



CHAPTER IV

RESULTS

4.1 Descriptive Portion

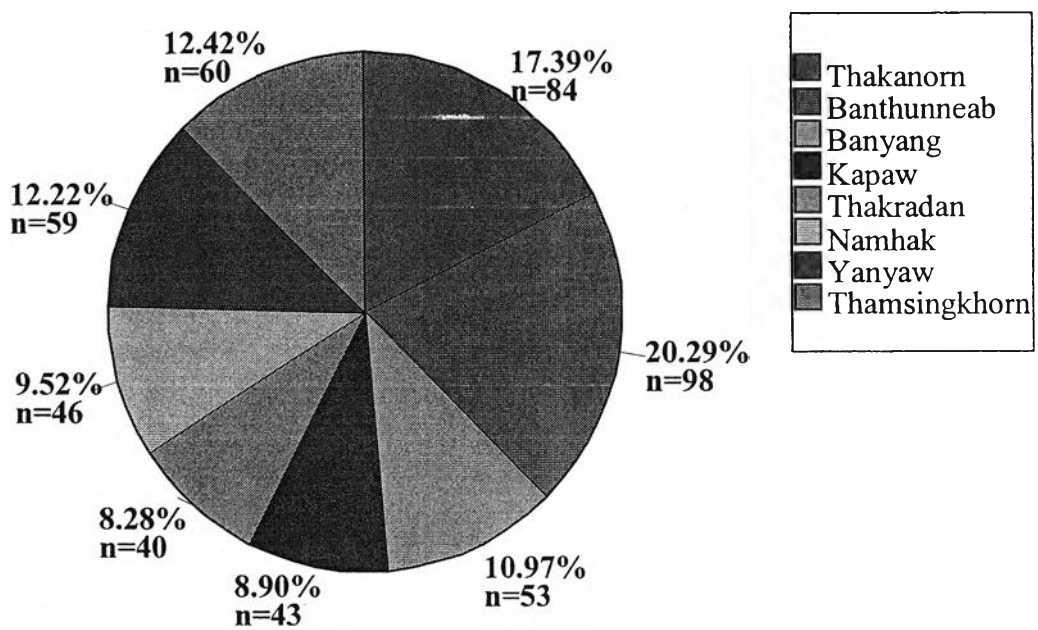


Figure 3: Subjects from each Thambon

There are 483 subjects cooperated in this study that get from 8 Thambons in Kiriratnikom district. The most subjects were in Banthunneab with 20.3%.

Table 3: Gender of subjects

Gender	Frequency	Valid Percent
male	222	46.0
female	261	54.0
Total	483	100.0

In this study, there are 222 men (46%) and 261 women (54%).

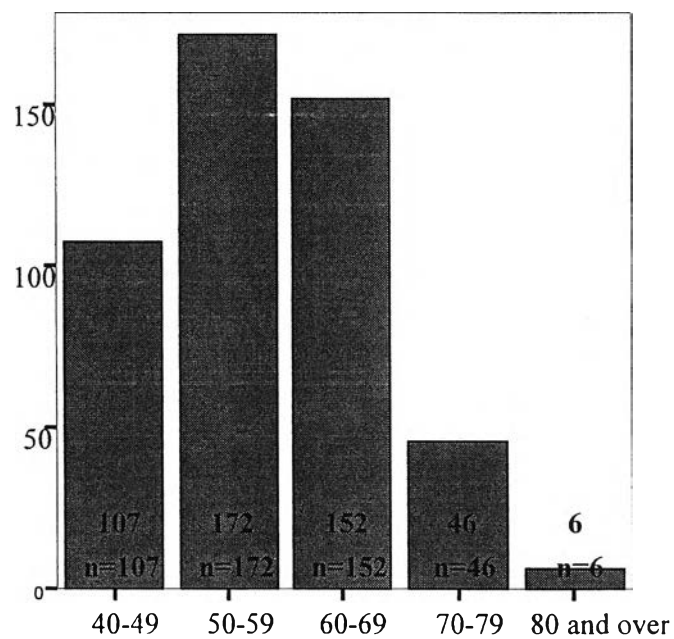


Figure 4: Age groups of subjects

The most subjects are in 50-69 years old with 67.1%. The aged mean of this study is 58.48 and standard deviation is 9.377.

Table 4: Educational status of subjects

	Frequency	Valid Percent
prathomsuksa	391	81.0
mathayomsuksa	85	17.6
bachelor's degree	7	1.4
Total	483	100.0

The educational status of the most subjects is Prathomsuksa level. Only 1.4% of subjects graduated bachelor's degree.

Table 5: Marital status of subjects

Marital status	Frequency	Valid Percent
Single	6	1.2
Married	475	98.3
Divorced	2	4
Total	483	100.0

The 98.3% of subjects were married.

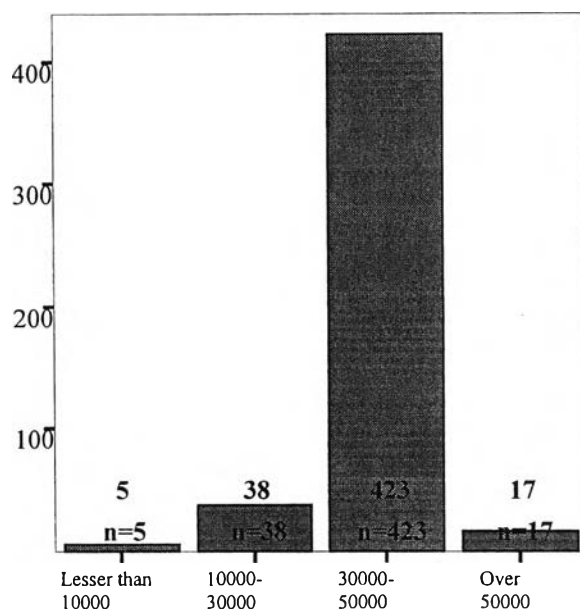


Figure 5: Income per year of subjects

Income per year of the most subjects is 30000-50000 baht.

Table 6: Diagnosed diabetes

Diagnosed diabetes	Frequency	Valid Percent
No	471	97.5
Yes	12	2.5
Total	483	100.0

There were 12 subjects that diagnosed diabetes.

Table 7: The classical symptoms of diabetes

Symptoms of diabetes	Frequency	Valid Percent
None	466	96.5
1 symptom	17	3.5
Total	483	100.0

Only 3.5% of subjects have 1 classical symptom of diabetes.

Table 8: History of diabetes among first degree relatives

Symptoms of diabetes	Frequency	Valid Percent
No	479	99.2
Yes	4	0.8
Total	483	100.0

Only 0.8% of subjects have history of diabetes among first degree relatives.

Table 9: Dietary behavior of subjects

Dietary behavior	Frequency	Valid Percent
no sweet taste diet	472	97.7
sweet taste diet	11	2.3
Total	483	100.0

The most of subjects (97.7%) have no sweet taste diet.

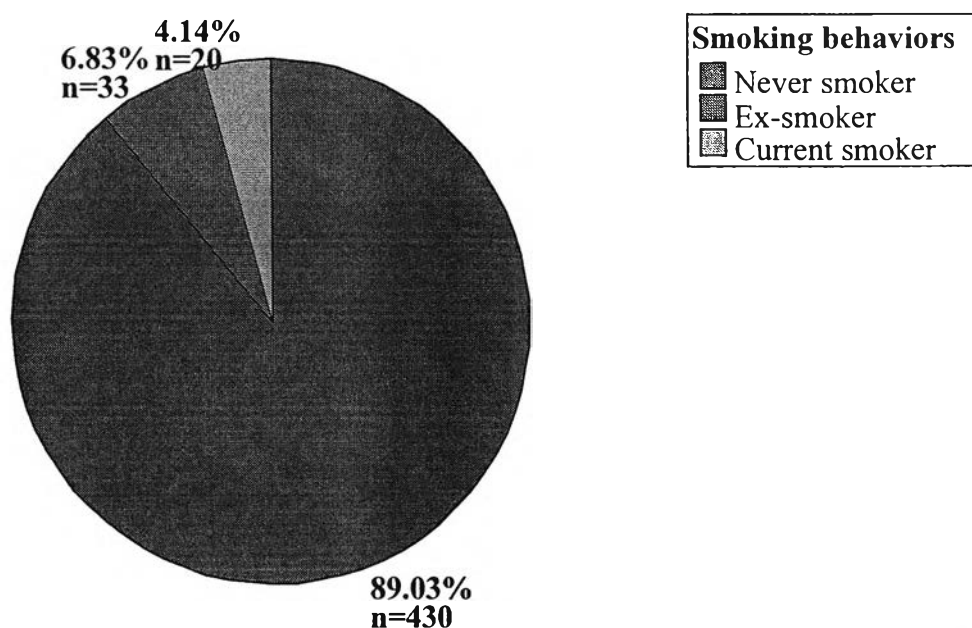


Figure 6: Smoking behavior of subjects

The 89% of subjects were never smoking, 6.8% were ex-smoker and 4.1% were current smoker.

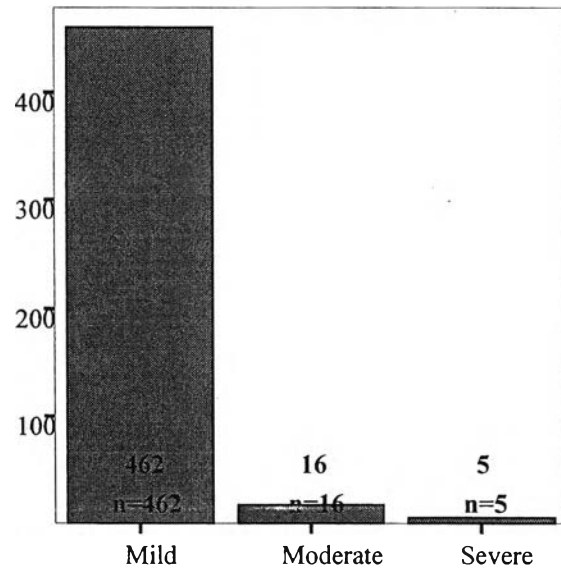


Figure 7: Alcohol consumptions

The most subjects (95.7%) were mild alcohol consumption and only 1% of subjects were heavy alcohol consumption.

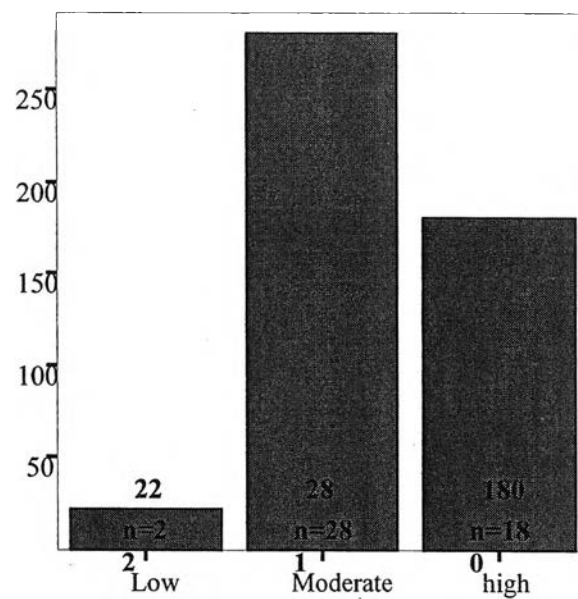


Figure 8: Physical activity

There are 58.2% of subjects with moderate physical activity, 37.3% with high physical activity and 4.6% with low physical activity.

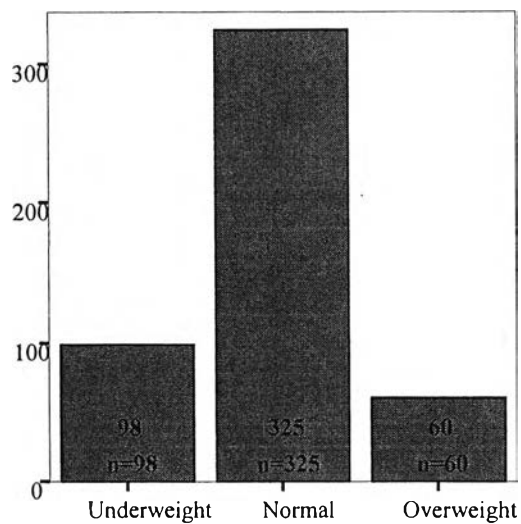


Figure 9: BMI groups

The 67.3% of subjects were normal, 20.3% were underweight and 12.4% were overweight.

Table 10: Hypertension

Hypertension	Frequency	Valid Percent
no	424	87.8
yes	59	12.2
Total	483	100.0

The prevalence of hypertension in this study is 12.2%.

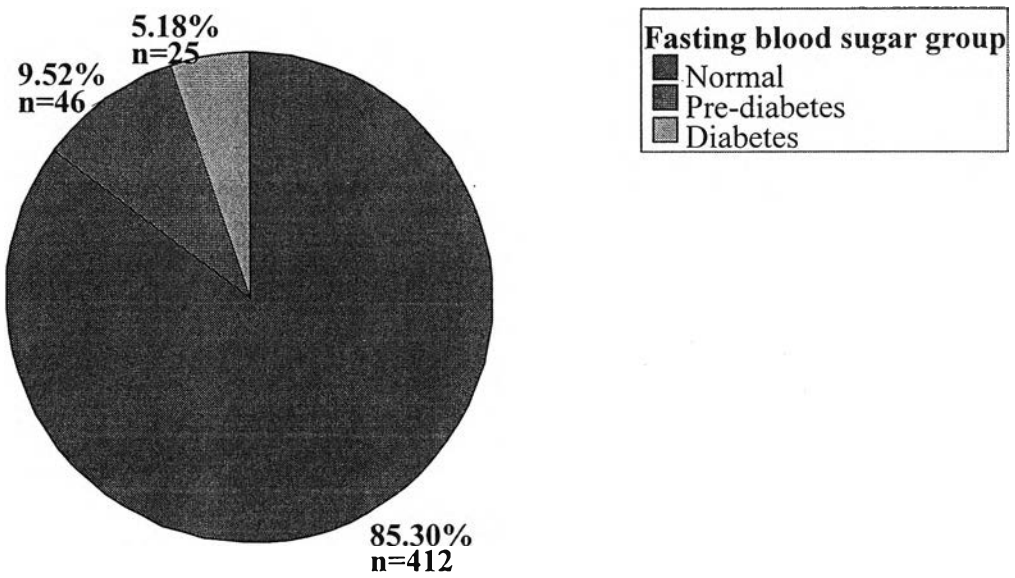


Figure 10: Fasting blood sugar groups

The prevalence of diabetes is 5.2% and the prevalence of pre-diabetes is 9.5%. In cases with diabetes, there is 52% of undiagnosed and 48% of diagnosed diabetes.

Table 11: The summary table of descriptive data

Variables	Frequency	Valid percent
Thambon		
Thakanon	84	17.4
Banthumneab	98	20.3
Banyang	53	11.0
Kapaw	43	8.9
Thakradan	40	8.3
Namhak	46	9.5
Yanyaw	59	12.2
Thamsingkhorn	60	12.4
Total	483	100.0
Gender		
Male	222	46.0
Female	261	54.0
Total	483	100.0
Age groups		
40 – 49	107	22.2
50 – 59	172	35.6
60 – 69	152	31.5
70 – 79	46	9.5
80 and over	6	1.2
Total	483	100.0
Educational status		
Prathmsuksa	391	81.0
Mathayomsuksa	85	17.6
Bachelor's degree	7	1.4
Total	483	100.0

Table 11: (Continued) The summary table of descriptive data

Variables	Frequency	Valid percent
Marital status		
Single	6	1.2
Married	475	98.3
Discover	2	.4
Total	483	100.0
Income per year		
Lesser than 10000	5	1.0
10000 – 30000	38	7.9
30000 – 50000	423	87.6
Over 50000	17	3.5
Total	483	100.0
Diagnosed of diabetes		
No	471	97.5
Yes	12	2.5
Total	483	100.0
History of diabetes among first degree relatives		
No	479	99.2
Yes	4	.8
Total	483	100.0
Dietary behavior		
No sweet taste diet	472	97.7
Sweet taste diet	11	2.3
Total	483	100.0
Alcohol consumption		
Mild	462	95.7
Moderate	16	3.3
Severe	5	1.0
Total	483	100.0

Table 11: (Continued) The summary table of descriptive data

Variables	Frequency	Valid percent
Physical activity		
Low	22	4.6
Moderate	281	58.2
High	180	37.3
Total	483	100.0
BMI group		
Under weight	98	20.3
Normal	325	67.3
Over weight	60	12.4
Total	483	100.0
Hypertension		
No	424	87.8
Yes	59	12.2
Total	483	100.0
Fasting blood sugar group		
Normal	412	85.3
Pre – diabetes	46	9.5
Diabetes	25	5.2
Total	483	100.0

4.2 Analytical Portion

Dependent variable (diabetes compared to non-diabetes)

According to bivariate analysis summary below, there are 14 independent variables. For thumbon, age groups and BMI groups show the p-value 0.833, 0.307 and 0.225, respectively. Marital status, dietary behavior and physical activity are not included for logistic regression analysis because of high volume of standard error (SE) with 14210.361, 12118.636 and 2995.807, respectively. Thumbon, gender, age

group, income, smoking, alcohol consumption are not significance (p-value >0.2), so that independent variables are exclude for logistic regression.

Table 12: Bivariate Analysis Summary (Diabetes)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
Thumbed					0.833
Thumbon1	0.802	0.835	2.231	0.434-11.454	0.336
Thumbon2	0.210	0.882	1.234	0.219-6.951	0.812
Thumbon3	0.129	1.018	1.137	0.155-8.368	0.899
Thumbon4	-0.370	1.241	0.690	0.061-7.867	0.765
Thumbon5	0.423	1.022	1.526	0.206-11.303	0.679
Thumbon6	0.705	0.935	2.023	0.324-12.640	0.451
Thumbon7	0.988	0.858	2.685	0.500-14.425	0.250
Gender	-0.425	0.414	0.654	0.291-1.471	0.304
Age group					0.307
Age group1	-0.072	0.658	0.931	0.257-3.377	0.913
Age group2	0.792	0.592	2.207	0.692-7.039	0.181
Age group3	0.455	0.783	1.577	0.340-7.738	0.561
Marital status	-18.313	14210.361	0.000	0.000	0.999
Educational status	-1.034	0.747	0.356	0.082-1.536	0.166
Income	-0.354	0.637	0.702	0.201-2.447	0.578

Table 12: (Continual) Bivariate Analysis Summary (Diabetes)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
History of first degree relatives	1.844	1.174	6.319	0.634-63.037	0.116
Dietary behavior	-18.319	12118.636	0.000	0.000	0.999
Smoking	0.464	0.566	1.590	0.524-4.822	0.413
Alcohol consumption	-0.092	1.046	0.913	0.117-7.088	0.930
Physical activity	-18.794	2995.807	0.000	0.000	0.995
BMI group					0.225
BMI group1	-1.473	0.854	0.229	0.043-1.221	0.084
BMI group2	-0.439	0.526	0.645	0.230-1.809	0.405
Waist circumference	-11.871	2.036	1.126	1.069-1.177	<0.001
Hypertension	1.716	0.435	5.565	2.371-13.062	<0.001

Table 13: Logistic Regression Analysis (Diabetes)

	B		S.E.	Wald	df	p-value	Exp(B)		95.0% C.I. for EXP(B)	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Educational status	-.771	.775	.989	1	.320	.463	.101	2.114		
History of first degree relatives	.150	1.561	.009	1	.923	1.162	.055	24.779		
BMI group			1.412	2	.494					
BMI group(1)	-.854	.927	.848	1	.357	.426	.069	2.622		
BMI group(2)	-.639	.577	1.228	1	.268	.528	.170	1.634		
Waist circumference	.121	.028	18.627	1	.000	1.129	1.068	1.192		
Hypertension	2.086	.495	17.790	1	.000	8.050	3.054	21.219		
Constant	-12.187	2.395	25.890	1	.000	.000				

Variable(s) entered on step 1: Educational status, history of first degree relatives, BMI group, waist circumference and hypertension.

According to the logistic regression above, there are 2 independent variables related to diagnosis of diabetes. Hypertension has positive relation to diabetes with odds ratio 8.05 (95% CI 3.05-21.22). Waist circumference has positive relation to diabetes with odds ratio 1.13 (95% CI 1.07-1.19). The others independent variables are not significance related to diabetes.

Dependent variable (pre-diabetes compared to normal blood glucose)

According to this study, the factors related to pre-diabetes are the table below. Only one independent variable, alcohol consumption, relate to pre-diabetes with odds ratio 3.2.

Table 14 : Bivariate Analysis Summary (Pre-Diabetes)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
Thumbed					0.849
Thumbon1	0.123	0.558	1.130	0.379 - 3.375	0.826
Thumbon2	-0.086	0.556	0.918	0.309 - 2.727	0.877
Thumbon3	-0.613	0.735	0.542	0.128 - 2.287	0.404
Thumbon4	-0.405	0.738	0.677	0.157 - 2.833	0.583
Thumbon5	0.019	0.682	1.020	0.268 - 3.882	0.977
Thumbon6	0.522	0.597	1.685	0.523 - 5.431	0.382
Thumbon7	-0.125	0.637	0.884	0.254 - 3.085	0.847
Gender	0.011	0.312	1.011	0.548- 1.063	0.973
Age group					0.999
Age group1	-0.055	0.577	0.946	0.305 - 2.935	0.924
Age group2	0.004	0.537	1.004	0.351 - 2.935	0.994
Age group3	-0.011	0.550	0.978	0.333 - 2.871	0.967
Marital status	19.030	14210.386	0.000	0.000	0.999
Educational status	0.166	0.408	1.180	0.530 - 2.626	0.685
Income	-0.005	0.552	0.995	0.337 - 2.932	0.992

TABLE 14 : (Continual) Bivariate Analysis Summary (Pre-Diabetes)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
History of first degree relatives	19.018	23205.423	0.000	0.000	0.999
Dietary behavior	19.038	12118.641	0.000	0.000	0.999
Smoking	0.253	0.547	1.287	0.441 - 3.758	0.644
Alcohol consumption	1.172	0.542	3.228	1.116 - 9.334	0.031
Physical activity	0.080	0.319	1.008	0.540 - 1.882	0.980
BMI group					0.769
BMI group1	0.394	0.617	1.483	0.442 - 4.973	0.524
BMI group2	0.394	0.552	1.484	0.503 - 4.376	0.475
Waist circumference	0.008	0.017	1.008	0.976 - 1.042	0.616
Hypertension	-0.458	0.442	0.632	0.266 - 1.503	0.299

Table 15: Bivariate Analysis Summary (Abnormal blood Sugar)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
Thumbed					0.659
Thumbon1	0.346	0.475	1.413	0.557 - 3.583	0.466
Thumbon2	-0.066	0.483	0.994	0.386 - 2.560	0.990
Thumbon3	-0.390	0.604	0.677	0.207 - 2.213	0.519
Thumbon4	-0.405	0.648	0.667	0.187 - 2.374	0.531
Thumbon5	0.137	0.583	1.147	0.366 - 3.599	0.814
Thumbon6	0.591	0.522	1.806	0.650 - 5.018	0.257
Thumbon7	0.283	0.514	1.327	0.484 - 3.636	0.583
Gender	0.157	0.257	1.170	0.707 - 1.957	0.542
Age group					0.758
Age group1	-0.189	0.479	0.828	0.323 - 2.119	0.694
Age group2	-0.164	0.445	0.849	0.355 - 2.030	0.713
Age group3	0.127	0.441	1.135	0.479 - 2.692	0.774
Marital status	19.464	14210.378	0.000	0.000	0.999
Educational status	-0.416	0.363	1.516	0.744 - 3.086	0.252
Income	-0.133	0.435	1.142	0.487 - 2.678	0.759

Table 15: (Continual) Bivariate Analysis Summary (Abnormal blood Sugar)

VARIABLE	COEFFICIENT (B)	STANDARD ERROR (SE)	ODDS RATIO	95 % CI FOR ODDS RATIO	P-VALUE
History of first degree relatives	-0.667	1.162	0.513	0.530 - 5.006	0.566
Dietary behavior	19.472	12118.641	0.000	0.000	0.999
Smoking	-0.035	0.407	0.966	0.435 - 2.145	0.931
Alcohol consumption	-0.893	0.501	0.409	0.153 - 1.093	0.075
Physical activity	0.646	0.291	1.908	1.079 - 3.374	0.026
BMI group					0.743
BMI group1	-0.235	0.475	0.791	0.312 - 2.006	0.621
BMI group2	0.030	0.393	1.030	0.477 - 2.225	0.939
Waist circumference	0.044	0.014	1.045	1.017 - 1.074	0.001
Hypertension	1.020	0.322	0.361	0.192 - 0.678	0.002

Dependent variable (normal blood sugar, abnormal blood sugar (pre-diabetes and diabetes) compared to normal blood glucose)

According to bivariate analysis of independent variables and abnormal blood sugar (pre-diabetes and diabetes), the variables that include to logistic regression are alcohol consumption, physical activity, waist circumference and hypertension. The logistic regression analysis is below.

Table 16: Logistic regression (abnormal blood sugar)

	B	S.E.	Wald	df	p-value	Exp(B)
Hypertension	1.099	.334	10.806	1	.001	3.000
Waist circumference	.044	.014	9.713	1	.002	1.045
Physical activity	-.602	.298	4.080	1	.043	.547
Alcohol consumption	1.001	.523	3.663	1	.056	2.722
Constant	-5.104	1.099	21.553	1	.000	.006

A variable(s) entered on step 1: Hypertension, waist circumference, physical activity and alcohol consumption

There are 3 independent variables that relate to abnormal blood sugar, hypertension, waist circumference and physical activity with odds ratio 3.0, 1.0 and 0.55, respectively.