group, before and after the experimentation

Perceived severity	n	$\overline{X}$	S.D	t-value	df	p-value
Between Groups						
Before the experimentation						
Experimental group	109	23.00	2.60			
				0.831	206	0.407
Comparison group	99	23.28	2.05			
After the experimentation						
Experimental group	109	26.19	1.65			
				11.701	206	<0.001*
Comparison group	99	23.26	1.91			
Within Groups						
Experimental group						
Before the experimentation	109	23.00	2.60			
				13.770	108	<0.001*
After the experimentation	109	26.19	1.65			
Comparison group						
Before the experimentation	99	23.28	2.05			
				0.300	98	0.765
After the experimentation	99	23.26	1.91			

* Significant differences at p- value < 0.05

Part 5: **Comparative differences of perceived cost - benefits in controlling of Aedes aegypti larvae mean score in the experimental and comparison group,before and after experimentation.**

There was ten items in test of perceived cost - benefits in control of Aedes aegypti larvae. The estimate scale was 1-3, and the score give to each item was 1-3 scores. The range score 10-30 scores. The experimental group general their perceived cost - benefits in control of Aedes aegypti larvae the highest of mean score they got was about keep tightly close the lids of water containers to prevent spreading of disease the mean score was 2.86, next is to destroy mosquitoes bleeding place by burn and burial of the discarded ware can reduce the mosquitoes bleeding places with mean score was 2.81, the saying, when people consider of Aedes aegypti larvae control is the duty for everyone there will be no DHF in the village for this mean score was 2.69. The experimental group got the lowest mean score in perception to the control of Aedes aegypti larvae in the matter of abate sand was economic and the easiest way in control of Aedes aegypti larvae the mean score was 1.63, to put abate sand in to earthen jar or water containers will be harmful to the water consumers the mean score was 1.75, every house in the village has to survey their Aedes aegypti larvae to ecrease the amount of Aedes aegypti the mean score was 1.93. In comparison group perceived cost-benefits in control of Aedes aegypti larvae they got the highest mean score in the eradication of Aedes aegypti larvae breeding place by burning and bury can decrease the Aedes aegypti bleeding places mean score was 2.94, to keep tightly close the lids of the water containers can prevent spreading of disease the mean score was 2.74, people in realized that control of Aedes aegypti larvae was the duty for every one, then DHF

will be no more found in the village mean score was 2.48. The comparison group got the lowest score perceived cost - benefits in control of Aedes aegypti larvae with abate sand as it was the easiest and economic with the mean score was 1.65, the best way to eradicate of Aedes aegypti larvae breeding place was to do every week the mean score was 2.00, the survey of Aedes aegypti larvae can prevent spreading of DHF the mean score was 2.06 the details in Appendix B Table 17. To compare the difference of mean score.

5.1 Comparative difference of perceived cost - benefits to Aedes aegypti larvae control between the experimental group and the comparison group, before and after the experimentation.

Before the experimentation The mean score of experimental group perceived cost- benefits to Aedes aegypti larvae control was 22.20, standard deviation was 3.69. The mean score of comparison group was 22.17, standard deviation was 2.79 which there was difference with no statistical significance at p- value = 0.276 the detail in Table 6.

After the experimentation The mean score of experimental group perceived cost- benefits to Aedes aegypti larvae increased to 26.77, standard deviation was 1.14. The mean score of comparison group was 22.67, standard deviation was 2.56 which there was difference with statistical significance at p-value <0.001 the detail in Table 6.

5.2 Comparative difference of perceived cost- benefits to Aedes aegypti larvae within of experimental group and the comparison group, before and after the experimentation

Experimental group found that before the experimentation mean score perceived cost- benefits to Aedes aegypti larvae was 22.20, standard deviation was 3.69. After the experimentation the mean score increased to 26.77, standard deviation was 1.14 which there was difference with statistical significance at p-value <0.001.

Comparison group found that before the experimentation mean score perceived cost- benefits to Aedes aegypti larvae of comparison group was 22.71, standard deviation was 2.79. After the experimentation the mean score decreased to 22.67, standard deviation was 2.56 which there was difference with no statistical significance at p-value = 0.717 the detail in Table 6.

Table 6:   Comparative difference of perceived cost- benefits in controlling the Aedes aegypti larvae in experimental group and comparison group, before and after experimentation

Perceived cost- benefits	n	$\overline{X}$	S.D	t-value	df	p-value
<u>Between Groups</u>						
Before the experimentation						
Experimental group	109	22.20	3.69			
				1.092	206	0.276
Comparison group	99	22.71	2.79			
After the experimentation						
Experimental group	109	26.77	1.14			
				15.064	206	<0.001*
Comparison group	99	22.67	2.56			
<u>Within Groups</u>						
Experimental group						
Before the experimentation	109	22.20	3.69			
				12.974	108	<0.001*
After the experimentation	109	26.77	1.14			
Comparison group						
Before the experimentation	99	22.71	2.79			
				0.363	98	0.717
After the experimentation	99	22.67	2.56			

* Significant differences at p- value < 0.05

Part 6: Number and percentage of Aedes aegypti larvae control practices

Comparing number and percentage of behavior in controlling Aedes aegypti larvae and destroying breeding sites of family health volunteers. The experimental group and the comparison group, Separated by behavior in control Aedes aegypti larvae, before and after the experimentation, in various methods to destroy Aedes aegypti larvae bleeding places, and eradicate of Aedes aegypti larvae. The type of water containers need to be separated whether they are the wastes or still in used.

Table 7: Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparis on group
Earthen jars for drink water				
No have	11(10.1)	16(16.2)	11 (10.1)	16(16.2)
Have	98(89.9)	83(83.8)	98(89.9)	83(83.8)
Control of Aedes aegypti breeding place				
To close the lid				
- Immediately closing after used	65(66.3)	60(72.3)	93 (94.9)	62 (74.7)
- Sometime	20(20.4)	18(21.7)	5(5.1)	13(15.7)
- Not do	13(13.3)	5(6.0)	0(0)	8(9.6)

Table 7:   (Cont.) Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparison group
Changing water				
- Every week	21(21.4)	23(27.7)	68(69.4)	30(36.1)
- Sometime	58(59.2)	52(62.7)	27(27.6)	42(50.6)
- Not do	19(19.4)	8(9.6)	3(3.0)	11(13.3)
Changing water and scrubbing				
- Every week	14(14.3)	2(2.4)	32(32.7)	3(3.6)
- Sometime	14(14.3)	6(7.2)	41(41.8)	8(9.6)
- Not do	70(71.4)	75(90.4)	25(25.5)	72(86.8)
Earthen jars for general use				
No have	11(10.1)	16(16.2)	11(10.1)	16(16.2)
Have	98(89.9)	83(83.8)	98(89.9)	83(83.8)
The method to Control Aedes aegypti breeding place				
Close the lid				
- Immediately after use	13(13.3)	10(12.0)	53(54.1)	9(10.8)
- Sometime	21(21.4)	15(18.1)	38(38.8)	19(22.9)
- Not do	64(65.3)	58(69.9)	7(7.1)	55(66.3)
Changing water				
- Every week	13(13.3)	6(7.2)	72(73.5)	6(7.2)
- Sometime	16(16.3)	25(30.1)	17(17.4)	26(31.3)

Table 7: (Cont.) Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparison group
- Not do	69(70.4)	52(62.7)	9(9.1)	51(61.5)
Adding Abate sand				
- Every three months	5(5.1)	5(6.0)	4(4.1)	8(9.6)
- Sometime	11(11.2)	8(9.6)	92(93.9)	12(14.5)
- Not do	82(83.7)	70(84.4)	2(2.0)	63(75.9)
Put eating - larvae fish				
- To replace the dead	10(10.2)	7(8.4)	17(17.4)	8(9.6)
- Sometime	63(64.3)	58(69.9)	60(61.2)	55(66.3)
- Not do	25(25.5)	18(21.7)	21(21.4)	20(24.1)
Water reservoirs in the toilets				
No have	11(10.1)	16(16.2)	11(10.1)	16(16.2)
Have	98(89.9)	83(83.8)	98(89.9)	83(83.8)
Close the lid				
- Immediately closing after use	13(13.3)	10(12.0)	53(54.1)	9(10.8)
- Sometime	21(21.4)	15(18.1)	38(38.8)	19(22.9)
- Not do	64(65.3)	58(69.9)	7(7.1)	55(66.3)
Changing water				
- Every week	13(13.3)	6(7.2)	72(73.5)	6(7.2)
- Sometime	16(16.3)	25(30.1)	17(17.4)	26(31.3)
- Not do	69(70.4)	52(62.7)	9(9.1)	51(61.5)

Table 7:   (Cont.) Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparison group
Adding abate sand in				
- Every three months	5(5.1)	0(0)	5(5.1)	8(9.6)
- Sometime	11(11.2)	18(21.7)	91(92.9)	12(14.5)
- Not do	82(83.7)	65(78.3)	2(2.0)	63(75.9)
Put eating- larvae fish				
- To replace of the dead	10(10.2)	7(8.4)	17(17.4)	8(9.6)
- Sometime	63(64.3)	58(69.9)	60(61.2)	65(78.3)
- Not do	25(25.5)	18(21.7)	21(21.4)	10(12.1)
Vase or water plant receptacles				
No have	43(39.4)	37(37.4)	42(38.5)	36(36.4)
Have	66(60.6)	62(62.6)	67(61.5)	63(63.6)
Changing water				
- Every week	28(42.4)	17(27.4)	58(86.6)	12(19.1)
- Sometime	35(53.0)	41(66.1)	9(13.4)	37(58.7)
- Not do	3(4.6)	4(6.5)	0(0)	14(22.0)
Closing with tissue/ solf paper				
- Regularly	40(60.6)	0(0)	46(68.7)	2(3. 1)
- Sometime	15(22.7)	43(69.4)	20(29.9)	50(79.4)
- Not do	11(16.7)	19(30.6)	1(1.4)	11(17.5)
Adding abate sand				
- Every three months	0(0)	0(0)	0(0)	0(0)
- Sometime	0(0)	0(0)	0(0)	0(0)
- Not do	66(100)	62(100)	67(100)	63(100)

Table 7: (Cont.) Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparison group
Put eating- larvae fish				
- To replace of the dead	0(0)	0(0)	0(0)	0(0)
- Sometime	18(27.3)	0(0)	18(26.9)	1(1.6)
- Not do	48(72.7)	62(100)	49(73.1)	62(98.4)
Ant trap				
No have	74(67.9)	67(67.7)	75(68.8)	66(66.7)
Have	35(32.1)	32(32.3)	34(31.2)	33(33.3)
Changing water				
- Every week	5(14.3)	5(15.6)	7(20.6)	3(9.1)
- Sometime	8(22.9)	8(25.0)	20(58.8)	12(36.4)
- Not do	22(62.8)	19(59.4)	7(20.6)	18(54.5)
Refill boiling water				
- Every one week	6 (17.2)	13(40.6)	25(73.5)	17(51.5)
- Sometime	18(51.4)	17(53.1)	9(26.5)	14(42.4)
- Not do	11(31.4)	2(6.3)	0(0)	2(6.1)
Saucer under flower pot				
No have	77(70.6)	65(65.7)	74(67.9)	66(66.7)
Have	32(29.4)	34(34.3)	35(32.1)	33(33.3)
Changing water				
- Regularly	12(37.5)	10(29.4)	31(88.6)	10(30.3)
- Sometime	16(50.0)	21(61.7)	4 (11.4)	20(60.6)
- Not do	4(12.5)	3(8.9)	0(0)	3(9.1)

Table 7: (Cont.) Number and percentage of Aedes aegypti larvae control practices the experimental and comparison groups, before and after the experimentation

Kind of container	Before the experimentation		After the experimentation	
	Experimental group	Comparison group	Experimental group	Comparison group
Refill by sand				
- Regularly	4(12.5)	0(0)	31(88.6)	2(6.1)
- Sometime	3(9.4)	8(23.5)	4(11.4)	8(24.2)
- Not do	25(78.1)	26(76.5)	0(0)	23(69.7)
Other containers destruction by burning / bury				
- Regularly	45(41.3)	43(43.4)	63(57.8)	40(40.4)
- Sometime	37(33.9)	32(32.3)	45(41.3)	33(33.3)
- Not do	27(24.8)	24(24.3)	1(0.9)	26(26.3)
Around house area burning / bury				
- Regularly	42(38.5)	13(13.1)	80(73.4)	4(24.2)
- Sometime	39(35.8)	36(36.4)	27(24.8)	33(33.3)
- Not do	28(25.7)	50(50.5)	2(1.8)	42(42.5)

Part 7: Comparative differences of B.I, C.I, and H.I. before and after the experimentation, in the experimental and comparison groups

The Aedes aegypti larvae index, is from the survey of Aedes aegypti larvae by survey form, then to calculate for the ratio of houses that found Aedes aegypti larvae House index (H.I.), ratio of container that found Aedes aegypti larvae Container index

(C.I.) and the ratio of the container that found Aedes aegypti larvae and the ratio of container that found Aedes aegypti larvae in 100 houses (B.I). The comparison was to be done by

7.1 Comparative differences of House index (H.I.)

7.1.1 Comparative difference of House index (H.I.) within experimental and the comparison groups, before and after the experimentation

Before the experimentation The H.I. for the experimental group was 100.0 and for the comparison group was also 100 which there was difference with no statistical significance at p-value = 0.500 the detail in Table 8.

After the experimentation The H.I. for the experimental group decrease to 39.5 and the comparison group was 98.0 which there was difference with statistical significance at p-value <0.001 the detail in Table 8.

7.1.2 Comparative difference of House index (H.I.) between experimental and the comparison groups, before and after the experimentation

Experimental group the H.I for experimental group before the experimentation was 100.0 after the experimentation H.I. decrease to 39.5 which there was difference with statistical significance at p-value <0.001 which was shown the detail in Table 8.

Comparison group the H.I. for comparison group before the experimentation was 100.0 after the experimentation H.I was 98.0. To compare the difference in statistic before and after the experimentation found that which there was difference with no statistical significance at p-value = 0.308 which was shown the detail in Table 8.

Table 8:   Comparative House index (H.I.) in the experimental and the comparison groups, before and after the experimentation

House index (H.I.)	Number of house to be surveyed	Number of house found Aedes aegypti larva	H.I	Z-test	p-value
Between Groups					
Before the experimentation					
Experimental group	109	109	100.0		
				0.00	0.500
Comparison group	99	99	100.0		
After the experimentation					
Experimental group	109	43	39.5		
				8.98	<0.001*
Comparison group	99	97	98.0		
Within Groups					
Experimental group					
Before the experimentation	109	109	100.0		
				9.64	<0.001*
After the experimentation	109	43	39.5		
Comparison group					
Before the experimentation	99	99	100.0		
				0.50	0.308
After the experimentation	99	97	98.0		

* Significant differences at p- value < 0.05

7.2 Comparative differences of Breteau index (B.I.)

7.2.1 Comparative difference of Breteau index (B.I.) within experimental and the comparison groups, before and after the experimentation

Before the experimentation The B.I. for experimental group was 290.8, the comparison group was 273.7. Which there was difference with no statistical significance at p-value = 0.274 which was shown the detail in Table 9.

After the experimentation the B.I. for experimental group was 72.5 the comparison group was 264.6 to compare the difference in statistic found that the B.I. of experimental group more decrease than the comparison group in statistic significant at p-value <0.001. The detail in Table 9.

7.2.2 Comparative difference of Breteau index (B.I.) between experimental and the comparison groups, before and after the experimentation.

Experimental group The B.I. before the experimentation was 290.8, after the experimentation the B.I. decrease to 72.5. To compare the different in statistic before and after the experimentation, found that the experimental group decrease B.I. in statistical significant at p-value<0.001.

Comparison group The B.I. before the experimentation was 273.7 after the experimentation B.I. decrease to 264.6. To compare the difference in statistic before

and after the experimentation found that there was no difference in statistical significant

at p-value = 0.386 the detail in Table 9.

Table 9: Comparative Breteau Index (B.I.) in the experimental and the comparison groups, before and after the experimentation

Breteau index (B.I.)	Number of house to be surveyed	Number of containers found larvae	B.I.	Z-test	p-value
Between Groups					
Before the experimentation					
Experimental group	109	317	290.8		
				0.60	0.274
Comparison group	99	271	273.7		
After the experimentation					
Experimental group	109	79	72.5		
				13.52	<0.001*
Comparison group	99	262	264.6		
Within Groups					
Experimental group					
Before the experimentation	109	317	290.8		
				13.10	<0.001*
After the experimentation	109	79	72.5		
Comparison group					
Before the experimentation	99	271	273.7		
				0.29	0.386
After the experimentation	99	262	264.6		

* Significant differences at p- value < 0.05

7.3 Comparative differences of Containers Index (C.I.)

7.3.1 Comparative difference of Containers index (C.I.) within experimental and the comparison groups, before and after the experimentation

Before the experimentation the C.I. for experimental group was 14.9 and the comparison group was 14.5. To compare the difference in statistic, there was no difference in statistical significant at p-value = 0.356 as shown the detail in Table 10.

After the experimentation the C.I. for experimental group decrease to 3.7 and the C.I. for comparison group was 14.0. To compare the difference in statistic found the experimental group more decrease the C.I. than the comparison group in significant statistic at p-value <0.001 as shown the detail in Table 10.

7.3.2 Comparative difference of Containers index (C.I.) between experimental and the comparison groups, before and after the experimentation

Experimental group C.I. before the experimentation was 14.9 after the experimentation the C.I was 3.7. To compare the difference in statistic before and after the experimentation in significant statistic at p-value <0.001 as shown the detail in Table 10.

Comparison group C.I before the experimentation was 14.5 after the experimentation C.I was 14.0. To compare the difference in statistic before and after

the experimentation, found it was no significant in statistic at p-value = 0.330 the detail in Table 10.

Table 10: Comparative Containers Index(C.I.) in experimental and comparison groups, before and after the experimentation

Containers Index (C.I.)	Number of containers surveyed	Number of containers found larvae	C.I.	Z-test	p-value
Between Groups					
Before the experimentation					
Experimental group	2,128	317	14.9		
				0.37	0.356
Comparison group	1,872	271	14.5		
After the experimentation					
Experimental group	2,121	79	3.7		
				11.57	<0.001*
Comparison group	1,875	262	14.0		
Within Groups					
Experimental group					
Before the experimentation	2,128	317	14.9		
				12.52	<0.001*
After the experimentation	2,121	79	3.7		
Comparison group					
Before the experimentation	1,872	271	14.5		
				0.44	0.330
After the experimentation	1,875	262	14.0		

* Significant differences at p- value < 0.05