CHAPTER 4 RESEARCH RESULTS

4.1 Introduction

This chapter present results from testing on data screening and results from reliability, validity on survey data. Descriptive statistics was performed using SPSS (Version 17). First, Multiple regression analysis was conducted in order to test the hypotheses for the variables influencing their purchase intention and actual purchase of functional (healthy) food products. The results and hypotheses test are discussed.

The independent sample t-test was carried out to identify the differences between respondents' gender on the perceived importance of factors that influenced their purchase intention and purchase of functional (healthy) food products.

Finally, one-way ANOVA was used to compare the variances between the different groups of respondents' academic background with the variability within each of the groups (analysis of variances) and importance of factors that influence their intention to purchase functional (healthy) food products.

4.2 Results of sampling

Table 4.1 summarizes the results of the sampling. The table shows the results by presenting number and percentage of questionnaire distributed and returned in each selected location.

Table 4.1: Results of sampling

	Sampling location	Number of questionnaires distributed	Number of questionnaires returned	Percentage of questionnaires returned	Total respondents subjected to analysis
1	**Kuala Lumpur**				
	(A)Fast foods outlets	200	119	59.50%	102
	(B)Cafes	80	42	52.50%	33
	(C)Shopping centers	70	28	40.00%	28
	(D)Organic food outlets	100	55	55.00%	54
	(E) Vegetarian food outlets	50	35	70.00%	34
	(F) Bank	50	26	52.00%	26
	(G) Hotel	50	28	56.00%	28
	(H)Company	100	41	41.00%	41
	(I) Place of religious worship	50	25	50.00%	25
	(J)Business Network	50	35	70.00%	35
	Total	**800**	**434**	**54.25%**	**406**

In total, 800 questionnaires were distributed. 434 questionnaires or 54.25% of the total questionnaires were returned. However, a total 28 of respondents were excluded from analysis due to incomplete answers. Six respondents were excluded due to incorrect answers in their questionnaires. Ultimately,

the total samples that qualified for analysis was 400 samples or 50.00 per cent from the total sample collected.

4.3 Respondents' profile

Table 4.2 shows the respondents' characteristics in this study. Descriptive analysis was conducted and the result is presented in frequency and percentage. In this survey, male respondents and female respondents represented 50.20 per cents and 49.80 per cents of the samples collected respectively. Respondents were from the age group of 31 to 40 years old (43.20 per cent) and age group from 22 to 30 years old (34.25 per cent) of the total samples collected. This is followed by respondents from the age group 41 to 50 years old and above that represents (14.20%) per cent, age group 51 to 60 years old (4.50 per cent), age group below 21 years old and (1.00 per cent) and age group above 60 years old (0.80%) .

Respondents with bachelor degrees contributed 50.00 per cent in this survey. Respondents with postgraduates (i.e. Master/Doctorate) were 22.00 per cent and those with certificates or diploma qualifications accounted for 19.80 per cent, whereas secondary or higher school and those with professional certificates accounted for 5.20 per cent and 3.00 per cent, respectively.

The majority of respondents were from executive and managerial positions or professionals. This group of respondents accounted for 63.50 per

cent of the total respondents, while executives made up 34.00 per cent, and managerial/professional (29.50 per cent). Business owners and students accounted for 12.80 per cent and 8.20 per cent, respectively. Supervisors represented 3.80 per cent, whereas housewife respondents accounted for 2.80 per cent, non-executive respondents and retired/not working respondents accounted for 2.20 percent and 1.50 per cent, respectively.

Respondents with monthly income ranging from RM 2,001 to RM 5,000 made up 42.00%. Another 32.20 per cent reported their monthly earnings were between RM 5,001 to RM 8,000. The results indicated that the majority of the respondents were middle income earners. Respondents who reported their monthly earnings between RM 8,001 to RM 10,000 was 7.20 per cent; and RM 10,001 and above was 6.00 per cent. Monthly incomes from RM 2,001 or less accounted for 12.50 per cent.

Table 4.2: The demographical profiles of respondents (*N*=400)

		Frequency, *n*	Percentage, %	Cumulative, %
Gender	Male	201	50.20	50.20
	Female	199	49.80	100.00
Age Group	Below 21 years old	4	1.00	1.00
	22-30 years old	137	34.25	35.20
	31-40 years old	173	43.20	78.50
	41-50 years old	65	16.20	94.80
	51-60 years old	18	4.50	99.20
	Above 60 years old	3	0.80	100.00
Ethnic Group	Malay	129	32.20	32.20
	Chinese	228	57.00	89.20
	Indian	30	7.50	96.80
	Others	13	3.20	100.00
Marital status	Single	190	47.50	47.50
	Married	205	51.20	98.80
	Divorced/Widow	5	1.20	100.00
Highest Level of Education	Primary School	0	0	0
	Secondary School/High School	21	5.20	5.20
	Certificate or Diploma	79	19.80	25.00
	Bachelor Degree	200	50.00	75.00
	Postgraduate (i.e. Master/Doctorate)	88	22.00	97.00
	Professional Certificate	12	3.00	100.00
Monthly income	Below RM 2,000 or less	50	12.50	12.50
	RM 2,001 to RM 5,000	168	42.00	54.50
	RM 5,001 to RM 8,000	129	32.20	86.80
	RM 8,001 to RM 10,000	29	7.20	94.00
	RM 10,001 and above	24	6.00	100.00
Occupation	Managerial/Professional	118	29.50	29.50
	Executive	136	34.00	63.50
	Supervisor	15	3.80	67.30
	Non-Executive	9	2.20	69.50
	Students	33	8.20	77.80
	Not Working/ Retired	6	1.50	79.20
	Housewife	11	2.80	82.00
	Self Employed/ Business owner	51	12.80	94.80
	Others	21	5.20	100.00

4.4 Descriptive Statistics of the Survey Data

4.4.1 Data preparation

Data preparation involved checking the data for accuracy, entering the data, and developing and documenting a database structure that integrated the various measures using SPSS.

4.4.2 Characteristics of the variables scores

The first step to understanding the nature of any variable is to characterize them in relation to normality, homoscedasticity, linearity, multicollinearity and singularity. Understanding these characteristics of the data creates awareness of any assumption violations and the implications they may have for the estimation process or the interpretation of the results.

4.4.3 Normality of Data

Normality refers to the shape of the data distribution for an individual metric variable (scale), and it correspondence to normal distribution (Pallant, 2005; Tabachnick ad Fidell, 2007). Normality is tested by examining the histogram. A histogram is a graphic presentation of a set of data with observations on the vertical axis and categories of values of the variable on the horizontal axis. An examination of the histogram indicates all the data set compares the observed data with a distribution approximating the bell shaped normal distribution.

4.4.4 Linearity

This study tested linearity by running a simple regression analysis and examined all the independent constructs to the dependents constructs. Partial regression plots demonstrates linear association between the relationships of all the single independents constructs to the dependent constructs. The partial regression plots suggest linear relationships among the constructs.

4.4.5 Homoscedasticity

Homoscedasticity refers to assumption that dependent variable exhibit equal levels of variance across the range of independent variables. Examination of the scattplot shows points are randomly and evenly dispersed throughout the plot indicative of a situation in which the assumption of homoscedasticity has been met.

4.4.6 Examination of outliers

The presence of outliers was examined using histogram, normal Q-Q plot, the detrended normal Q-Q plot, and box plot. The histograms, normal Q-Q plot, the detrended normal Q-Q plot, and box plot indicate the presence of no data considered to be outliers.

4. 5. Descriptive analysis

Table 4.3 shows some descriptive for the constructs, namely minimum (min), maximum (max), mean, standard deviation, and Variance Inflation Factor (VIF). Minimum and maximum values show that all the constructs were consistently measured within the point on the scale that they had been measured on, *i.e.,* from 1 to 5, where respondents to the items were measured on a seven point Likert scale where 1 means “Strongly Disagree” and 7 means “Strongly agree”. VIF were presented for the examination of singularity .

Table 4.3: Descriptive analysis of items (*N*=400)

Constructs	Min	Max	Mean	Std. Deviation	VIF
Attitude to Functional (Healthy) food Products					
- **Benefit** from using Functional (Healthy) Food Products	1.00	5.00	3.282	.633	.401
- **Confidence in** Functional (Healthy) Food Products	1.00	4.44	2.976	.461	.213
- **Necessity for** Functional (Healthy) Food Products	1.62	5.00	3.088	.554	.307
- Functional (Healthy) Food Products **as Medicine**	1.00	4.83	3.021	.664	.441
- Functional (Healthy) Food Products as part of **Healthy Diet**	1.00	5.00	3.087	.659	.435
- **Absence of Nutritional Risk in** Functional (Healthy) Food Products	1.00	5.00	3.039	.663	.440
Subjective Norm to Functional (Healthy) Food Products	1.00	5.00	3.099	.682	.465
Perceived Behavioral Control Functional (Healthy) Food Products	1.60	5.00	3.478	.654	.428
Intention to Purchase Functional (Healthy) Food	1.00	5.00	3.198	.660	.435
Purchase the Functional (Healthy) Food Products	1.00	4.58	2.299	.680	.462

The result from **Table 4.3** shows that all constructs and sub-constructs are scored a mean score of above 2.5 except the variable of purchase Functional (Healthy) Food Products. The findings indicated that respondents may show

a positive opinion toward intention to purchase Functional (Healthy) Food Products. The standard deviation for all constructs showed above 0.45, this is indicated that there was variation among respondents' opinion to each variable.

4.6 Reliability Test and Correlation

4.6.1 Reliability Test

Cronbach's alpha coefficient was utilised to measure the internal consistency of the scales employed in this study. The Cronbach's alpha value for each variable is presented in **Table 4.4**. As Nunnally (1978) and DeVellis (2003) recommend a minimum level of 0.70, then scale of the construct can be considered high reliable. **Table 4.4** shows all the constructs revealing Cronbach's alpha values greater than 0.70, which exceeds the recommended value of 0.70.

Table 4.4: Cronbach's alpha value of constructs

Variables	Items	Cronbach's alpha value
1) Purchase the Functional (Healthy) Food Products	12	.862
2) Intention to Purchase Functional (Healthy) Food Products	6	.820
3) Attitude to Functional (Healthy) Food Products **3.1) Benefit from using** Functional (Healthy) Food Products	7	.773
3.2) Confidence in Functional (Healthy) Food Products	9	.736
3.3) Necessity for Functional (Healthy) Food Products	8	.711
3.4) Functional (Healthy) Food Products **as Medicine**	6	.770
3.5) Functional (Healthy) Food Products as part of **Healthy Diet**	5	.716
3.6) Absence of Nutritional Risk in Functional (Healthy) Food Products	4	.754
4) Subjective Norm to Functional (Healthy) Food Products	7	.879
5) Perceived Behavioral Control Functional (Healthy) Food Products	5	.785

4.6.2 Correlation

Pearson's correlation was used to explore the relationship between all the variables in this study. Correlations coefficients are able to provide numerical summary of the direction and strength of the linear relationship between all the variables. Pearson's correlation coefficients (*r*) can take on values from -1 to +1, and the sign out at the front indicates the directions, i.e. positive correlation or negative correlation (Pallant , 2007). Cohen (1998) suggests the following guidelines to determine the strength of the relationship.

r = .10 to .29 or *r* = -.10 to -.29 small

r = .30 to .49 or *r* = -.30 to -.49 medium

r= .50 to 1.0 or *r* = -.50 to -1.0 large

Table 4.5 shows that all constructs are positively correlated to each others. How often you purchase functional (healthy) food products (PFP) was significantly correlated with purchase Intention to functional (healthy) food products (PI), *r* = .528, *p* (two-tailed) <.01. Purchase Intention to functional (healthy) food products (IP) was significantly correlated with benefits from using functional (healthy) food products (BFP), *r*=.511, *p* (two-tailed) <.01. There was significant relationship between Subjective Norm to functional (healthy) food products (SNFP) and benefits from using functional (healthy) food products (BFP), *r*=.506, *p* (two-tailed) <.01.

Table 4.5: Correlations

Variables	PFP	IP	BFP	CFP	NFP	MFP	HDFP	RFP	SNFP	PBCFP
Purchase the Functional (Healthy) Food Products **(PFP)**	1.000									
Intention to purchase Functional (Healthy) Food Products **(IP)**	.528	1.000								
Benefits from using Functional (Healthy) Food Products **(BFP)**	.409	.511	1.000							
Confidence in Functional (Healthy) Food Products **(CFP)**	.361	.369	.429	1.000						
Necessity for Functional (Healthy) Food Products **(NFP)**	.100	.146	.187	.151	1.000					
As Medicine Functional (Healthy) Food Products **(MFP)**	.116	.204	.184	.333	-.064	1.000				
As part of healthy diet Functional (Healthy) Food Products **(HDFP)**	.125	.167	.196	.270	.156	.072	1.000			
Absence of nutritional risk Functional (Healthy) Food Products **(RFP)**	.116	.113	.096	.143	-.049	.319	.074	1.000		
Subjective Norm Functional (Healthy) Food Products **(SNFP)**	.396	.433	.506	.380	.176	.082	.310	.082	1.000	
Perceived Behavioral Control Functional (Healthy) Food Products **(PBCFP)**	.296	.363	.290	.289	.137	.193	.201	.168	.318	1.000

** Correlation is significant at the 0.01 level (p<.01) (2-tailed)

4.7 Principal Component Analysis

The aim of Principal Component Analysis (PCA) is to determine that the questions developed in the measurement instrument, *i.e.,* questionnaire are tapping the right concept and not something else (Sekaran, 2003). Validity test is employed by researchers to determine the wellness of an instrument used in measuring a particular concept that supposed to measure.

According to Pallant (2007), sample size and the strength of the relationship among the items or variables are the two main issues to be considered for a set of data is suitable for factor analysis. Tabachnick and Fidell (2007) suggested that a sample size of at least 300 is comfortable for factor analysis, however, smaller sample size is still acceptable if the condition presented with high loading marker variable (above 0.80). In this study, 400 samples qualified for the analysis, hence the sample size is considered sufficient for factor analysis. A correlation coefficient (loading level) greater than 0.30 is considered acceptance for factor analysis (Tabachnick and Fidell, 2007). An inspection of the correlation matrix revealed the presence of many coefficients of 0.3 and above.

Two statistical measures, namely Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity are important in assessing the factorability of the data. KMO measures sampling adequacy, whereas Bartlett's test of Sphericity. Bartlett's test of Sphericity should be significant (p<0.05) in order for the factor analysis to be considered appropriate. The KMO index ranges

from 0 to 1, with 0.60 is the minimum value for a good factor analysis (Pallant, 2007). In this study, individual construct was tested independently. KMO value and Bartlett's test of Sphericity were first inspected to ensure data sets are suitable for factor analysis, then followed by determining the internal validity, and the number of components extracted by using Kaiser's criterion that have an eigenvalue of 1 or above.

Table 4.6: KMO and Bartlett's Test of Sphericity for variables

		Bartlett's Test of Sphericity		
Variables	**Kaiser-Meyer-Olkin Measure of Sampling Adequacy**	**Approx. Chi-Square**	***Df***	**Sig.**
1) Purchase the functional (healthy) food products	0.865	1651.000	66.000	0.000
2) Intention to purchase functional(healthy) food products	0.757	1113.000	15.0000	0.000
3) Attitudes to functional(healthy) food products 3.1) Benefit from using functional (healthy) food products	0.815	660.124	21.000	0.000
3.2) Confidence in functional (healthy) food products	0.782	997.569	36.000	0.000
3.3) Necessity for functional(healthy) food products	0.750	1199.000	28.000	0.000
3.4) Functional (healthy)food products as Medicine	0.744	648.396	15.000	0.000
3.5) Functional(healthy) food products as part of a healthy diet	0.765	465.868	10.000	0.000
3.6) Absence of nutritional risk in functional (healthy)food products	0.720	437.442	6.000	0.000
4) Subjective Norm to functional (healthy) food products	0.868	1373.00	21.000	0.000
5) Perceived Behavioral Control of functional (healthy) food products	0.779	565.786	10.000	0.000

Table 4.6 showed that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for all data were above .60 or above, therefore all data sets are suitable for factors analysis. For example, the highest KMO value is .868 from Subjective Norm to functional (healthy) food products, whereas the lowest KMO value reported was .720 from Absence of nutritional risk in functional (healthy) food products. Bartlett's Test of Sphericity values from all constructs are significant as they have values of $p<0.05$, therefore factor analysis is appropriate in this study. Moderated conceptual model is proposed in **Figure 4.1** refers.

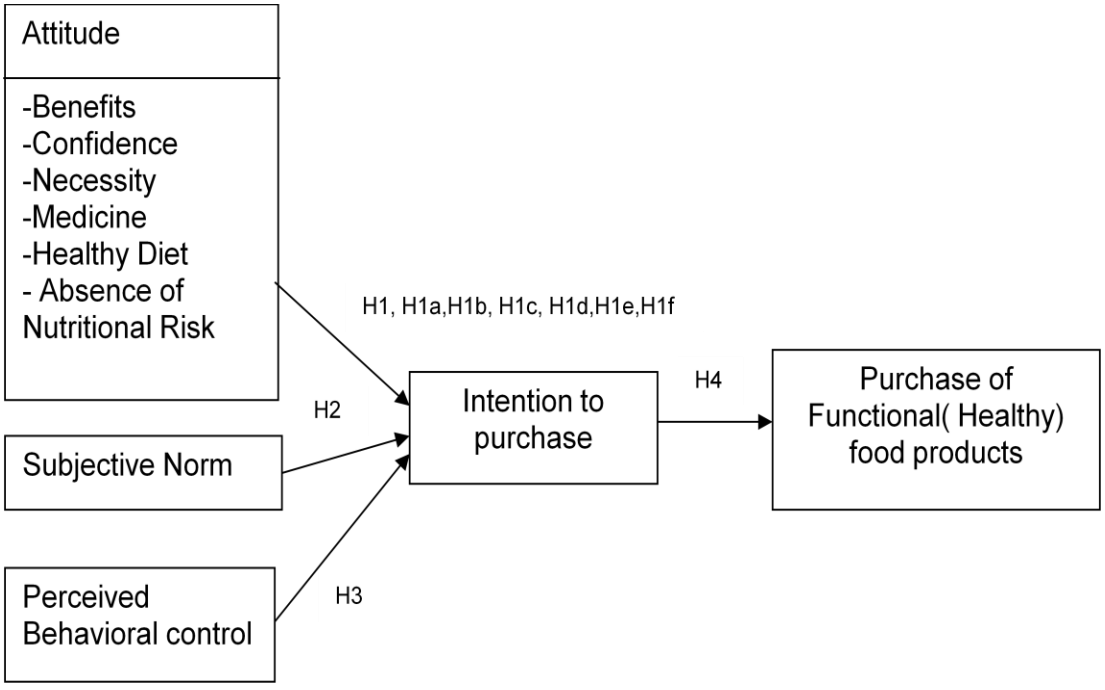

Figure 4.1: Moderated conceptual model

Table 4.7: Goodness of Data

Constructs	Items	Factor Loading	KMO	Eigenvalue	Variance explained
1. Purchase the functional (healthy) food products	12	0.319-0.678	0.865	4.328	46.17%
2. Intention Purchase to functional(healthy) food products	6	0.658-0.896	0.757	2.882	64.30%
3. Attitudes to functional(healthy) food products					
3.1 Benefit from using functional (healthy) food products	7	0.343-0.726	0.815	2.446	34.93%
3.2 Confidence in functional (healthy) food products	9	0.498-0.749	0.782	2.722	43.82%
3.3 Necessity for functional(healthy) food products	8	0.310-0.824	0.750	2.258	54.12%
3.4 Functional (healthy)food products as Medicine	6	0.492-0.826	0.744	2.328	50.71%
3.5 Functional(healthy) food products as part of a healthy diet	5	0.618-0.759	0.765	1.969	39.76%
3.6 Absence of nutritional risk in functional (healthy)food products	4	0.472-0.828	0.720	1.869	46.72%
4. Subjective Norm to functional (healthy) food products	7	0.589-0.790	0.868	3.611	51.59%
5. Perceived Behavioral Control to functional (healthy) food products	5	0.456-0.735	0.779	2.175	43.49%

Table 4.7 presents the results of the analysis done on goodness of data, factor loading, KMO value, eigenvalue and variance explained of all constructs were presented. Purchase functional (healthy) food products reported eigenvalue of 4.328 and variance explained at 46.17 per cent. On the other hand, intention to purchase functional (healthy) food products with eigenvalue of 2.882 and that component extracted had a total of 64.30 per cent of the variance. All constructs showed eigenvalues larger than 1 and KMO value above 0.60. The result showed the construct validity is acceptable.

4.8 Multiple Regression Analysis

A multiple regression analysis was performed to determine the predictor and its contribution towards the criterion. In other words, it is to find out the prediction of a single dependent continuous variable from a group of independent variables.

In order to ensure the appropriateness of the outputs from the regression analysis, the assumptions of multiple regression must comply. In this case, the normality, linearity, homoscedasticity, multicollinearity, autocorrelation, and multivariate outlier, all refer to the various aspects of the distribution of scores and the nature of the underlying relationship between the variables. These assumptions were checked by inspecting the Normal Probability Plot (P-P) of the Regression Standard Residual, Scatter plot, and other tests that complement the regression analysis. According to the histogram of the

intention to purchase functional (healthy) food products (see **Appendix II**), the data of the dependent variable is normally distributed. Hence, it ensures the normality of the sample. In addition, sample normality is further demonstrated by a Normal P-P of the Regression Standard Residual, as shown in **Figure 4.2.**

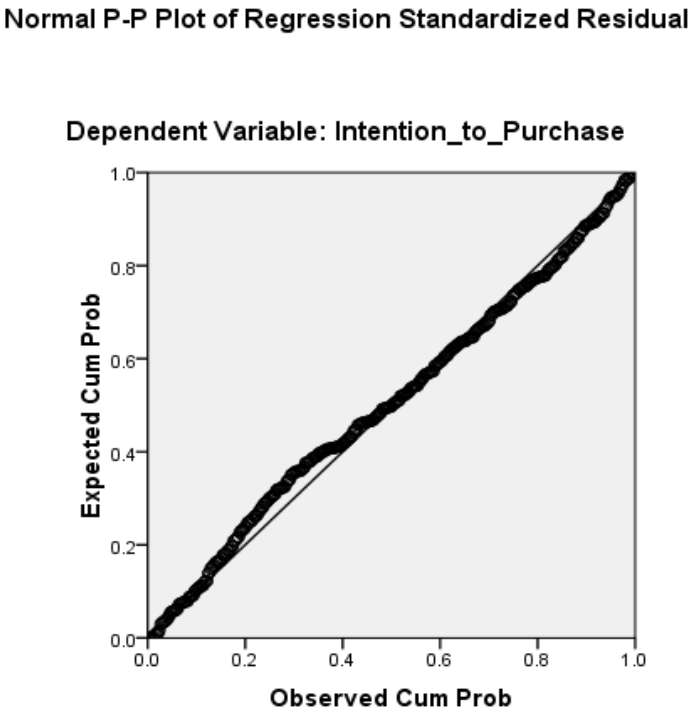

Figure 4.2: Normal P-P Plot of regression standardized residual for dependent variable

In the Normal P-P plot, points are laid in a reasonably straight diagonal line from bottom left to top right. It indicates no major deviation from normality.

On the other hand, from the scatter plot of residuals in **Figure 4.3,** the residuals are roughly rectangularly distributed, with most of the scores concentrated in the centre along the 0 axes. (red line). The findings indicate that the predictors (independent variables) are linearly related to the residual of the criterion (dependent variable). Therefore, the homoscedasticity of the sample is ensured. The findings show that outliers are detected as score has a standardized residual of more than 3.3 or less than –3.3.

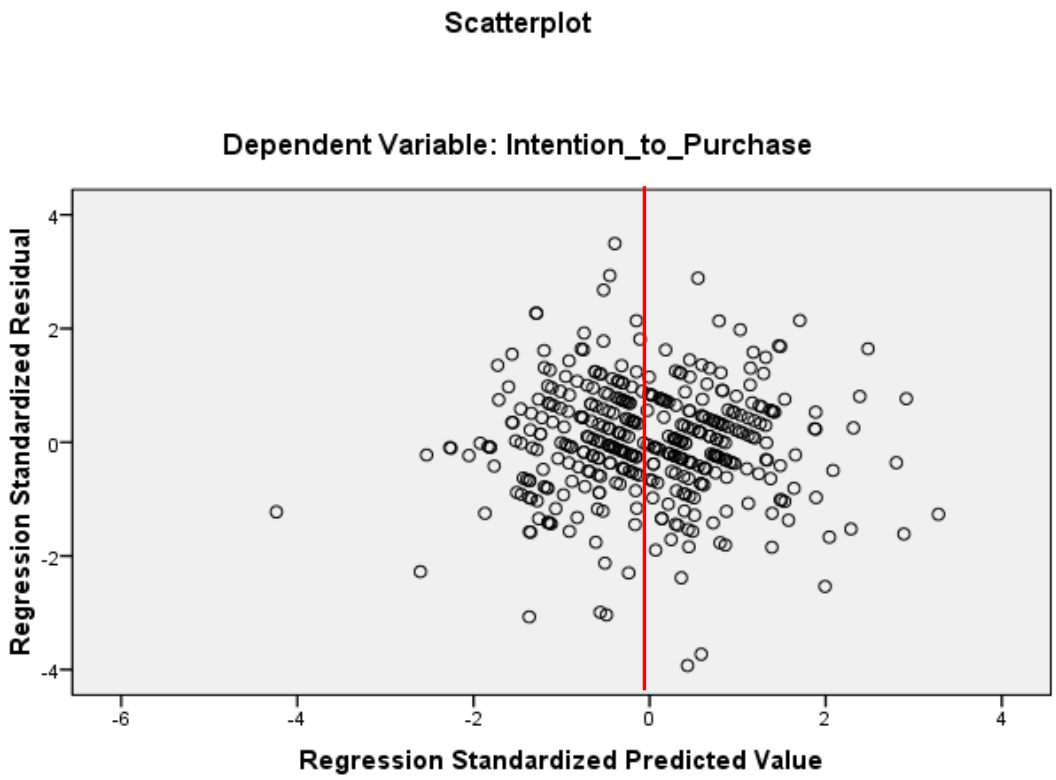

Figure 4.3: The scatter plot of residuals observed value and predicted value

In addition, in the collinearity statistic tests all three predictors have tolerance values greater than 0.10, and variance inflection factor, (VIF) values less than 10. It reveals that there is no multicollinearity between the variables. The Durbin-Watson value in this analysis is 1.619, which falls in the range of 1.5 to 2.5, indicating that there is no autocorrelation in the residual. The Mahalanobis adjustment was performed to encounter the potential multivariate outliers in the computed data. In conclusion, all the assumptions were complied with throughout the regression analysis. Hence, the appropriateness of these findings was ensured.

After all the assumptions were complied with, the multiple regression analysis was carried out. The results of the multiple regression are shown in **Table 4.8** to **Table 4.12**.

Table 4.8: Multiple correlation of independent variables with mediator

Model Summary[d]

					Change Statistics					
Model	*R*	R^2	*Adjusted* R^2	*Std. Error of the Estimate*	R^2 *Change*	*F Change*	*df1*	*df2*	*Sig. F Change*	*Durbin-Watson*
1	.545(a)	.297	.287	.55714	0.297	27.703	1	392	.000[a]	1.796
2	.571(b)	.326	.314	.54623	0.029	27.110	1	393	.000[a]	1.833
3	.593(c)	.351	.338	.53661	0.025	26.478	1	391	.000[a]	1.901

Mediator: Intention to Purchase

a. Predictors: (Constant), Benefits from using FP, Confidence from using FP, Necessity from using FP , As Medicine from using FP, Healthy Diet, Absence Nutritional Risk

b. Predictors: (Constant), Benefits from using FP, Confidence from using FP, Necessity from using FP , As Medicine from using FP, Healthy Diet, Absence Nutritional Risk , Subjective Norm

c. Predictors: (Constant), Benefits from using FP, Confidence from using FP, Necessity from using FP , As Medicine from using FP, Healthy Diet, Absence Nutritional Risk, Subjective Norm, Perceived behavioral control

Table 4.8, the model (3) shows that there are multiple correlations (*R* =.593) of eight significant predictors with the criterion (mediator). The factors that influence consumers' intention to purchase functional (healthy) food products are Absence Nutritional Risk, Necessity from using FP, Healthy Diet, Benefits from using FP, As Medicine from using FP, Confidence from using FP), Subjective Norm and Perceived behavioural control. The eights factors have a significant effect size that explains 35.10 percent of the variability towards the intention to purchase functional (healthy) food products. The adjusted R^2 indicates that in the population, the eights factors account for 33.80% variance in respondents' intention to purchase functional (healthy) food products. A total of 66.20% of the variance of the criterion is unaccounted.

Table 4.9: Multiple correlation of mediator with dependent variable

Model Summary[d]

					Change Statistics					
Model	*R*	*R 2*	*Adjusted R 2*	*Std. Error of the Estimate*	*R Square Change*	*F Change*	*df1*	*df2*	*Sig. F Change*	*Durbin-Watson*
5	.528(e)	.279	.277	.57821	.279	153.788	1	398	.000[a]	1.619

Dependent Variable: Purchase Functional (healthy) Food products (FP)

d. Mediator: (Constant),Intention to Purchase

There are multiple correlations (*R* =.528) of the significant predictors with the criterion (dependent variable), as shown in **Table 4.9**. From the model (5), the (mediator) intention to purchase influenced consumers' purchase of functional (healthy) food products. The factors have a significant effect size that explains 27.90 percent of the variability towards purchases of

functional (healthy) food products. The adjusted R^2 indicates that in the population, the three factors account for 27.70% variance in respondents' purchase functional (healthy) food products. A total of 72.30% of the variance of the criterion is unaccounted. For **Table 4.10** reveals this regression is significant ($F_{1, 398} = 153.79$, $p < .05$).

Table 4.10: Significances of Independent variables

ANOVA[d]

Model		Sum of Squares	df	Mean Square	F	Sig.
5	Regression	51.416	1	51.416	153.788	.000[a]
	Residual	133.063	398	.334		
	Total	184.479	399			

e. Mediator: (Constant), Intention to Purchase

f. Dependent Variable: Purchase Functional (healthy) Food products (PFP)

Table 4.11, model (3) indicated that only three significant predictors out of eight independent variables are positively related to the criterion in the regression. They are benefit from using functional (healthy) food, IV_2 (t = 6.337, p <.05), subjective norm, IV_8 (t = 3.517, p <.05) and perceived behavoiral control, IV_9 (t = 3.897, p <.05).

The benefit from using functional (healthy) food has the highest regression coefficient, 0.33, followed by perceived behavioral control, 0.176 and subjective norm 0.171 and [Confidence level, CI please refer to **Appendix III**] Effects from predictors are insignificant in this set of combinations, therefore the mediator multiple regression equation is as follows:

$$MD_3 = 0.320 + 0.330\ IV_2 + 0.171\ IV_8 + 0.176\ IV_9$$

Table 4.11: Regression coefficients and significance of Independent variables

Coefficients[a]

Model		*Unstandardized Coefficients*		*Standardized Coefficients*			*Collinearity Statistics*	
		B	*Std. Error*	*Beta*	*t*	*Sig.*	*Tolerance*	*VIF*
3	(Constant)	0.320	0.264		1.212	0.226		
IV_2	Benefits from using Functional (Healthy) Food Products **(BFP)**	0.330	0.052	0.317	6.337	0.000	0.662	1.511
IV_3	Confidence in Functional (Healthy) Food Products **(CFP)**	0.133	0.070	0.093	1.890	0.059	0.683	1.464
IV_4	Necessity for Functional (Healthy) Food Products **(NFP)**	0.030	0.050	0.025	0.596	0.552	0.922	1.084
IV_5	As Medicine Functional (Healthy) Food Products **(MFP)**	0.067	0.046	0.067	1.466	0.143	0.791	1.265
IV_6	As part of healthy diet Functional (Healthy) Food Products **(HDFP)**	-0.020	0.044	-0.020	-0.445	0.657	0.863	1.159
IV_7	Absence of nutritional risk Functional (Healthy) Food Products **(RFP)**	0.006	0.043	0.006	0.150	0.881	0.883	1.133
IV_8	Subjective Norm Functional (Healthy) Food Products **(SNFP)**	0.171	0.049	0.177	3.517	0.000	0.656	1.525
IV_9	Perceived Behavioral Control Functional (Healthy) Food Products **(PBCFP)**	0.176	0.045	0.175	3.897	0.000	0.826	1.211

a. Mediator: Intention to Purchase

Table 4.12: Regression coefficients and significance of mediator

Model		*Unstandardized Coefficients*		*Standardized Coefficients*			*Collinearity Statistics*	
		B	*Std. Error*	*Beta*	*t*	*Sig.*	*Tolerance*	*VIF*
5	(Constant)	0.559	0.143		3.898	0.000		
MD	Intention to Purchase **(IP)**	0.544	0.044	0.528	12.401	0.000	1.000	1.000

a. Dependent Variable : Purchase Functional (healthy) Food products (FP)

Table 4.12 indicated that the significant mediator is positively related to dependent variable in the regression. The intention functional (healthy) food, MD (t = 12.401, p <.05).

Effects from other predictors are insignificant in this set of combinations, and those factors are not included in the multiple regression equation. Therefore the multiple regression equation is as follows:

$$DV = 0.599 + 0.554\ (MD_3)$$

$$DV = 0.599 + 0.554\ (0.320 + 0.330\ IV_2 + 0.171\ IV_8 + 0.176\ IV_9)$$

$$DV = 0.776 + 0.183\ IV_2 + 0.095\ IV_8 + 0.098\ IV_9$$

Where,

DV = Purchase Functional (Healthy) food Products

MD_3 = Mediator (Intention to purchase)

IV_2 = Benefits from Using Functional (Healthy) food Products

IV_8 = Subjective Norm

IV_9 = Perceived behavioral control

The beta value indicates that one unit increase in benefits from using functional (healthy) food products will result in an increase in the respondents' intention to purchase by 0.183 units. If the influences from significant by subjective norm increases by one unit, the respondents' intention to purchase will increase by 0.095 units and the influences from significant by perceived control behavioural increases by one unit, respondents' intention to purchase functional (healthy) food products will increase by 0.098 units. The relationship and implications are further discussed in **Chapter 5**.

4.9 Independent Sample t-test

An independent sample t-test was carried out to identify the differences between respondents' gender on the perceived importance of factors that influence their purchase intention and purchase of functional (healthy) food products. The results of the independent sample t-test are shown in **Table 4.13**.

According to **Table 4.13**, all of the ten variables are not significantly different between the gender of the respondent's. These variables are attitude (benefits from using FP, confidence from using FP, necessity from using FP, as medicine from using FP, healthy diet, absence nutritional risk), subjective norm, perceived control behavioural, intention to purchase and purchase the functional (healthy) food products. The detailed discussions are presented in **Chapter 5.**

Table 4.13: Independent sample t-test result for male and female respondent towards proposed variables

Variables		Male (*N* = 201)	Female (*N* = 199)	t	*P* < .05
1) Purchase the functional (healthy) food products	Mean	2.204	2.395	-2.845	*NS*
	S.D.	0.659	0.689		
2) Intention to purchase functional(healthy) food products	Mean	3.165	3.231	-1.003	*NS*
	S.D.	0.634	0.684		
3) Attitudes to functional(healthy) food products					
3.1) Benefit from using functional (healthy) food products	Mean	3.259	3.305	-0.732	*NS*
	S.D.	0.638	0.629		
3.2) Confidence in functional (healthy) food products	Mean	2.962	2.991	-0.621	*NS*
	S.D.	0.478	0.444		
3.3) Necessity for functional(healthy) food products	Mean	3.075	3.101	-0.455	*NS*
	S.D.	0.571	0.538		
3.4) Functional (healthy)food products as Medicine	Mean	3.034	3.001	0.386	*NS*
	S.D.	0.667	0.662		
3.5) Functional(healthy) food products as part of a healthy diet	Mean	3.135	3.038	1.475	*NS*
	S.D.	0.642	0.675		
3.6) Absence of nutritional risk in functional (healthy)food products	Mean	3.045	3.033	0.182	*NS*
	S.D.	0.665	0.663		
4) Subjective Norm to functional(healthy) food products	Mean	3.081	3.112	-0.528	*NS*
	S.D.	0.673	.692		
5) Perceived Behavioral Control to functional (healthy) food products	Mean	3.489	3.467	0.324	*NS*
	S.D.	0.640	0.670		

* Note: S.D. = Standard Deviation, *Sig* = Significant, *NS* = Not Significant

4.10 One-way Analysis of Variance (One-way ANOVA)

In this study, One-way ANOVA was used to investigate the significant difference between respondents' academic background on perceived importance of factors that influence their purchase intention to functional (healthy) food products. The use of One-way ANOVA is to compare the variance between the different groups of respondents' academic background with the variability within each of the groups (analysis of variance).

In general, One-way ANOVA shows whether or not the means of the various groups are significantly different from one another, as indicated by the F statistical value. The F value shows whether two sample variances differ from each other or if they are from the same population. The F distribution is a probability distribution of sample variances and the family of distributions changes with the changes in sample size. In order words, the F value is the ratio of the variance between groups divided by the variance within groups. Therefore, the greater the likelihood of between-group variance compared with within-group variance, the greater the probability that the means of the groups will be different (Sekaran *et al*., 2000).

In brief, One-way ANOVA was performed through two steps. In the first step the significance of F value was determined. The F values were obtained from overall ANOVA. The second step was the multiple comparisons between groups. However, these comparisons were only applicable to those variables that were found to have a significant difference in overall ANOVA; i.e. those

variables with a significant F value. In this section, the Scheffe test was used to compare the significant difference between respondents' academic background; Group (A) Secondary/high school, Certificate or Diploma, Group (B) Bachelor Degree, and Group (C) Postgraduate(Master/Doctorate) and Professional certificate. The mean difference between groups indicated whether groups were statistically significantly different from one another. In addition, the Scheffe test was able to identify the strength of those differences. The results for the F value and effect size for each variable are presented in **Table 4.14**; the comparison between groups is shown in **Table 4.15**.

Table 4.14: One-way ANOVA, F values and effect size

Variable	F	*Sig*	*P* < .05
1) Purchase the functional (healthy) food products	5.170	.006	*Sig*
2) Intention to purchase functional(healthy) food products	3.541	.030	*SIg*
3) Attitudes to functional(healthy) food products 3.1) Benefit from using functional (healthy) food products	.718	.488	*NS*
3.2) Confidence in functional (healthy) food products	.536	.586	*NS*
3.3) Necessity for functional(healthy) food products	2.082	.126	*NS*
3.4) Functional (healthy)food products as Medicine	1.066	.346	*NS*
3.5) Functional(healthy) food products as part of a healthy diet	.687	.504	*NS*
3.6) Absence of nutritional risk in functional (healthy)food products	.477	.621	*NS*
4) Subjective Norm to functional(healthy) food products	2.906	.056	*NS*
5) Perceived Behavioral Control to functional (healthy) food products	12.354	.000	*Sig*

* Note: *Sig* = Significant, *NS* = Not Significant

Table 4.15: One-way ANOVA, comparison between groups

Variable	Group: Respondent's Qualification (I)	Group: Respondent's Qualification (J)	Mean Difference (I-J)	*P* < .05
1)Purchase the functional (healthy) food products	A	B	.014	*Sig*
	A	C	.011	*Sig*
	B	C	.854	*NS*
2) Intention to purchase functional(healthy) food products	A	B	.094	NS
	A	C	.030	*Sig*
	B	C	.665	*NS*
3.1) Benefit from using functional (healthy) food products	A	B	.731	*NS*
	A	C	.456	*NS*
	B	C	.806	*NS*
3.2) Confidence in functional (healthy) food products	A	B	.947	*NS*
	A	C	.586	*NS*
	B	C	.688	*NS*
3.3) Necessity for functional(healthy) food products	A	B	.975	*NS*
	A	C	.276	*NS*
	B	C	.117	*NS*
3.4) Functional (healthy)food products as Medicine	A	B	-0.01	*NS*
	A	C	0.09	*NS*
	B	C	0.10	*NS*
3.5) Functional(healthy) food products as part of a healthy diet	A	B	.340	*NS*
	A	C	.492	*NS*
	B	C	.995	*NS*
3.6) Absence of nutritional risk in functional (healthy)food products	A	B	.916	*NS*
	A	C	.604	*NS*
	B	C	.759	*NS*
4)Subjective Norm to functional(healthy) food products	A	B	.530	*NS*
	A	C	.046	*Sig*
	B	C	.216	*NS*
5)Perceived Behavioral Control to functional (healthy) food products	A	B	.000	*Sig*
	A	C	.000	*Sig*
	B	C	.262	*NS*

Note: Group (A) Secondary/high school, Certificate or Diploma, Group (B) Bachelor Degree, and Group (C) Postgraduate(Master/Doctorate), Professional certificate., *Sig* = Significant, *NS* = Not Significant

The results revealed that four out of ten variables were significantly different among the respondent's academic background. These variables are Purchase the listed functional (healthy) food products, Intention to purchase Subjective norm and Perceived behavioral control. The other eight variables remained insignificant. In terms of their effect size, Perceived control behavioral had a large effect size, followed by a moderate effect size for Purchase the functional (healthy) food products. The variable which had the significant smallest effect size is Intention to purchase.

The details of the comparison are summarized in **Table 4.16**, and the further discussion is presented in **Chapter 5**.

Table 4.16: Findings from comparison of groups

Variable	Significant Difference from Comparison of Groups
Purchase the functional (healthy) food products	Respondents of Group (C) Postgraduate (Master/Doctorate) and Group (B) Bachelor Degree have the highest purchase than Group (A) Secondary/high school, Certificate or Diploma STPM qualification. No significant difference found between Group (B) Bachelor Degree. No significant difference found of Group (C) Postgraduate (Master/Doctorate) qualifications. • Group C= Group B> Group A.
Intention to purchase functional(healthy) food products	Respondents of Group (C) Postgraduate (Master/Doctorate) qualification have highest intention to purchase than Group (A) Secondary/high school, Certificate or Diploma STPM qualification, but no significant difference found with Group (B) Bachelor Degree. No significant difference found between Group (A) Secondary/high school, Certificate or Diploma STPM qualifications and Group (B) Bachelor Degree qualifications. • Group C> Group A
Subjective norm to purchase functional(healthy) food products	Respondents of Group (A) Secondary/high school, Certificate or Diploma STPM qualification have significant different on subjective norm to intention to purchase with Group (C) Postgraduate (Master/Doctorate) qualification, but no significant difference found with Group (B) Bachelor Degree. No significant difference found between Group (B) Secondary/high school, Certificate or Diploma STPM qualifications and Group (C) Bachelor Degree qualifications. • Group A> Group C
Perceived behavioural control to functional (healthy) food products	Respondents of Group (C) Postgraduate (Master/Doctorate) and Group (B) Bachelor Degree have highest perceived control behavioral than qualification Group (A) Secondary/high school, Certificate or Diploma STPM qualification. No significant difference found between Group (B) Bachelor Degree no significant difference found of Group (C) Postgraduate (Master/Doctorate) qualifications. . • Group C= Group B> Group A

4.11 Testing of Hypothesis

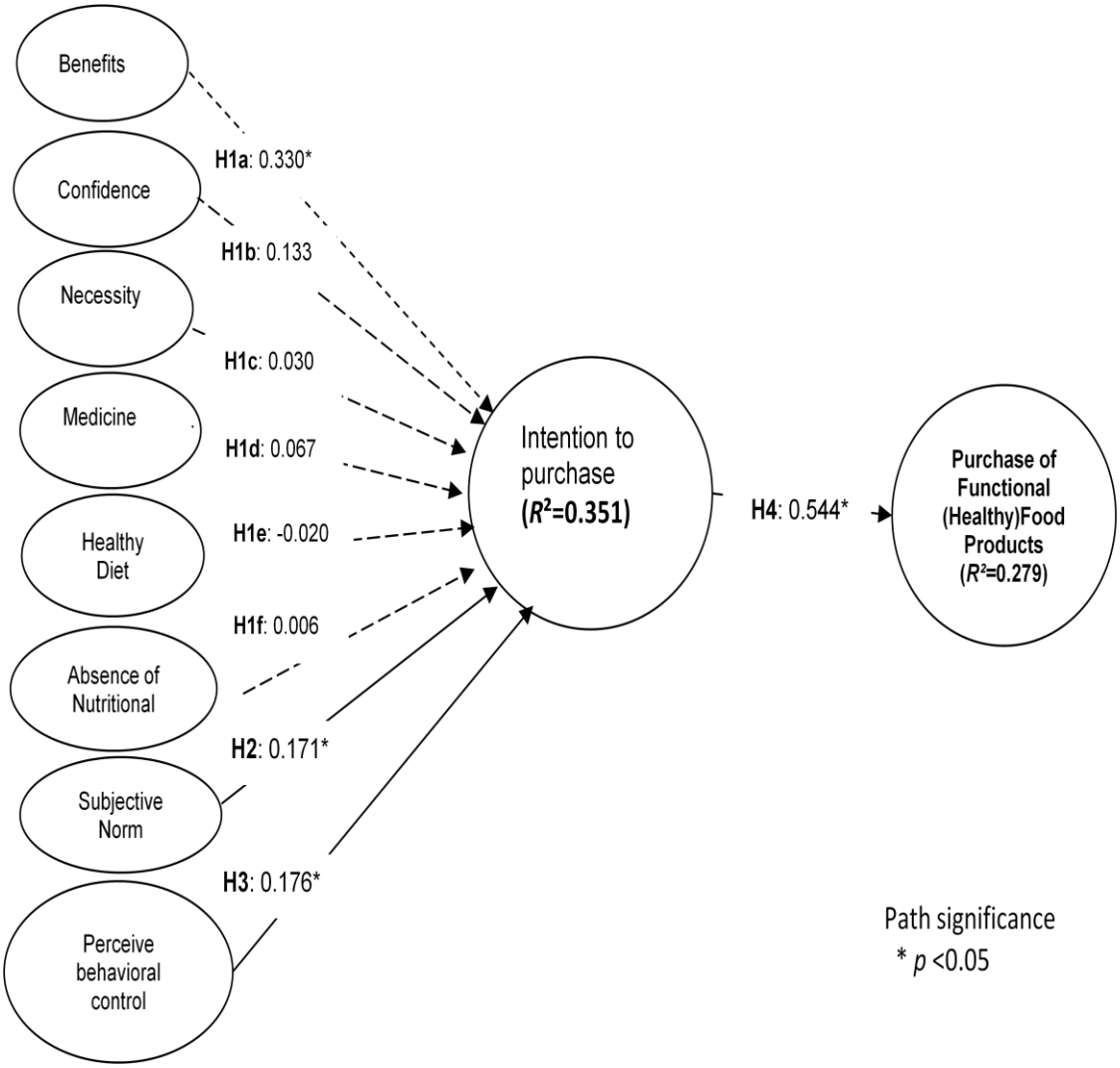

Figure 4.4: Overview of Research Framework and Hypothesis

Table 4.17: Summary of results of hypothesis testing

Hypothesis		Result
H_1 H_{1a}	There is a positive relationship between consumer's attitude to functional (healthy) foods on intention to purchase functional (healthy) foods products. There is a positive relationship between benefits from using functional (healthy) food products and intention to purchase.	Supported
H_{1b}	There is a positive relationship between confidence in functional (healthy) food products and intention to purchase.	Not supported
H_{1c}	There is a positive relationship between necessity for functional (healthy) food products and intention to purchase.	Not supported
H_{1d}	There is a positive relationship between functional (healthy) food products as medicine and intention to purchase.	Not supported
H_{1e}	There is a positive relationship between functional (healthy) food products as part of health diet and intention to purchase	Not supported
H_{1f}	There is a positive relationship between absence of nutritional risk in for functional (healthy) food products and intention to purchase.	Not supported
H_2	There is a positive relationship between consumer's subjective norm of functional (healthy) foods on intention to purchase functional (healthy) foods products.	Supported
H_3	There is a positive relationship between consumer's perceived behavioural control of functional (healthy) foods on intention to purchase functional (healthy) foods products.	Supported
H_4	There is a positive relationship between intention to purchase and purchase functional (healthy) foods products.	Supported

4.12 Chapter Summary

This chapter has shown the results of sampling, followed by descriptive statistics of data testing, tests of reliability, validity on survey data and summary of results of hypothesis testing. Data analysis presented in this chapter focuses on the assessing the moderated conceptual model in **Figure 3.2**. This chapter is organized in two major sections, first, the adequacy of measurement model and assessment of structure model, secondly, the result and hypothesis tests. SPSS was employed in this study to test the hypothesed relationships in the structural model. Mean Difference analyses were performed to identify the significant differences between the respondent's gender as well as level of towards the purchase functional (healthy) food products. The next chapter will present the discussion based on results from data analysis.