CHAPTER V

RESULTS

A total of 226 subjects were included in the study.

The socio-economic baseline:

The age of the participants in this study ranged from 19 to 49 years, with mean = 35.32, and standard deviation = 7.71 (Figure 1).
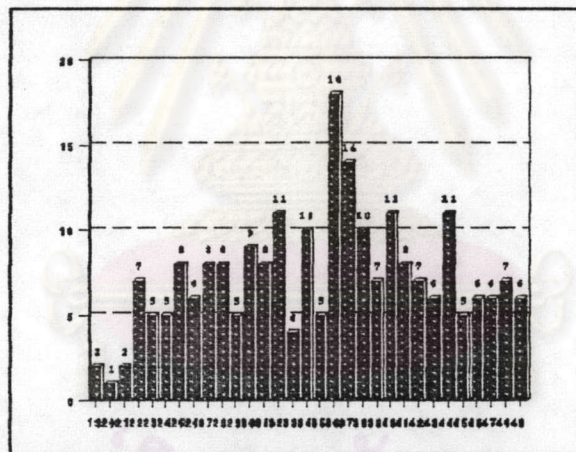

Figure 1. The distribution of participant age

Most of the women in this study were married 88.1% (199 subjects), together with 4.4% (10 subjects) separated, 4.4% (10 subjects) divorced, 2.2% (5 subjects) widowed, and 0.9% (2 subjects) single (Table 2).

Table 2. Marital status

N = 226	Frequency	%	Cumulative %
Single	2	0.9%	0.9%
Married	199	88.1%	88.9%
Separated	10	4.4%	93.4%
Divorced	10	4.4%	97.8%
Widowed	5	2.2%	100.0%

Education was of a low level with 63.7% of the women having equivalent to or less than the compulsory education (Table 3).

Table 3. Education level (N= 226 subjects)

Education	Frequency	%	Cumulative %
Illiteracy	26	11.5%	11.5%
Elementary school	118	52.2%	63.7%
Secondary school	55	24.3%	88.1%
High school	22	9.7%	97.8%
Vocational	4	1.8%	99.6%
University	1	0.4%	100.0%

Sixty nine per cent of participants (156 subjects) were farmers, the others about 16.4 % had other jobs, and 14.6% (33 subjects) were housewives (Table 4).

Table 4. Occupation

Occupation	Frequency	%	Cumulative %
Farmer	156	69.0%	69.0%
Housewife	33	14.6%	83.6%
Salesperson	16	7.1%	90.7%
Labour	8	3.5%	94.2%
Officer	9	4.0%	98.2%
Others	4	1.8%	100.0%

Almost all participants used draw-well water 98.7% (223 subjects), with 71.2% of participants (161 subjects) having their own toilet and bathroom in their house.(Table 5 and Table 6).

Table 5. Water used situation

Water used	Frequency	%	Cumulative %
Pond or Lake	2	0.9%	0.9%
Draw-well	223	98.7%	99.6%
Tap	1	0.4%	100.0%

Table 6. Having toilet and bathroom in the house

	Frequency	%	Cumulative %
No	65	28.8%	28.8%
Yes	161	71.2%	100.0%

Contraceptive methods employed included the intrauterine device (I.U.D) , surgical sterilization, oral contraceptives, condom, withdrawal methods, and Ogino-Knauss method were provided in table 7.

Contraceptive methods	n = 226	
	Frequency	Percent
No	98	43.4%
Yes	128	56.6%
I.U.D	40	17.7%
Oral Contraceptive	3	1.3%
Surgical sterilization	36	15.9%
Withdrawal method	44	19.5%
Ogino-Knauss	4	1.8%
Condom	1	0.4%

Table 7. The various methods of contraception used.

Regarding their behaviour, 24.8% (56 subjects) of the participants did not dry the vulva thoroughly after washing, and 75.2% (170 subjects) of the participants dried the vulva thoroughly after having a wash.

40.7% (92 subjects) had to dip themselves in the water during their work. None of them used feminine hygiene deodorant sprays. Twenty two per cent (50 subjects) did not use underclothes.

Thirty per cent (68 subjects) did not use vaginal absorbants for menstruation, and the towels may be used while going out of the house, together with 69.9% (158 subjects) who used the vaginal absorbants (such as pads or towels) during the menstrual period. (Table 8)

Table 8. Using vaginal absorbants during menstrual period

	Frequency	%	Cumulative %
No	68	30.1%	30.1%
Yes	158	69.9%	100.0%
Total	226 subjects		

Among the subjects who used vaginal absorbants during menstrual period, there was 61.4% (97 of 158 subjects) used towels as a pad (Table 9).

Table 9. Kind of vaginal absorbants used

	Frequency	%	Cumulative %
Pad	61	38.6%	38.6%
Towel	97	61.4%	100.0%

Total   158 subjects

There was 4.4% (10 subjects) of participants occasionally had anal intercourse. (Table 10.)

Table 10. Anal intercourse

	Frequency	%	Cumulative %
No	216	95.6%	95.6%
Yes	10	4.4%	100.0%

Total   226 subjects

Among these 10 subjects, there were 4 subjects (40.0%) who's their partner(s) did not wash the penis before conventional sexual intercourse.

Generally, for the Faces scale of Andrews and Withey to let subjects expressing their various feelings about the regional health service, only 4.9% (11 subjects) had negative

feelings with the regional health service, 25.7% (58 subjects) felt all right, and 69.4% (157 subjects) had positive feelings towards their regional health service (table 11).

Table 11. Participants' various feelings about the regional health service

Andrews and Withey faces-scale	Frequency	%	Cumulative %
1st face	3	1.3%	1.3%
2nd face	7	3.1%	4.4%
3rd face	1	0.4%	4.9%
4th face	58	25.7%	30.5%
5th face	17	7.5%	38.1%
6th face	47	20.8%	58.8%
7th face	93	41.2%	100.0%

Note: The Andrews and Withey faces-scale was used, with seven following faces (see appendix 1): the 1th face: Terrible, the 2nd face: Unhappy, the 3rd face: Mostly dissatisfied, the 4th face: Mixed (about equal satisfied and dissatisfied), the 5th face: Mostly satisfied, the 6th face: Pleased, the 7th face: Delighted.

This information, as well as the demographic characteristics of the subjects in the study, suggests that people in the studied community are still in low socio-economic classes, and were pleased with their health care service.

As regards their attitude, none of the participants felt that it was hard for them to talk to a female doctor about their illness, but there was 16.4% (37 subjects) who felt that it was hard for them to talk to a male doctor or male health care worker about their illness.

About 47.8% (108 subjects) of the participants had never paid attention to any health programme brought through the radio, television, newspapers or even regional health programme.

Concerning knowledge, only a small portion 5.8% of the participants (13 subjects) knew that cotton was the best material for underwears, the rest 94.2% (213 subjects) thought that the best material to make underwears is nylon or synthetics. There was 50.0% of participants (113 subjects) knew the right way to wipe the anus, on the other hand 50% of them did not.

Regarding their beliefs, there was 16.4% of participants (37 subjects) who thought that it was good to wear tight pants in the crotch or at least this did help them being sexier or more beautiful. There was 28.8% of participants (65 subjects) thought that it is necessary to use femine hygiene deodorant sprays.

Histories and physical examination were obtained for all study subjects.

There were 47 participants having gynaecological symptoms compatible with lower genital infection (discharge, irritation, soreness or smell); while 38 participants having other gynaecological problems (e.g., pelvic pain or back pain, . . .), and 141 participants without any gynaecological problem or gynaecological symptom at all. (Table 12).

Table 12. Chief complaint

N= 226 subjects	Frequency	%	Cumulative %
Gynaecological symptoms	47	20.8%	20.8%
Gynaecological problems	38	16.8%	37.6%
No symptom	141	62.4%	100.0%

Among 47 participants with gynaecological symptoms, complaints of discharge were very common 97.9% (Table 13).

Table 13. Gynaecological symptoms among symptomatic participants.

	Frequency	Percent
Vaginal discharge	46	97.9%
Vaginal pruritus	14	29.8%
Soreness	1	2.1%
Vaginal malodor	5	10.6%

10.8% (24 subjects) of the women studied were noted to have sign(s) of vaginitis, together with 89.2% (199 subjects) had no sign of vaginitis on physical examination (Table 14).

Table 14. Signs of vaginitis on physical examination.

Sign(s)	Frequency	%	Cumulative
No	199	89.2%	89.2%
Yes	24	10.8%	100.0%
Total	223 subjects		

Subjects were stratified into three age groups: under 20 years old, from 20 to 40 years old, and over 40 years old. The prevalence of the three common types of vaginitis is given in table 15.

Table 15.   The prevalence of the three common types of vaginitis in three age groups.

N= 226	Age group		
	<20 n= 2 %(Freq.)	20-40 n= 162 %(Freq.)	>40 n= 62 %(Freq.)
Candidiasis	0	27.2(44)	27.4(17)
Trichomoniasis	0	2.5(4)	3.2(2)
Bacterial vaginosis	0	21.0(34)	30.6(19)
Vaginal infection	0	39.5(64)	40.3(25)

Among those subjects under 20 years old, there was no vaginal infection. But the number is too small (2 subjects) for a valid statistical analysis. It is clear from table 16 that the prevalence of Candidiasis, Trichomoniasis, Bacterial vaginosis, and vaginal infection in the other two groups, aged 20-40 years old and aged over 40 years old, which has been shown in table 15 were similar. Therefore, the author has chosen to combine the prevalence Candidiasis, Trichomoniasis, and Bacterial vaginosis for presentation.

Table 16.   Association of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection with age groups, (between the two age groups: aged 20-40 years old and aged over 40 years old).

	Candidiasis		Trichomoniasis		Bacterial vaginosis		Vaginal infection	
	+	−	+	−	+	−	+	−
Age 20-40	44	118	4	158	34	128	64	98
Age >40	17	45	2	60	19	43	25	37
	p= 0.89		p= 0.67		p= 0.17		p= 0.96	

A total of 226 subjects, there were 89 subjects had vaginal infection (39.4%). The prevalence of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection in community were 27.0%, 2.7%, 23.5%, respectively (Table 17).

N = 226	Frequency	Proportion	Standard Error
Candidiasis	61	27.0%	0.030
Trichomoniasis	6	2.7%	0.010
Bacterial vaginosis	53	23.5%	0.028
Vaginal infection	89	39.4%	0.030

Table 17. The prevalence of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection caused by three common infective agents in Phuoc Hiep community.

Twelve subjects (5.3%) got two infective pathogens. Among those having two infections, 7 subjects (3.1%) were candidiasis and bacterial vaginosis, 4 subjects (1.8%) were trichomoniasis and bacterial vaginosis, and 1 subject (0.4%) was candidiasis and trichomoniasis.

There was not a significant difference between those who had to dip themselves in the water during their work and those did not (table 18).

Table 18. Association of Candidiasis with various working conditions.

Laboratory results	+	-	P-values	
Candida	+ 27	34		
	- 65	100	0.61	Yates corrected Chi-square= 0.26

There was not a significant difference between the various occupations, as well as whether or not they had any different educational level.

Complaints of vaginal discharge and/or vaginal pruritus were common. Neither of these variables were significantly associated with Candida, or Trichomonas vaginalis, or bacterial infection. It was not significant that 46 (20.4%) of those with an abnormal vaginal discharge

had positive laboratory finding for <u>Candida albicans</u>, or <u>Trichomonas vaginalis</u>, or bacterial infection in comparison to 180 (79.6%) of those with no vaginal discharge (table 19 and table 20).

Table 19. Association of laboratory results with discharge.

Laboratory results	Discharge +	Discharge -	P-values	
Candida +	16	45	0.28	Yates corrected Chi-Square = 1.17
-	30	132		
Trichomonas+	0	6		
-	46	171	0.30	2-tailed Fisher exact test
Bacterial +	7	46		
vaginosis -	39	131	0.18	Yates corrected Chi-Square = 1.78
Vaginal +	17	72		
infection -	29	105	0.77	Yates corrected Chi-Square = 0.08

Table 20.   Association of laboratory results with pruritus.

Laboratory results	Pruritus +	Pruritus -	P-values	
Candida +	5	56	0.54	2-tailed Fisher exact test
-	9	153		
Trichomonas+	0	6		
-	14	203	1.00	2-tailed Fisher exact test
Bacterial +	3	50		
vaginosis -	11	159	1.00	2-tailed Fisher exact test
Vaginal +	5	84		
infection -	9	125	0.96	Yates corrected Chi-Square = 0.00

In the case of Candidiasis, the proportions of positive laboratory findings seemed to be higher in symptomatic patients, but the difference was not significant (table 19 and table 20).

In the case of Trichomoniasis, there was a different significance (p = 0.02) between the group with physical signs and the group without physical signs (table 21).

	Sign		P-values		
	+	-			
Candida	+	3	58	0.14	Yates corrected Chi-Square = 2.21
	-	21	141		
Trichomonas	+	3	3		
	-	21	196	0.02	2-tailed Fisher exact test
Bacterial	+	10	43	0.03	Uncorrected Chi-Square = 4.76
vaginosis	-	14	156	0.05	Yates corrected Chi-Square = 3.71
Vaginal	+	8	81		
infection	-	16	118	0.63	Yates corrected Chi-Square = 0.23

Table 21. Association of laboratory results with findings on physical examination.

In the case of bacterial vaginosis, according to Yates corrected Chi-square, there was not a significant difference between the group with physical signs and the group without physical signs (table 21), but the uncorrected Chi-square showed that there was significant difference between these two groups. This suggests that there may be a significant difference in a subgroup. After classifying bacterial vaginosis patients into two subgroups, namely: baccilli infected group and cocci infected group, there was a significant difference (p = 0.002) between the group with

physical signs and the group without physical signs in the case of cocci infection (table 22).

	Sign		P-values	
	+	−		
Baccilli	+	2	29	0.54	2-tailed Fisher exact test
infection	−	22	170		
Cocci	+	8	18		
infection	−	16	181	0.002	2-tailed Fisher exact test
Bacterial	+	10	43	0.03	Uncorrected Chi-Square = 4.76
vaginosis	−	14	156	0.05	Yates corrected Chi-Square = 3.71

Table 22. Association of laboratory results with findings on physical examination in case of bacterial vaginosis.

Thus, no association between symptoms and vaginal infections were made. No significant association between signs and vaginal infections were apparent with the exception of trichomoniasis and cocci infection.

It was difficult in the case of this study population to determine the relative importance of marital status in study attendees because most of the participants were married 88.1% (199 of 226 subjects) only 2 participants (0.9%) were single, 10 participants (4.4%) were separated, 10

participants (4.4%) were divorced and 5 participants (2.2%) were widowed. (table 2).

It also was difficult to determine the influence of water supply conditions to the infective status because the vast majority of subjects (98.7%) used well-drawn water, while only 3 participants (1.3%) did not use well-drawn water: one (0.4%) used tap water, and these other two (0.9%) used water from the pond or lake (table 5).

The various methods of contraception were compared. No statistically significant differences appeared between subjects using no contraception compared with those who did (table 23, table 24).

Table 23.   Association of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection with I.U.D.

Laboratory results	I.U.D +	I.U.D -	P-values	
Candida +	8	53	0.36	Yates corrected Chi-Square = 0.81
−	32	133		
Trichomonas+	0	6		
−	40	180	0.59	2-tailed Fisher exact test
Bacterial +	7	46		
vaginosis −	33	140	0.44	Yates corrected Chi-Square= 0.60
Vaginal +	13	76		
infection −	27	110	0.42	Yates corrected Chi-Square= 0.65

Table 24. Association of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection with oral contraceptive.

Laboratory results		Oral contraceptive			
		+	-	P-values	
Candida	+	0	61		
	-	3	162	0.56	2-tailed Fisher exact test
Trichomonas	+	0	6		
	-	3	217	1.00	2-tailed Fisher exact test
Bacterial	+	0	53		
vaginosis	-	3	170	1.00	2-tailed Fisher exact test
Vaginal	+	0	89		
infection	-	3	134	0.28	2-tailed Fisher exact test

There was no significant difference between subjects using no underclothes compared with those who did (table 25). There was also no significant difference between subjects using no vaginal absorbants (V.A) during mentrual periods with those who did (table 26).

Table 25.   Association of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection with underclothe use.

Laboratory results		Underclothe +	P-values -		
Candida	+	48	13	0.99	Yates corrected Chi-Square= 0.00
	-	128	37		
Trichomonas	+	3	3		
	-	173	47	0.12	2-tailed Fisher exact test
Bacterial	+	44	9		
vaginosis	-	132	41	0.40	Yates corrected Chi-Square= 0.71
Vaginal	+	69	20		
infection	-	107	30	0.95	Yates corrected Chi-Square= 0.00

Table 26.   Association of Candidiasis, Trichomoniasis, Bacterial vaginosis, vaginal infection with vaginal absorbants (V.A) use.

Laboratory results	V.A use +	-	P-values	
Candida +	44	17	0.78	Yates corrected Chi-Square= 0.08
-	114	51		
Trichomonas+	4	2		
-	154	66	1.00	2-tailed Fisher exact test
Bacterial +	40	13		
vaginosis -	118	55	0.40	Yates corrected Chi-Square= 0.70
Vaginal +	63	26		
infection -	95	42	0.93	Yates corrected Chi-Square= 0.01

There was also no difference between subjects using pad with those using towel as a pad for the mentrual period (table 27).

Table 27. Association of Candidiasis, Trichomoniasis,
Bacterial vaginosis, vaginal infection with towel use.

Laboratory results		Towel use +	Towel use -	P-values	
Candida	+	29	15	0.59	Yates corrected Chi-Square= 0.29
	-	68	46		
Trichomonas	+	3	1		
	-	94	60	1.00	2-tailed Fisher exact test
Bacterial	+	26	14		
vaginosis	-	71	47	0.72	Yates corrected Chi-Square= 0.13
Vaginal	+	42	21		
infection	-	55	40	0.34	Yates corrected Chi-Square= 0.89

The univariate analysis revealed that the most
significant predictor of bacilli infection, cocci infection,
bacterial vaginosis was anal intercourse use (table 28).

		A.I.	P-values		
		+	-		
Bacilli	+	6	25		
infection	-	4	191	0.0006	2-tailed Fisher exact test
Cocci	+	4	22		
infection	-	6	194	0.01	2-tailed Fisher exact test
Bacterial	+	6	47		
vaginosis	-	4	169	0.01	2-tailed Fisher exact test

Table 28. Association of laboratory results with anal intercourse (A.I.) in case of bacilli infection, cocci infection, and bacterial vaginosis.

The relative prevalence for anal intercourse and the Greenland, Robins 95% confident limits for relative prevalence given in the following bracket of bacilli infection, cocci infection, and bacterial vaginosis have been given as 5.18 (2.77 ; 9.70), 3.93 (1.67 ; 9.25), 2.76 (1.57 ; 4.86), respectively.

In order to look for a significant difference between those whose their partner(s) did not wash the penis before it is put into the vagina among those who had anal intercourse, collected data is shown in table 29. But these numbers were

too small for accurate statistical analysis.

Table 29.

Laboratory results		Wash +	-
Candida	+	2	1
	-	4	3
Trichomonas	+	0	0
	-	6	4
Bacterial	+	5	1
vaginosis	-	1	3
Vaginal	+	5	1
infection	-	1	3

Univariate analysis also showed that moisture at the perineal area was the most significant variable for Candida infection (table 30).

Table 30.   Association of Candidiasis with moisture at the perineal area.

Laboratory results		Moisture +	-	P-values	
Candida	+	22	39		
	-	34	131	0.03	Yates corrected Chi-square= 4.91

The relative prevalence for moisture at the perineum and the Greenland, Robins 95% confident limits for Candida infection were 1.71 and (1.12 ; 2.62), respectively.

The determination of the interrelationship between possible risk factors and the three common infective agents was performed using multiple logistic regression. After a stepwise logistic regression analysis, factors significantly correlated with vaginal infection due to bacteria, and <u>Candida albican</u> included anal intercourse, and moisture at the perineum. Further correlations between these common infective agents are shown in table 31, table 32, table 33, and table 34

Table 31. Dependent variable   Y= Bacilli infection

Independent variables X1= Anal intercourse use,

X2= Pay attention to health programme

Variable	B	S.E.	Wald	df	Sig	R
X1	2.3242	.7167	10.5156	1	.0012	.2171
X2	-1.4537	.4665	9.7087	1	.0018	-.2065
Constant	-1.4576	.2508	33.7879	1	.0000	

Model if Term Removed

Termed Removed	Log Likelihood	-2 Log LR	df	Significance of Log LR
X1	-83.770	10.549	1	.0012
X2	-84.134	11.278	1	.0008

Table 32. Dependent variable Y= Cocci infection

Independent variable X= Anal intercourse

Variable	B	S.E.	Wald	df	Sig	R
X	1.7713	.6836	6.7148	1	.0096	.1709
Constant	-2.1768	.2250	93.6297	1	.0000	

Table 33. Dependent variable Y= Bacterial vaginosis

Independent variable X= Anal intercourse

Variable	B	S.E.	Wald	df	Sig	R
X	1.6852	.6662	6.3982	1	.0114	.1337
Constant	-1.2797	.1649	60.2251	1	.0000	

Table 34. Dependent variable   Y= Candidiasis

Independent variables X1= Dry vulva thoroughly
after washing, X2= Difficulty in communication with
male doctor or male health care personnel

Variable	B	S.E.	Wald	df	Sig	R
X1	-.7621	.3356	5.1572	1	.0232	-.1098
X2	1.0179	.3778	7.2598	1	.0071	.1418
Constant	-.6256	.2878	4.7252	1	.0297	

Model if Term Removed

Termed Removed	Log Likelihood	-2 Log LR	df	Significance of Log LR
X1	-127.282	5.051	1	.0246
X2	-128.287	7.061	1	.0079

The infection most significantly correlated with each other was Trichomoniasis and Cocci infection (Pearson correlation coefficient= 0.2834).

Pap smear results revealed no cancer detected.

The participation rate of residents of the study community was 69.11% (226 subjects of 327 approached).

The demographic and socioeconomic factors, such as age, educational level, occupation of those who refused to

participate were documented. The similar demographic data, with the exception of marital status, between the non-participant and the participant group showed that the studied subjects could be representative of the community population (table 35).

Table 35.   Demographic data of non-participant group, and
participant group.

		Participant group	Nonparticipant group
Age	Mean	35.32	35.85
	Standard deviation	7.71	7.90
Education	Illiteracy	11.5%	15.8%
	Elementary school	52.2%	52.5%
	Secondary school	24.3%	25.7%
	Highschool	9.7%	5.0%
	Vocational	1.8%	1.0%
	University	0.4%	0.0%
Occupation	Farmer	69.0%	72.3%
	Housewife	14.6%	14.9%
	Salesperson	7.1%	5.0%
	Labour	3.5%	4.0%
	Officer	4.0%	2.0%
	Others	1.8%	2.0%