CHAPTER 5
DATA ANALYSIS, FINDINGS AND DISCUSSION

5.1 Introduction

Data collection was performed through a survey. The questionnaire comprised 61 questions and statements representing eight latent variables. Out of the overall number of surveys distributed to 430 respondents, 418 surveys were returned as 12 surveys were incomplete. Following that, 407 surveys were employed in the analysis, which was conducted through the Statistical Program for Social Sciences (SPSS) Version 21 and Analysis of Moment Structures AMOS Version 22. The quantitative study method was adopted to obtain further information and knowledge in the targeted area of interest. Additionally, the primary model was designed based on theories, which were tested using CFA and SEM.

5.2 Sample Distribution

As elaborated in Chapter Four, the surveys were distributed to 430 people. From all surveys, 418 surveys were returned from male and female respondents. Provided that 12 surveys presented missing values or incomplete responses during the data screening process, the surveys were excluded, leaving 407 completed and usable surveys (Peredaryenko, 2016). Table 5.1 presents the final breakdown of the distribution of samples after the end of the survey.

Table 5.1: Specification of sample distribution

Characteristic	Frequency	Percentage
Sample distribution	430	100%
Returned	418	97%
Incomplete	12	3%
Used in analysis	407	95%

5.3 The Descriptive Analysis

The demographic analysis was performed on age, gender, and occupation. Quantitative study descriptive statistics were employed to elaborate on the essential characteristics of the data collected in this study, which generally summarized the sample and measures. The descriptive analysis consisted of the mean, standard deviation, and frequencies to understand how much each time and the whole mean value of ever variable were agreed on. Notably, the analysis was effective in identifying the items, which were most agreed by the participants in the survey. It also illustrated the data through simple graphic analysis. Meanwhile, the univariate analysis investigated every variable separately.

Distribution: This study summarized the amount of range or individual values in a variable. The main measure distribution is represented by the frequency table.

Central tendency: This distribution is very important as an estimation of the distribution center for values. The central tendency estimates consist of three different categories, with mean as the most popular category.

Dispersion: This term denotes the growth of values at the central tendency, which consists of two common measures of dispersion, namely the range and standard deviation. Standard deviation is the most specific and elaborated estimate of dispersion

due to the ability of the outlier to exaggerate the range. The following subsections describe the results of demographic questions associated with the sample of the study.

5.3.1 Gender

The findings of the data analysis of the gender are shown in Table 5.2 followed by the number of genders established by the members of this study survey.

Table 5.2: Frequencies of gender factor

		Frequency	Per cent	Valid per cent	Cumulative per cent
Valid	Male	250	61.4	61.4	61.4
	Female	157	38.6	38.6	100.0
	Total	407	100.0	100.0	

Table 5.2 illustrates the frequencies and percentages of gender participating in the survey. It was found that the male participants represented the highest percentage (61.4%), followed by the percentage of the female participants (38.6%). The chart below demonstrates the grouping of participants based on gender.

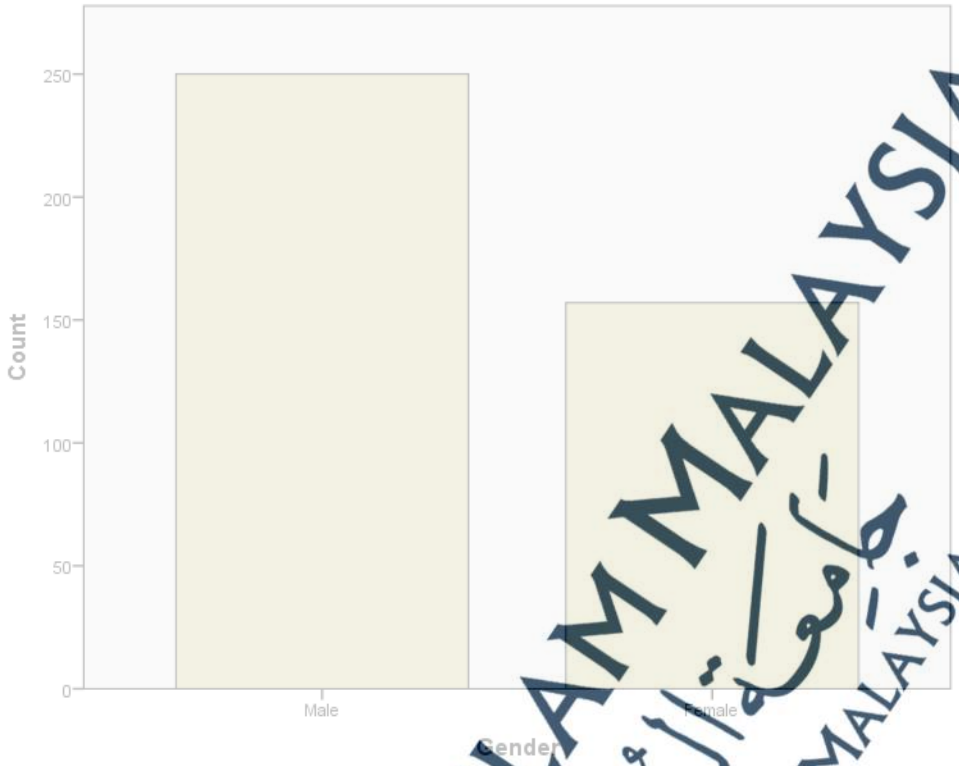

Figure 5.1: Grouping of the participant based on gender

5.3.2 Age

Table 5.3 presents the distribution of the participants' ages after conducting the survey.

Table 5.3: Frequencies of the age factor

		Frequency	Percent	Valid percentage	Cumulative percentage
Valid	21 - 25 years	122	30.0	30.0	30.0
	26 - 30 years	151	37.1	37.1	67.1
	31 - 35 years	91	22.4	22.4	89.4
	36 years and older	43	10.6	10.6	100.0
	Total	407	100.0	100.0	

The table on age demographic data above indicates that the percentage of the individuals ageing between 26 and 30 years old was the highest (37.1%) in this survey.

The individuals from the 21-years-old to the 25-years-old group, who represented 30% of the population, formed the next highest group, while the smallest groups consisting of individuals aged 36 years old and older represented 10.6% of the population. The following chart presents the grouping of participants based on age.

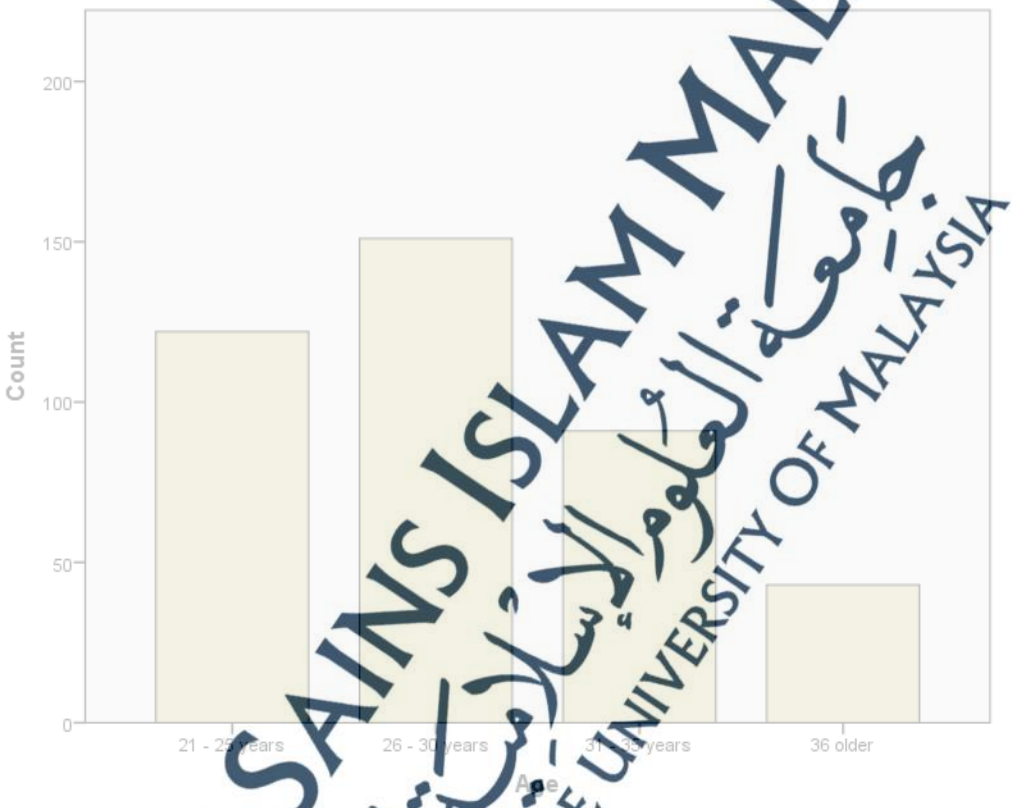

Figure 5.2: Age distribution of the study sample

5.3.3 Career

Table 5.4 illustrates the distribution of career among the participants after completing the survey.

Table 5.4: Frequencies of occupation factor

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Student	161	39.6	39.6	39.6
	Self-Employed	46	11.3	11.3	50.9
	Government	18	4.4	4.4	55.3
	Education	25	6.1	6.1	61.4
	Management	13	3.2	3.2	64.6
	Employee	88	21.6	21.6	86.2
	Others	56	13.8	13.8	100.0
	Total	407	100.0	100.0	

Based on the table regarding the frequencies and percentages of occupation among the participants, it was found that the students constituted the highest percentage (39.6%). This was followed by the employees representing 21.6% of the population, while the individuals from the management represented the lowest percentage (3.2%). The following chart presents the distribution of the participants' occupation.

Figure 5.3: Occupation graph of the study sample

5.4 Descriptive Statistics Findings of Independent Variables

Table 5.5: Mean and standard deviation results

Item	Measure phrases	N	Mean	Std. Deviation	Variance	Skewness		Kurtosis
		Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
1	Wholesomeness	407	3.6005	.99463	.989	-.861	-.119	.333
2	Attitude	407	3.6059	.89487	.801	-.633	-.633	.204
3	Habit	407	3.5012	.99257	.985	-.317	-.317	-.381
4	Awareness of individual	407	3.6228	.89134	.794	-.484	-.484	-.092
5	Sources of information	407	3.6461	.90136	.812	-.460	-.460	.068
6	Process verification	407	2.8251	1.32516	1.756	-.013	-.013	-1.228
7	Awareness of information	407	3.712	.74539	1.482	-.735	-.571	.148
8	Traceability	407	2.714	1.57537	2.482	.093	.093	-1.611

Table 5.5 presents the findings of the statistics (i.e., mean and standard deviation) of the seven independent variables. It was found that the prime factor with the highest mean value was the awareness of information (mean = 3.712), followed by sources of information (mean = 3.64), awareness of individual (mean = 3.62), process verification (mean = 2.825), and traceability (mean = 2.714). Meanwhile, the independent variable with the lowest mean scores was traceability (mean = 2.714), indicating the outcomes from the variable, specifically the prediction of the factors influencing the Malaysian Muslim consumers' behaviour of seeking information about halal food products. Overall, the mean results were almost similar to one another.

5.5 Kmo and Bartlett's Test

Kmo and Bartlett tests of the sample adequacy were applied to the scale factor of this study, which was used to confirm the adequacy of the study sample to conduct the exploratory factor analysis.

Table 5.6: KMO and Bartletts test

Kaiser-Meyer-Olkin measure of sampling adequacy.	0.909
Approx. Chi-Square	3930.443
Bartlett's test of sphericity Df	78
Sig.	0.000

The results in Table 5.6 demonstrated the KMO scale showed a value of 0.909, which indicated the adequacy of the study sample for the use of exploratory factor analysis. In this case, the Bartlett value was also highly appropriate (3930.443) when the level of statistical significance amounted to 0.000. Similarly, KMO and Bartlett's test indicated that the paragraphs used in the tool fulfilled the requirements for exploratory factor analysis, implying that the factor analysis could be performed on the reviewer's satisfaction quality scale variables.

5.6 Reliability Test

Bryman and Bell (2011) stated that "reliability refers to the consistency of a measure of a concept". In achieving understanding regarding the performance of the dependability of the measurement for every element, five-scaled questions were presented. The measurement reliability for each variable was determined using the Cronbach's Alpha. Notably, Cronbach's Alpha measurement method is known for its reliability tests (Bryman and Bell, 2011). Table 5.7 below presents the Cronbach's Alpha value for every element examined in this research.

Table 5.7: Cronbach's Alpha of each variable

Variables	Cronbach's Alpha
Wholesomeness	.814
Attitude	.735
Habit	.874
Awareness of individual	.881
Sources of information	.913

Process verification	.790
Awareness of information	.834
Traceability	.793

Table 5.7 demonstrated that attitude and traceability had approximately Cronbach's Alpha values of 0.700 and 0.800, respectively. Therefore, a low degree of internal constancy between the items was found. Shiu et al. (2009, p. 403) highlighted that an Alpha measurement at 0.600 (see Table 5.8) implied a low internal inconsistency. Subsequently, two elements from Table 6, including social names, brand, and social groups had values smaller than 0.800, which represented a smaller degree of internal constancy factors of the Malaysian Muslim consumers' behaviour of seeking information about halal food products.

5.7 Pearson Correlation Findings of the Variables

Table 5.8: Pearson correlation result of the variables

		Wholesomeness	Attitude	Habit	Awareness of individual	Sources of information	Process verification	Awareness of information	Traceability
Wholesomeness	Pearson correlation	1	0.834	0.697	0.912	0.694	0.991	0.769	0.735
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Attitude	Pearson correlation	0.834	1	0.764	0.846	0.747	0.871	0.675	0.617
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Habit	Pearson correlation	0.697	0.764	1	0.979	0.694	0.952	0.612	0.713
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
	Pearson correlation	0.912	0.846	0.979	1	0.811	0.831	0.691	0.757

Awareness of individual	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Sources of information	Pearson correlation	0.694	0.747	0.694	0.811	1	0.563	0.672	0.671
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Process verification	Pearson correlation	0.991	0.871	0.952	0.831	0.563	1	0.653	0.926
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Awareness of information	Pearson correlation	0.769	0.675	0.612	0.691	0.672	0.653	1	0.825
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407
Traceability	Pearson correlation	0.735	0.617	0.713	0.757	0.671	0.926	0.825	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000
	N	407	407	407	407	407	407	407	407

Table 5.8 presents the correlation between the seven factors, such as attitude, habit, awareness, information source, process verification, awareness of information, and traceability, and the factors of the Malaysian Muslim consumers' behaviour of seeking information about halal food products. Furthermore, correlation analysis is commonly employed to demonstrate the condition of developments occurring in the two elements (Shiu et al., 2009, p. 550). Using the SPSS, several statistic-based examinations were performed to identify the associations between the elements. When the characteristic of the current research and its elements were considered, the Pearson correlation coefficient analysis was not suitable as it enabled the correlation between two variables. Besides, interval or ration-scaled measurements were required (Shiu et al., 2009, p. 556). Shiu et al. (2009, p. 555) stated that the association coefficients ranging from .81 to 1.00 indicated a highly strong association, while .61 to .80 implied

a strong association, .41 to .60 represented a moderate association, .21 to .40 indicated an insignificant association, and .00 to .20 indicated that the absence of association. Therefore, all elements were positively and majorly associated with the consumers' choice to Halal food product. However, the level of association between the factors was different from the highly significant relationship between process verification and (0.991), awareness of individuals (0.912), and attitude (0.834). This was followed by the significant relationship between awareness of information (0.769), traceability (0.735), habit (0.697), and sources of information (0.694). Therefore, all factors were correlated with wholesomeness, which influenced Malaysian Muslim consumers' behaviour of seeking information about halal food products.

5.8 Multiple Regressions Analysis

Pallant (2005, p. 140) highlighted that the Multiple Regression Analysis (MRA) could be employed to elaborate on the association between one dependent element and several independent elements. Furthermore, MRA could illustrate the ability of the independent variables to elaborate on the variance in the dependent and identify the statistical prominence of the findings, specifically regarding the model and individual independent elements (Pallant 2005, p. 145).

Table 5.9: Multiple regressions analysis

Model	R	R Square	Adjusted R Square	Std. Error of the estimate
1	.894[a]	.799	.795	.37187

Based on Table 5.9, the value of R^2 (the regression coefficient) amounted to .799 (.118 x 100 = 11.8%), which indicated the variation of the dependent factor, as demonstrated in the model. It was also implied that the employed model represented 11.8% of the variation in purchase intentions and the beneficial association with the independent factors.

Table 5.10: ANOVA table for the regression model

Model		Sum of squares	Df	Mean square	F	Sig.
1	Regression	161.405	5	32.281	233.432	.000[b]
	Residual	40.657	294	.138		
	Total	202.062	299			

Based on Table 5.10 above, the low F value and smaller significance value ($p < .000$) implied a statistical significance within the model and association between the elements. Table 5.10 also indicated that the current research model had a statistical significance because of the smaller F value.

Table 5.11: Regression coefficients

Coefficients[a]						
Model		Unstandardised coefficients		Standardised coefficients	T	Sig.
		B	Std. error	Beta		
1	(Constant)	-.316	.120		-2.630	.009
	Attitude	.273	.042	.245	6.448	.000
	Habit	.133	.067	.134	1.993	.047
	Awareness of individual	.033	.083	.033	.400	.000
	Sources of information	.134	.045	.243	1.455	.000
	Process verification	.234	.067	.255	2.566	.000
	Awareness of information	.372	.041	.385	3.066	.000
	Traceability	.296	.040	.276	7.345	.000
a. Dependent Variable: Wholesomeness						

To determine the impacts of each independent factor to the dependent factor included incorporated in the research model (see Table 5.11), the standardized coefficient (Beta) value was considered (Shiu et al., 2009, p. 571). Essentially, higher beta value and lower significance degree ($p < .05$) of every independent factor implied the most significant impact on the dependent factor (Pallant, 2005, p. 153). The highest beta coefficient for awareness of information was .385, with a significance level of 0.000 ($p < .05$), while the second-highest beta coefficient for traceability was .276, with a significance level of 0.000 ($p < .05$). Furthermore, attitude exhibited a beta coefficient of .245 at a prominence level of 0.047 ($p < .05$), while sources of information showed a beta coefficient of .243 at a significance level of 0.000 ($p < .05$). Apart from that, the beta coefficient of process verification amounted to 2.55 at a significance level of 0.000 ($p < .05$), while awareness of individual amounted to 2.44 at the significance level of 0.000 ($p < .05$), indicating that awareness of information (independent variable) made the most significant and distinguished impact on the dependent factor. Moreover,

the second-highest beta coefficient for traceability was .276 at a significance level of 0.000 ($p < .05$), indicating that traceability (independent variable) was the second most significant distinguished impact on wholesomeness (dependent factor).

5.9 Data Analysis Using AMOS

AMOS Version 22 was employed for the analyses, which are as follows:

5.9.1 Confirmatory Factor Analysis

Before the CFA analysis for every factor, the following points were considered:

1) No adverse value was found in the remaining measurement models.
2) Every element should consist of a minimum of three indicators to decrease the standard error estimate proportion.
3) When less than three (observed factors), elements were incorporated into one element, the specific element would be removed from the structural model.

The CFA analysis result for each factor is illustrated in the next sub-section.

5.9.1.1 Confirmatory Factor Analysis of Attitude Variable

CFA is an appropriate statistical method to examine the level to which the measured factors (elements) load on the pre-specified constructs represented the data of this study. Accordingly, CFA would lead to a confirmatory examination on the performance of the investigated factors in defining the latent factors of interest (Holmes-Smith and Coote, 2006).

Confirmatory Factor Analysis (CFA) offers a statistical analysis, specifically, the goodness-of-fit estimates the general computation error in the significance examinations for the factor loadings. Every latent construct incorporated

in the model was determined, while the calculated indicator variables (items) were distributed to the latent constructs, as illustrated in Figure 5.4.

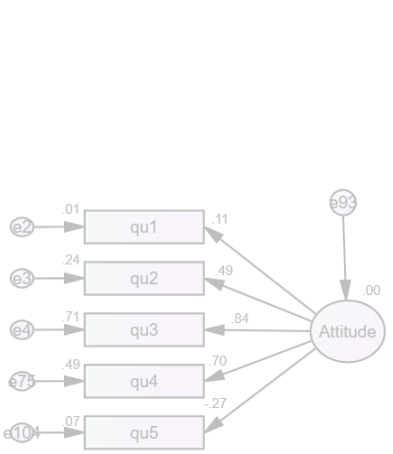

Figure 5.4: Initial measurement model of attitude

The initial measurement variable of attitude from the figure above illustrates the fit indices of the model, which indicated a poor fit. Therefore, the reduction of the magnitude was crucial to enhance the fit of the measurement model with the data. When the fit indices were found to be unsatisfactory, the improvement and increase in the level of fit with the examined data were important (Byrne, 2010). Similarly, poor degree of freedom was found as it amounted to 5, which was not adequate to create a positive level of fit between the approximate data by AMOS and the real and examined data in the measurement model.

Provided that the chi-square value was highly impacted by the sample size, the measurement of the normed ratio of the chi-square, which was (X2/df), was recommended. The presence of the normed ratio of ≤ 3 would create a positive fit with the examined data. Furthermore, the initial reading for fit indices (CMIN/DF, GFI, AGFI, CFI, PCFI, RMR, NFI) and factor loading of the entire elements implied the

inadequate fit in the initial measurement model of institutional elements with the data. However, a substantial improvement could be made on this model (Hair, 2010).

As previously discussed, the poor model fit indices, low or high p-value, and a high degree of freedom indicated a poor fit in the model with the examined data. Therefore, the first measurement model required further improvement to manage the contradicted approximate correlations by AMOS. This process involved real data in the attitude factor measurement model, which was developed according to the data examined through the survey data collected from the study sample. The structural part of the final factor measurement model was illustrated.

The adjustment of the first measurement model

Many processes were performed to enhance the measurement model fit, which involved the deletion of elements with minor factor loading or interpretation percentage and adjustment indices (Peredaryenko, 2016).

Table 5.12: Deleted items of attitude factor

	Attitude
1	Halal food is clean

Figure 5.5 demonstrates the final factor measurement model of attitude factor, which was employed to construct the research structural model.

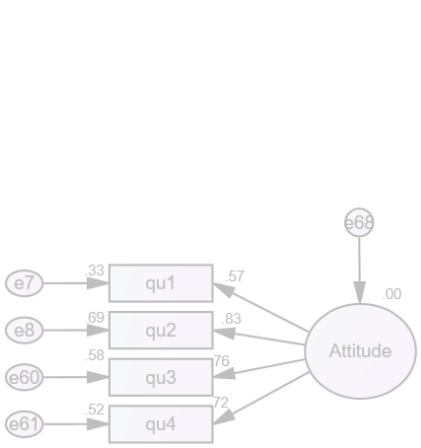

Figure 5.5: The end measurement model of attitude factor

The necessary steps were performed to improve the magnitudes of the fit indices. As a result, the indices would be statistically appropriate according to the SEM standards and surpass standard thresholds. Table 5.13 illustrates the details of the results.

Table 5.13: Indices of the measurement model on attitude factor

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**4.246**	**2.570**
2	Degree of freedom	DF	**5**	**2**
3	Normed ration	CMIN/DF	**.849**	**.277**
4	Model probability	ρ-Value	**515**	**277**
5	Comparative Fit Index	CFI	**1.000**	**.99**
6	Test of Fornell Larcker	TLI	**1.240**	**.99**
7	Root mean squared error of approximation	RMSEA	**.000**	**.037**

The numbers of the fit indices in Table 5.13 indicated the variances between the value prior and after the enhancement in the measurement model of attitude factor. After the essential steps taken to improve the measurement model, most of the fit indices demonstrated an acceptable level of fitness.

Table 5.14 illustrates the most important correlations between the dimensions and the statistical evidence, including the critical ratios (t) and the significance level.

Table 5.14: Estimates and the value (T) of attitude factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	.829	.180	7.91	***	.57	.33
2	Q2	.574	.132	6.44	***	.83	.69
3	Q3	.765	.178	7.69	***	.76	.58
4	Q4	.719	.172	7.45	***	.72	.52

The analysis of the measurement model of attitude factor indicated that all the fit indices exceeded the standard threshold. Additionally, all the factor loading of items (indicators) were statistically acceptable (> 0.3), with all the loadings being positive (Peredaryenko, 2016).

5.9.1.2 Confirmatory Factor Analysis of Habit Variable

The researcher performed a CFA analysis of the latent factor of habit. The first measurement model indicated that habit was a latent factor of first order. This research also employed five items to obtain information about the habit factor with the following contents of the items:

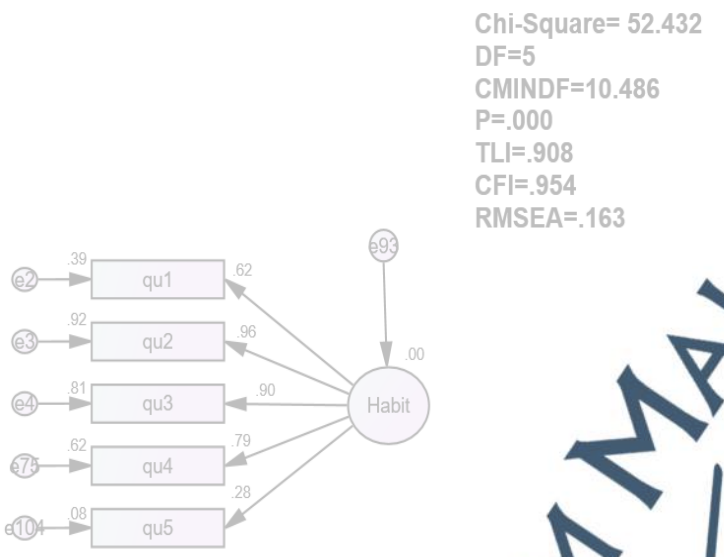

Figure 5.6: First measurement model of habit

The review of the first measurement model of habit construct and examination of these model fit indices led to a chi-square (X2) value of 52.432. To enhance the fitness level of the measurement model with the data, a lower magnitude should be obtained through these indices (Zumrah, 2012).

The normed ratio (X2/df) is a crucial factor of model fit with examined data. Essentially, a good fit could be achieved with the examined data when the normed ratio amounted to ≤ 3. The habit measurement model showed a normed ratio of 10.486, which was higher than 3 in this measurement. For this reason, improvement should be performed.

The result also showed an RMSEA value of 0.163 and a significant PCLOCE value of 0.000. Both the initial magnitudes of RMSEA and PCLOSE did not reflect the satisfactory fit values and required improvement to increase the fit of the CFA model. However, as discussed in the preceding section, an inadequate model fit index would impact the structural model during the development of the study theoretical model. The

structural portion of the initial two-factor measurement model of the habit effect was illustrated.

The modification to the initial measurement model

The degree of fit of the model with the observed data was enhanced, along with all the fit indices. Meanwhile, low factor loading indicators and modification indices were removed. Modification indices established the residuals influencing the model fit in the measurement model. Provided that all these processes increased the magnitudes of all fit indices, the measurement model gained statistical acceptance and proven to be satisfactory by the SEM standards.

Table 5.15: Deleted items of habit factor

	Habit
1	I would examine the halal status of the food before buying it

The following modified figure presents the final one-factor measurement model of habit effect used to construct the research structural model.

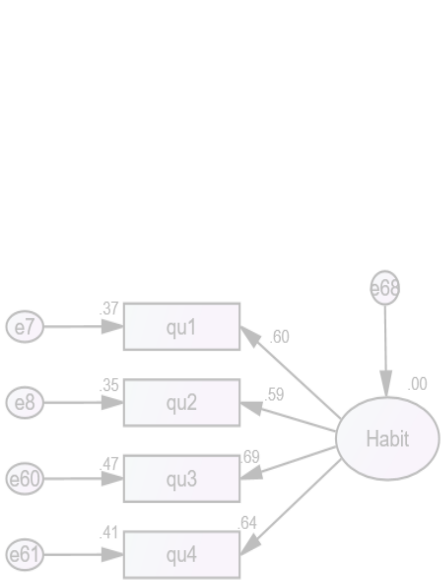

Figure 5.7: The end measurement model of habit

The following table illustrates the results of the habit effect used in constructing the structural model of the study.

Table 5.16: Indices of the measurement model on habit

No	Description	Fit-indices	Initial indices	Final indices
1	Badness-of-fit	Chi-square	**52.432**	**2.822**
2	Degree of freedom	DF	**5**	**2**
3	Normed ration	CMIN/DF	**10.486**	**1.411**
4	Model probability	ρ-Value	**000**	**.044**
5	Comparative fit index	CFI	**.95**	**.99**
6	Test of Fornell-Larcker	TLI	**.90**	**.99**
7	Root mean squared error of approximation	RMSEA	**.163**	**.034**

Additionally, the values of the fit indices in Table 5.16 indicated the variances between the value prior and after the enhancement of the measurement model of habit

factor. Following the process of improvement in the measurement model, most of the fit indices demonstrated an appropriate level of fitness.

Table 5.17 illustrates the most important correlations between the dimensions and the statistical evidence, including the critical ratios (t) and the significance level.

Table 5.17: Estimates and the value (T) of habit factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	1.151	.149	7.745	***	.60	.37
2	Q2	1.000	.144	7.213	***	.59	.35
3	Q3	1.242	.150	8.277	***	.69	.47
4	Q4	1.202	.149	8.076	***	.64	.41

The analysis of the measurement model of habit factor indicated that all the fit indices exceeded the standard threshold. Besides, all the factor loading of items (indicators) were statistically acceptable (> 0.3), with all the leadings being positive (Peredaryenko, 2016).

5.9.1.3 Confirmatory Factor Analysis of Awareness of Individual Variable

It was found from the EFA analysis that the awareness of individual factor consisted of one factor. Therefore, the CFA analysis was performed on the latent variables of awareness of individual factor. The initial measurement model demonstrated that the awareness of individual factor was a latent variable of the second order, which comprised the first-order factor. The contents of the awareness of individual factor are presented in the following figure:

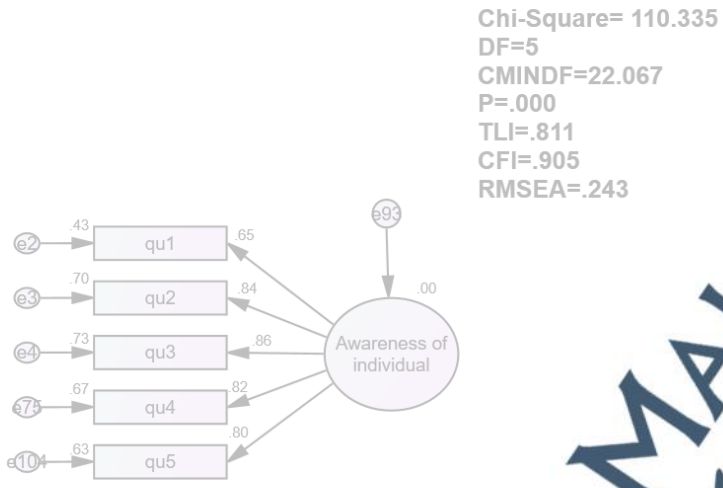

Figure 5.8: Initial measurement model of individual awareness

Based on the figure above, the initial measurement variable of individual's awareness demonstrated the fit indices of the model, which indicated a poor fit. Therefore, the reduction of the magnitude was required to increase the level of fit of the measurement model with the data.

The modification to the initial measurement model

The researcher enhanced the fit of the model using the observed data. Similarly, enhancement was performed on the fit indices, including the deletion of low factor loading indicators and adjustment indices. Therefore, the measurement model achieved statistical acceptance and was proven to be satisfactory according to SEM standards.

Table 5.18: Deleted items of individual awareness factor

	Awareness Individual
1	I trust the information provided by the official sources about halal food products

The following modified figure presents the final one-factor measurement model of awareness about the individual effect used to construct the research structural model.

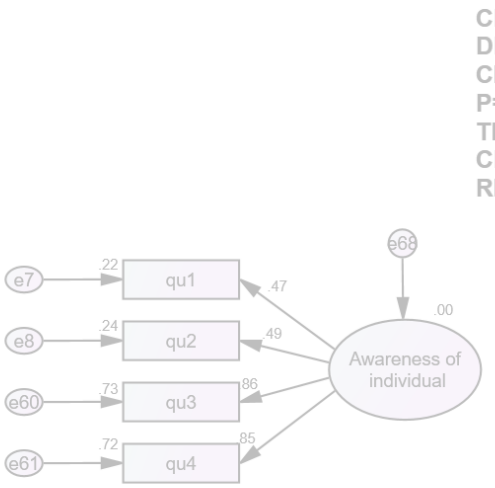

Figure 5.9: The end measurement model of individual awareness

Table 5.19 presents the results of the impact of individual awareness, which was used to construct the research structural model.

Table 5.19: Indices of the measurement model on the awareness of individual factor

No	Description	Fit-indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**110.335**	**5.369**
2	Degree of freedom	DF	**5**	**2**
3	Normed ration	CMIN/DF	**22.067**	**2.684**
4	Model probability	p-Value	**000**	**.006**
5	Comparative fit index	CFI	**0.905**	**0.992**
6	Test of Fornell Larcker	TLI	**0.811**	**0.97**
7	Root mean squared error of approximation	RMSEA	**0.243**	**.069**

The values of fit indices presented in Table 5.19 indicated the variances between the value prior and after the enhancement of the measurement model for the individual awareness factor. Following the essential processes taken to improve the measurement model, most of the fit indices presented an acceptable level of fitness (Goldstein, 2011).

Table 5.20 illustrates the most important correlations between the dimensions and statistical evidence, including the critical ratios (t) and significance level.

Table 5.20: Estimates and the value (T) of awareness of individual factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	.983	.148	6.65	***	.47	.22
2	Q2	1.00	.153	7.10	***	.49	.24
3	Q3	1.59	.190	8.40	***	.86	.73
4	Q4	1.58	.189	8.46	***	.85	.72

The analysis of the measurement model for individual awareness factor indicated that all the fit indices exceeded the standard threshold. Besides, all the factor loadings of items (indicators) were statistically acceptable (> 0.3) with all leadings being positive (Peredaryenko, 2016).

5.9.1.4 Confirmatory Factor Analysis of Process Verification Variable

Among the primary approaches of evaluating the goodness-of-fit in SEM is the Chi-Square statistics. The model was identified as an acceptable value, which was lower than the degree of freedom by three times and indicated a relative of a value lower than 5. The following figure presents the initial measurement model of process verification impact used in CFI.

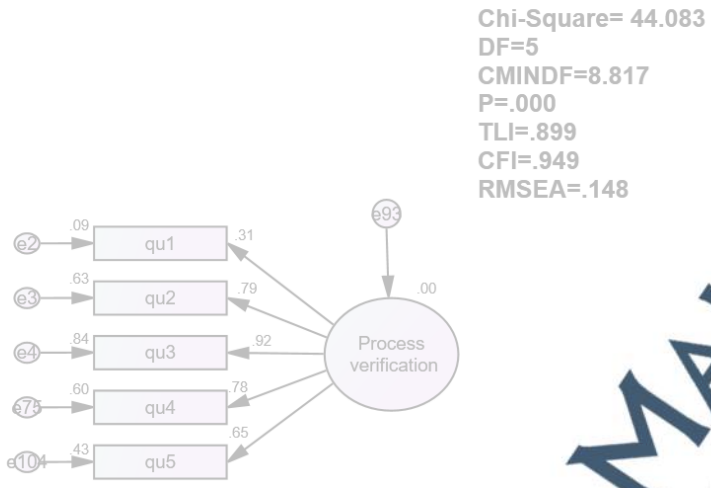

Figure 5.10: Initial measurement model of process verification

Based on the review on the initial measurement model of process verification construct and examination on these model fit indices, it was found that the value of chi-square (X2) amounted to 44.083. Therefore, to enhance the fitness level of the measurement model with the data, the fit indices should reach a lower magnitude (Zumrah, 2012).

The normed-ratio (X2/df) is a crucial indicator of model fit with the examined data. Essentially, a good fit could be achieved through data observation if the normed-ratio amounted to ≤ 3. Meanwhile, the normed-ration for the cognitive effect measurement model amounted to 8.817. Provided that the normed-ratio value was higher than 3 in this measurement, an improvement was necessary.

The reading of the magnitudes to fit indices (CMIN/DF, GFI, AGFI, PCFI, RMR, NFI) demonstrated an unsatisfactory fit with the observed data in the initial measurement model of process verification. Therefore, substantial improvement was required (Lightning et al., 2013). The result also implied that the RMSEA amounted to

0.148, while the significant PCLOCE amounted to 0.000. Following that, the initial magnitudes of RMSEA and PCLOSE did not reflect the satisfactory fit values. However, these values required improvement to increase the fit of the CFA model.

The adjustment of the first measurement model

Enhancement was performed on the level of model fit with the examined data and all the fit indices, including the removal of the factor loading indicators and modification indices. Modification indices established the residuals impacting the model fit in the measurement model. Overall, these processed increased all the fit indices magnitudes. Therefore, the measurement model gained statistical acceptance and was proven to be satisfactory according to the SEM standards.

Table 5.21: Removed items of process verification factor

	Process Verification
1	There is enough information regarding halal food products in the market

The following modified figure presents the measurement model of process verification used to construct the research structural model.

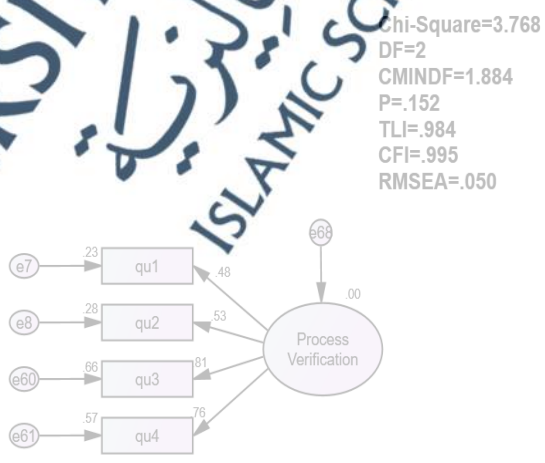

Figure 5.11: The end measurement model on process verification factor

Table 5.22 illustrates the results of process verification, which was employed to construct the research structural model.

Table 5.22: Indices of the measurement model on process verification

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**44.083**	**3.768**
2	Degree of freedom	DF	**5**	**2**
3	Normed ration	CMIN/DF	**8.817**	**1.88**
4	Comparative fit index	CFI	**0.949**	**0.99**
5	Test of Fornell Larcker	TLI	**0.899**	**0.98**
6	Root mean squared error of approximation	RMSEA	**0.148**	**0.050**

Table 5.22 illustrates the numbers of fit indices and the differences in the values prior and after the enhancement of the measurement model of process verification. Therefore, excellent fit indices were observed from the measurement model of process verification. Additionally, all factor loadings of items are positive and achieved statistical acceptance (≥ 0.3).

Table 5.23 presents the most important correlations between the dimensions and statistical evidence, including the critical ratio (t) and significance level.

Table 5.23: Estimates and the value (T) of Process Verification Factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	1.038	0.154	6.743	***	.48	.23
2	Q2	1.000	0.192	5.312	***	.53	.28
3	Q3	1.487	0.189	7.865	***	.81	.66
4	Q4	1.347	0.171	7.881	***	.76	.57

The result of testing through the model path estimates in Table 5.23 presented the value of standardised estimate ranging from 1.000 to 1.487, while the results of p= *** presented a value of critical ratio higher than 1.96. In this study, the value ranging from 5.312 to 7.881 indicated a significant relationship between these questions.

5.9.1.5 Confirmatory Factor Analysis of the Variables of Information Sources

Confirmatory Factor Analysis (CFA) is a statistical analysis performed on the goodness-of-fit, which also enables the approximation of standard errors and computation of significance examinations for the factor loadings. Every latent construct incorporated in the model was determined, while the evaluated indicator factors (elements) were transferred to the latent constructs as demonstrated in Figure 5. 12.

Figure 5.12: The measurement model on information sources factor

The value of fit indices in Figure 5.12 demonstrates the results of the enhanced measurement model of project management information sources. Most of the fit indices indicated that an acceptable degree of fitness required steps of enhancement for the

measurement model. The following table illustrates the most important correlations between the dimensions and the statistical evidence, including the critical ratios (T) and the significance level.

Table 5.24: Estimates and the value (T) of the factors of information sources

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	1.015	0.136	7.454	***	.57	.32
2	Q2	1.000	0.184	7.241	***	.61	.38
3	Q3	0.893	0.126	7.103	***	.56	.31
4	Q4	1.084	0.141	7.707	***	.70	.49

The research questions were tested using path analyses, which also simultaneously estimated the equations in the model (Kline, 2011). A strong and effective association, which was observed between the questions of the model, was reflected in the value of the standardized estimate between 1.084 and 0.893. Meanwhile, the results of p = 0.05, a standardized error between 0.184 and 0.126, loading ratio between 0.70 and 0.56, and the value of the critical ratio of higher than 1.96 indicated the presence of a significant and positive relationship between these questions.

5.9.1.6 Confirmatory Factor Analysis of Awareness of Information

It was found from the EFA analysis that the awareness of information consisted of one factor. Subsequently, the researcher performed a CFA analysis of the latent variables of information awareness factor. The initial measurement model demonstrated that awareness of information factor was a latent variable, which consisted of one first-order factor. Overall, this factor is illustrated as follows:

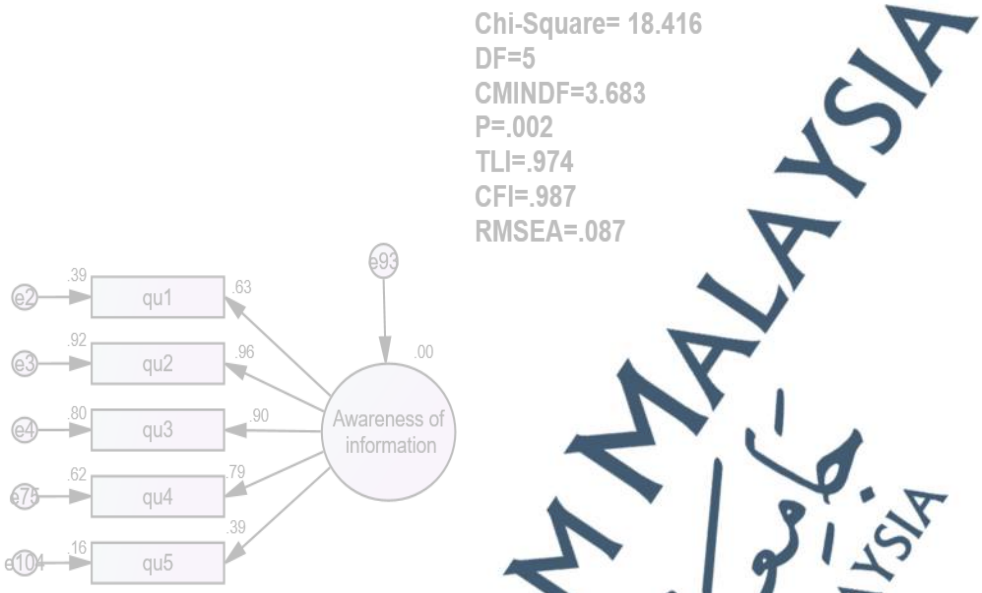

Figure 5.13: The initial measurement model on the awareness of information factor

The CFA results of information awareness factor demonstrated the fit indices of the model, in which the chi-square (X2) amounted to 18.416, while the degree of freedom amounted to 5. Despite the positive results, an improvement was required to enhance the degree of the measurement model with the data (Zumrah, 2012). Besides, the probability was significant at ($p = 0.000$).

The reading of the magnitudes of fit indices indicated an unsatisfactory fit from the early measurement model of information awareness factor. Consisting of the observed data, the model required significant enhancement (Zumrah, 2012). Provided that the satisfactory fit values were not achieved, an improvement was crucial. As highlighted in the preceding segments, the non-satisfactory model fit indices had an impact on the structural model during the final stage of the development of the research theoretical model.

The modification of the initial measurement model

To enhance the degree of freedom of fit in this model, numerous processes were involved, including the removal of low factor loading indicators and modification indices. Specifically, modification indices establish the residuals impacting the model fit in the measurement model of information awareness factor (Peredaryenko, 2016). Overall, these improvement processes enhanced the magnitudes of all the fit indices.

Table 5.25: Deleted items of information awareness factor

	Awareness of Information
1	Using non-official sources, such as social media or family and friends for searching halal food products, requires less time

The figure below presents the end factor measurement model of information awareness factor employed to construct the research structural model.

Figure 5.14: The end measurement model on awareness of information factor

The measurement model was statistically acceptable and satisfactory based on the SEM standard. The CFA result is illustrated in Table 5.26.

Table 5.26: Indices of the measurement model on awareness of information factor

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**18.416**	**3.219**
2	Degree of freedom	DF	5	**2**
3	Normed ration	CMIN/DF	**3.683**	**1.609**
4	Comparative fit index	CFI	**0.98**	**0.99**
5	Test of Fornell Larcker	TLI	**0.97**	**0.98**
6	Root mean squared error of approximation	RMSEA	**0.087**	**0.041**

The value of fit indices in Table 5.26 presented the results before and after the enhancement of the measurement model of information for the awareness of factor. Most of the fit indices indicated an appropriate fitness level, which was achieved after several processes of enhancement of the measurement model. Furthermore, the normed ratio (CMIN/DF) was acceptable at 1.609, which was below the standard threshold value of 3. This was followed by improvement in other indices, where the RMSEA value was reduced to 0.041. This situation indicated an excellent value of fit, which was lower than the standard fit threshold. Essentially, any RMSEA value below 0.8 represented a good model fit (Goldstein, 2011). Moreover, the following table presents the primary correlations between the dimensions and statistical evidence, including the critical ratios (t) and significance level.

Table 5.27: Estimates and the value (T) of awareness of information factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	0.894	0.121	7.405	***	.60	.36
2	Q2	1.000	0.132	7.131	***	.57	.32
3	Q3	0.975	0.122	7.966	***	.67	.45
4	Q4	0.956	0.122	7.849	***	.64	.41

An effective and strong association was observed between the questions of the model, as reflected from the value of the standardized estimate between 0.984 and 1.000. Meanwhile, the results of p = 0.05, the standardized error between 0.121 and 0.132, loading ratio between 0.57 and 0.67, and value of the critical ratio of over 1.96 indicated a significant and positive relationship between these questions. In this study, the value ranged from 7.131 to 7.966, which denoted the type of relationship.

5.9.1.7 Confirmatory Factor Analysis of Traceability Factor

The Confirmatory Factor Analysis was performed on the latent variables of traceability factor. Based on the figure below, the initial measurement model indicated that cultural factors were the latent variables of the first order.

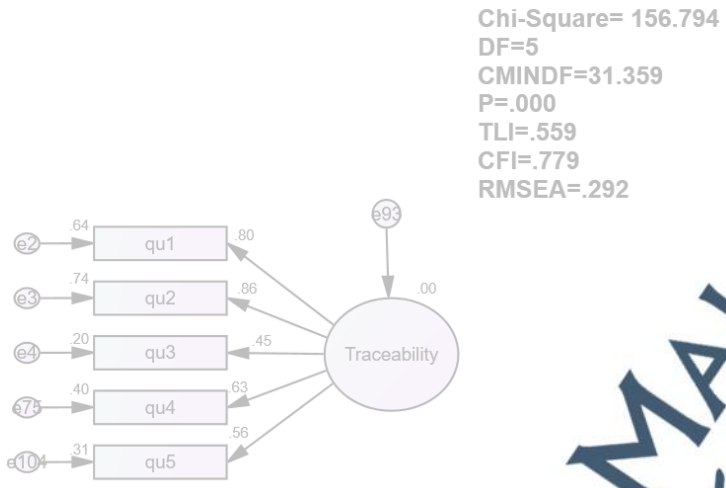

Figure 5.15: Initial of the measurement model on traceability factor

The reading of the magnitudes of the fit indices indicated that the early measurement model of traceability factor comprised an unsatisfactory fit with the observed data (Zumrah, 2012). Besides, satisfactory fit values were not achieved, leading to the importance of improvement. As highlighted in the preceding segments, the non-satisfactory model fit indices had an impact on the structural model during the final stage of the development of the study theoretical model.

The adjustment of the first measurement model

To improve the degree of freedom of fit in this model, various steps were performed, including the removal of low factor loading indicators and modification indices. Specifically, modification indices established the residuals impacting the model fit in the measurement model of traceability factor (Peredaryenko, 2016). Overall, these improvement processes enhanced the magnitudes of all the fit indices.

Table 5.28: Removed items of traceability factor

	Traceability
1	The validity of the halal logo

Figure 5.16 presents the end factor measurement model of traceability factors, which were used to construct the research structural model.

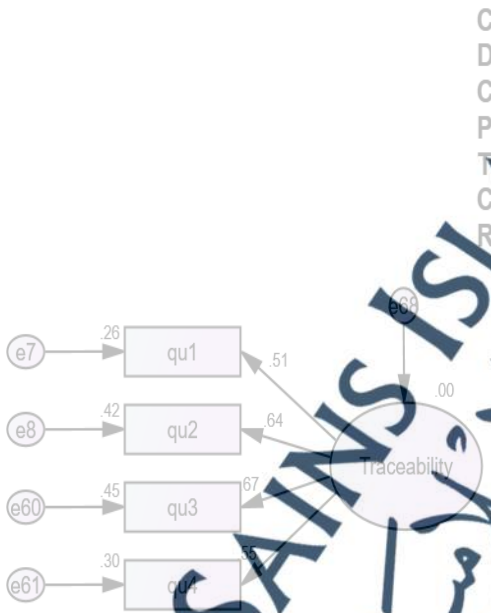

Figure 5.16: The end measurement model on traceability factor

The measurement model was adequate and appropriate in statistic terms based on the SEM standard, as shown in the CFA results in Table 5.29.

Table 5.29: Indices of the measurement model on traceability factor

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**156.794**	**4.786**
2	Degree of freedom	DF	**5**	**2**
3	Normed ration	CMIN/DF	**31.35**	**2.393**
4	Comparative Fit Index	CFI	**0.77**	**0.98**
5	Test of Fornell Larcker	TLI	**0.55**	**0.96**
6	Root mean squared error of approximation	RMSEA	**0.292**	**0.063**

The value of fit indices in Table 5.29 demonstrated the results before and after the enhancement of the measurement model of traceability factors. Most of the fit indices indicated an appropriate degree of fitness after improvement was performed on the measurement model. This could be seen from the decrease in the chi-square value to 4.786 and the reduction of the degree of freedom to 2. Furthermore, the normed ratio (CMIN/DF) was acceptable at 2.393, which was lower than the standard threshold value of 3. Improvement was also observed from other indices, including CFI = 0.98, which indicated an improved fit with the observed data. Similarly, the reduction of the value of RMSEA to 0.063 indicated an excellent value of fit when it was lower than the standard fit threshold. Generally, any RMSEA value lower than 0.8 represented a good model fit.

All the factor loading factors (elements) were statistically acceptable (> 0.3) and effective, as emphasised by Hair et al. (2010). Table 5.30 presents the most important correlations between the dimensions and the statistical evidence, including the critical ratios (t) and significance level.

Table 5.30: Estimates and the value (T) of traceability factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	1.179	0.171	6.913	***	.51	.26
2	Q2	1.000	0.149	6.483	***	.64	.42
3	Q3	1.137	0.163	6.957	***	.67	.45
4	Q4	0.905	0.139	6.496	***	.55	.30

The research questions were tested using path analyses, which also simultaneously estimated the equations in the model (Kline, 2011). Notably, a strong and effective association was present between the questions of the model, which was also reflected through the value of the standardized estimate ranging from 0.905 to 1.179. Meanwhile, the results of p = 0.06, the standardized error between 0.139 and 0.171, loading ratio between 0.55 and 0.67, and value of the critical ratio of higher than 1.96 indicated the presence of a strong and effective relationship between these questions. In this study, the value ranging from 6.483 to 6.957 denoted this category of relationship.

5.9.1.8 Confirmatory Factor Analysis of Wholesomeness Variable

Among the primary methods of evaluating the Goodness-of-Fit in SEM was the Chi-Square statistics. According to the model, the acceptable value was lower than the degree of freedom by three times. The initial measurement model demonstrated that the wholesomeness factor was a latent variable of the first order in Figure 5.17.

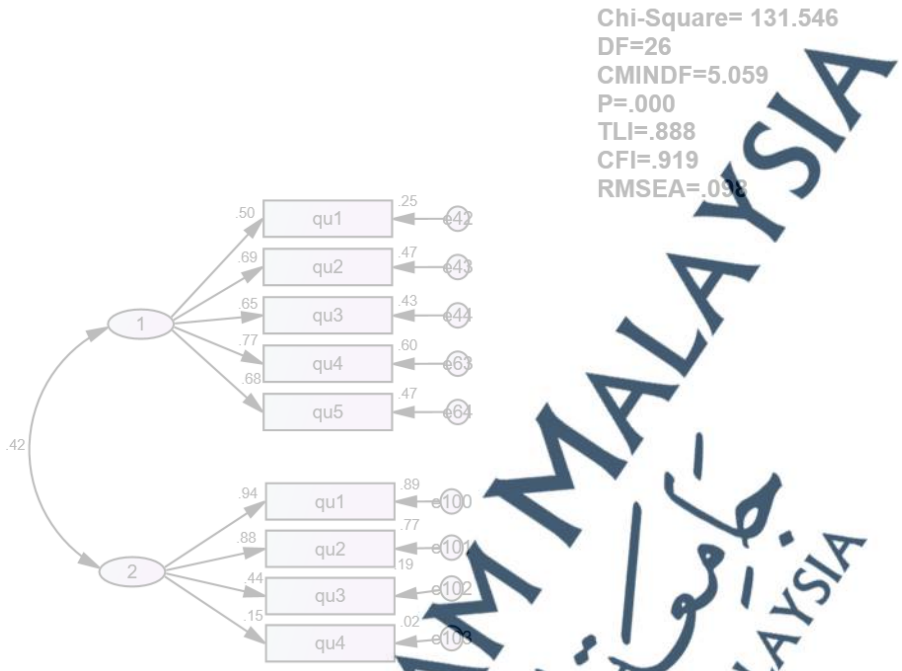

Figure 5.17: Initial of the measurement model on wholesomeness factor

Provided that the chi-square value was highly influenced by the sample size, the measurement of the normed ratio of the chi-square, which was (X2/df), was advisable. When the normed ratio appeared as ≤ 3, a good fit would be formed with the observed data. Furthermore, the initial reading on fit indices (CMIN/DF, GFI, TLI, PCFI, RMR, NFI) and factor loading of the entire subjects indicated that the first measurement model of institutional factors did not have a sufficient fit with the data. Therefore, the substantial improvement could be performed (Hair, 2010) on the model, including the RMSEA and PCLOSE as the goodness-of-fit indices.

The adjustment of the initial measurement model

Many steps were taken to enhance the measurement model fit, which included the removal of factors with minor factor loading or elaboration percentage and modification indices (Peredaryenko, 2016). The halal assurance system was one of the

possible justifications of a large number of removed points under the wholesomeness factors, while Figure 5.18 demonstrates the final two-factor measurement model of wholesomeness factors, which was employed to construct the research structural model.

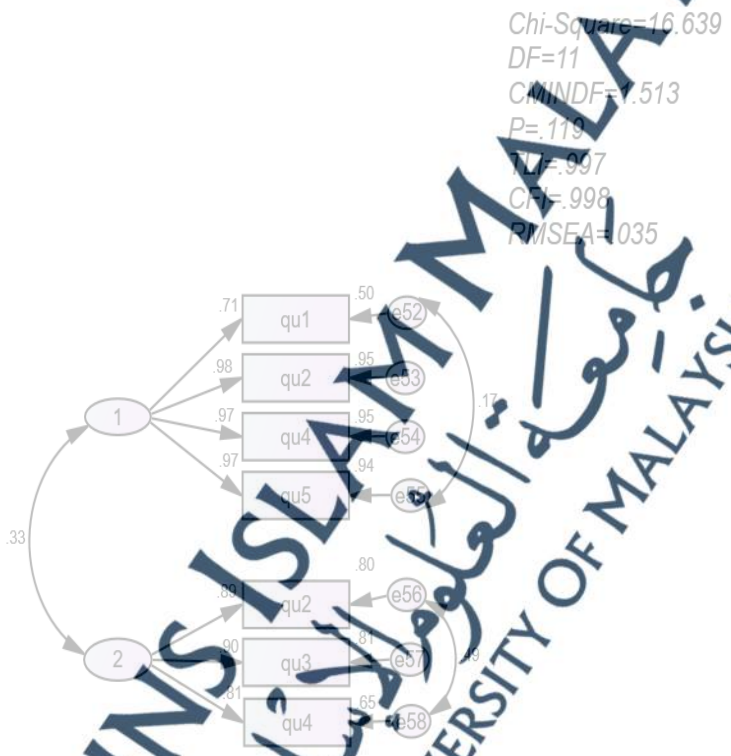

Figure 5.18: The end measurement model on wholesomeness factor

After the crucial steps performed for improvement, the magnitudes of the fit indices became appropriate in statistic terms based on the SEM standards and exceeded standard thresholds. The overall results are presented in Table 5.31.

Table 5.31: Indices of the measurement model on wholesomeness factor

No	Description	Fit-indices	Initial indices	Final indices
1	Badness-of fit	Chi-square	**131.546**	**16.689**
2	Degree of freedom	DF	**26**	**11**
3	Normed ration	CMIN/DF	**5.059**	**1.513**
5	Comparative fit index	CFI	**0.91**	**0.99**
6	Test of Fornell Larcker	TLI	**0.88**	**0.99**
7	Root mean squared error of approximation	RMSEA	**0.098**	**0.035**

The values of the fit indices presented in Table 5.31 indicated the variances between the value prior and after the enhancement of the measurement model of institutional factors. After the crucial steps taken to improve the measurement model, most of the fit indices demonstrated an appropriate level of fitness, which contributed to improvement in the normed ration of 1.513. Besides, the enhancement of TLI to 0.99 indicated a proper level of fit with the examined data. Following that, RMSEA amounted to 0.035, which was below the standard-fit threshold as shown in the previous segment. Essentially, any RMSEA numbers equal to or below 0.8 denoted a positive model fit.

Table 5.32 presents the primary correlations between the dimensions and the statistical evidence, including the critical ratios (t) and significance level.

Table 5.32: Estimates and the value (T) of wholesomeness factor

No	Question	Estimate	S.E	C.R	P	Loading	SMC
1	Q1	1.000	0.0771	14.312	***	.71	.50
2	Q2	1.470	0.074	19.828	***	.98	.95
3	Q4	1.483	0.075	19.802	***	.97	.95
4	Q5	1.481	0.072	20.578	***	.97	.94
5	Q2	1.000	0.053	18.427	***	.89	.80
6	Q3	1.065	0.110	9.719	***	.90	.81
7	Q4	0.989	0.035	28.518	***	.80	.65

Overall, the analysis of the measurement model of wholesomeness factors indicated that all the fit indices exceeded the standard threshold. Furthermore, all the factor loading of items (indicators) were statistically acceptable (> 0.3), while all the leadings were positive (Peredaryenko, 2016).

5.9.2 Structural Equation Modelling

The employment of SEM in this research examined the theoretical model and its fitness using the figures gathered from the survey. The SEM analysis consisted of two phases, which are as follows:

1) The first phase, which involved the examination of models to measure every variable through CFA.
2) The second phase, in which the last structural model was constructed, while its fitness was tested with the identified figures.

Specific fit indices were employed to evaluate the model fit in SEM analysis, which are as follows:

1) CMIN – The minimal number of the difference between the figure and model, which is similar to the chi-square statistic in the "notes for model" segment.

2) CMIN/DF – The chi-square was separated based on the level of liberty. Based on the criterion that the acceptable values were within the 3/1 or 2/1 range, the previous model, which excluded the route from PIQ to COMP in this study, was suitable (CMIN/DF = 1.65). The representation of < 3 in large samples as (N > 200), < 2.5 in medium-sized samples (100 < N < 200), and < 2 in small samples (N < 100) were adequate.

3) GFI – The GFI "Goodness of Fit Index" had a similarity to the Baseline Comparisons, resulting in a statistic ranging from 0 to 1, with 1 representing an ideal fit, which was incorporated with the highest likelihood approximation for the absent figure.

4) AGFI – Representing the Adjusted Goodness of Fit Index, it involves the levels of liberty present to test the model. This statistic could comprise numbers lower than zero.

5) NFI - Baseline Comparisons – Indicating the Normed Fit Index, it illustrates the difference between the sufficiently fitting saturated model and inadequately fitting independence model. In this case, 91% of the perfect fit was identified.

6) RFI – Denoting the [Relative Fit Index], it refers to the standardised NFI according to the df of the models, with the numbers close to 1 indicating a proper fit.

7) CFI – Representing the "Comparative Fit Index", it has a similarity to GFI. Although it normally ranges from 0 to 1, it is not restricted to this range.

8) RMSEA – RMSEA is a rectified statistic, which penalises model complexity. It is also computed as F0 square root divided by DF. Denoting "Root Mean

Squared Error of Approximation", the RMSEA numbers of .05 or lower were a good fit, while <.1 to >.05 were moderate. However, the values of .1 or higher were unacceptable. RMSEA = .00 indicated a perfect fit (Hair et al., 2010).

9) PCLOSE - The "PCLOSE" statistic, which was present with this finding was the possibility of a hypothesis examination highlighting that the RMSEA was not higher than .05. Therefore, a non-significant result of $p > .05$ was developed as it should not be emphasised that RMSEA was notably higher than .05. Essentially, the RMSEA value of ≤ 0.8 was a positive model fit.

10) PCFI – Indicating the "Parsimonious Comparative Fit Index", it is a df-adjusted adjustment of the CFI.

11) Chi-square – It was employed as the "badness of fit" statistic in SEM notes for the model. Presenting the chi-square statistic, the notable variations between the model and figure were tested. Accordingly, the significance of the p-value indicated that the model was not a positive fit for the figure.

The formative measures elaborated in this section implied that a latent factor referred to the evaluation using single or several fits of its factors (indicators or questionnaire items). This measurement also determined the definition of the construct (e.g., Blalock, 1964; Edwards and Bagozzi, 2000; Jarvis et al., 2003). Notably, significant theoretical and empirical contrasts were present between the reflective and formative constructs. Overall, these processes were performed using AMOS software. The next sub-sections will discuss the findings from the SEM analysis.

5.9.2.1 The Measurement Model

The study performs the CFA on the measurement model to offer a confirmatory examination on the performance of the investigated factors to define the latent elements

of interest (Goldstein, 2011). Confirmatory factor analysis provides the statistical analysis, specifically on the goodness-of-fit, and estimates the standard errors and computation of significance examinations for factor loadings (Hair et al., 2010).

When the fitting measurement model is not present, a revised model would be required. Although misrepresentation from the initial results of the measurement model testing is proven, re-specification or re-analysis would be crucial (Kline, 2011).

According to Lightning et al. (2013), modifications of an original model are affected by the addition or deletion of one variable or parameter at a time. It was further emphasised that the standardised factor loadings or standardised regression weights of each item should be determined to guarantee a strong relationship between factor and variable in a measurement model. The possibility of eliminating an item based on its standardised factor loading or standardised regression weight should amount to a minimum of 0.50 on each item. Figure 5.19 presents the measurement model values.

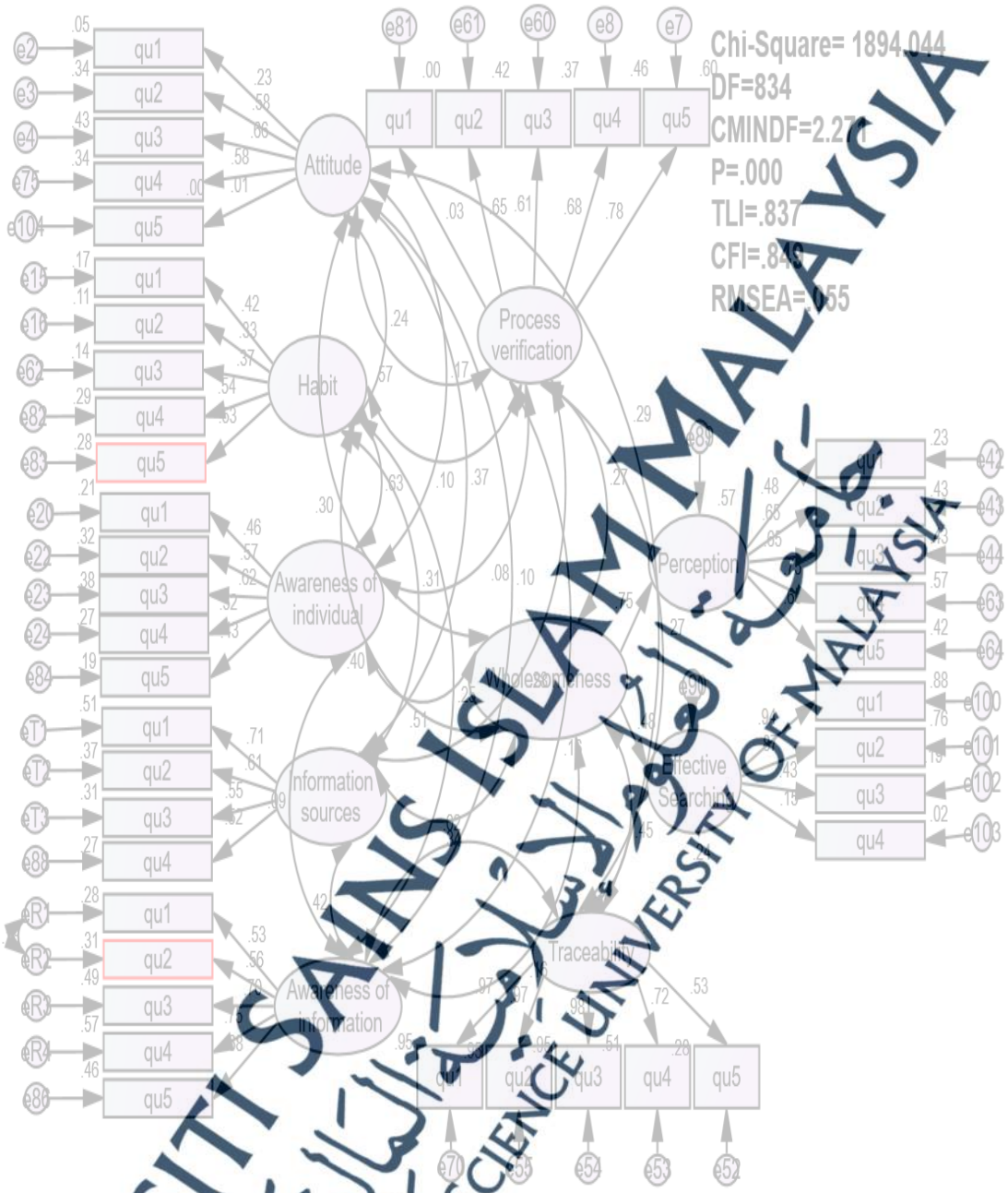

Figure 5.19: Initial of the measurement model

The examination of the output figure from AMOS following the SEM analysis indicated unsatisfactory fit indices of the initial measurement model. In this case, the overall model $\chi 2$ amounted to 1894.044 with 834 levels of freedom, while the p-value related to this finding was 0.000. The normed $\chi 2$ was 2.271, while the chi-square amount was separated by the levels of freedom. Furthermore, CFI amounted to 0.849 and TLI

was 0.87, which was lower than the acceptable value of model fit of 0.90. Therefore, the initial model should be modified.

Table 5.33: Indices of the measurement model

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness of fit	Chi-square	1894.044	894.902
2	Degree of freedom	DF	834	525
3	Normed ratio	CMIN/DF	2.271	1.705
4	Model probability	ρ-Value	000	000
5	Test of Fornell Larcker	TLI	0.837	0.949
6	Comparative Fit Index	CFI	0.849	0.955
7	Root mean squared error of approximation	RMSEA	0.055	0.045

Figure 5.20 presents the ultimate default measurement model after the required modification for fit indices was achieved.

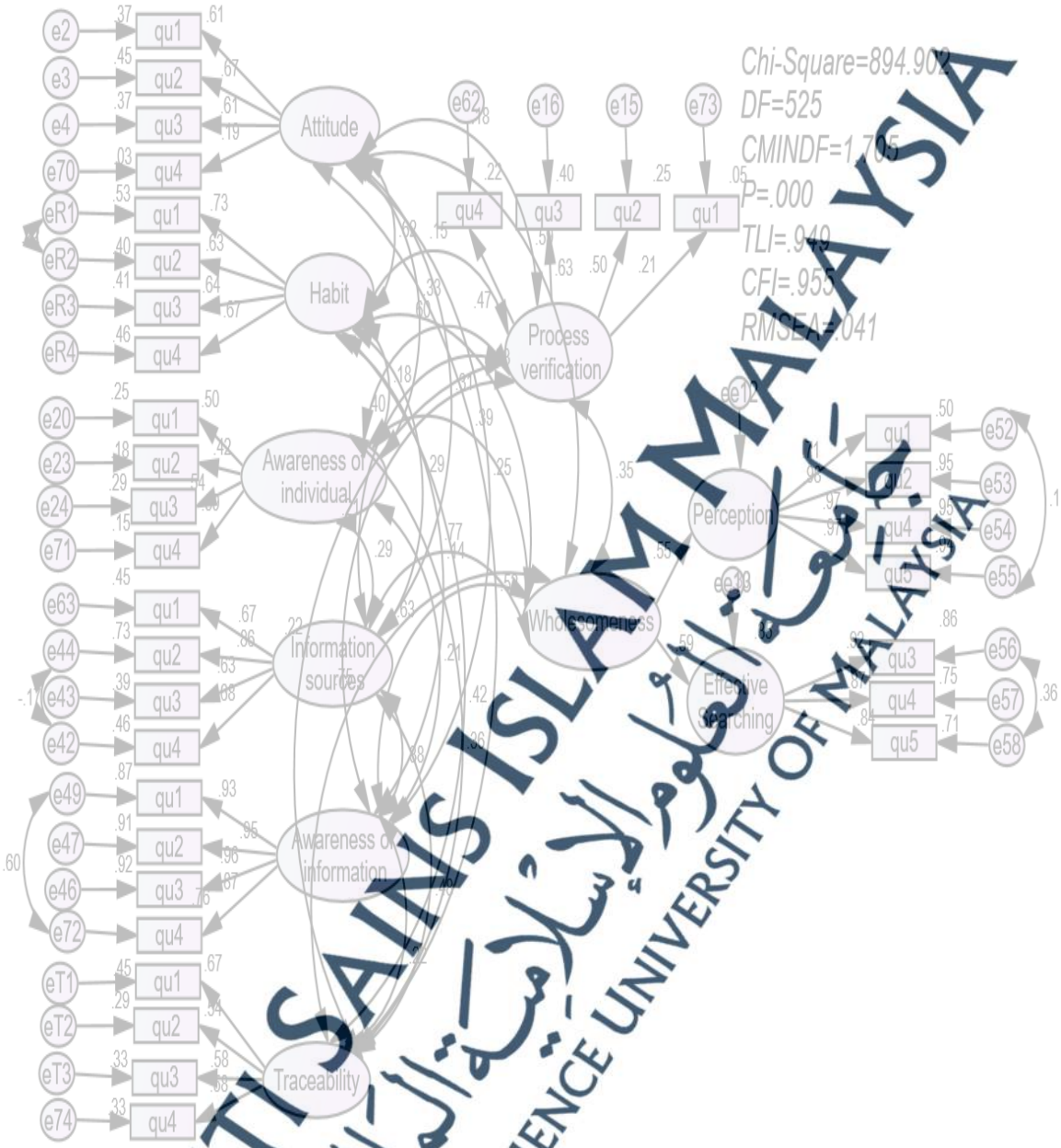

Figure 5.20: The end measurement model

5.9.2.2. Summary of Model Fit

The results from Table 5.33 present the values of fit indices and the differences between them before and after the enhancement of the measurement model. Furthermore, chi-square was significantly lowered to 894.902, while the extent of

freedom was reduced to 525. The normed ratio (CMIN/DF) showed a better value of 1.705 as it was lower than the standard threshold value of 3. Improvement was also observed from other indices as CFI amounted to 0.95. Meanwhile, the TLI value of 0.94 demonstrated an improved degree of fitness with the examined figure. A positive and significant PCLOSE value was also recorded ($\rho \geq 0.000$, $\rho = 0.000$). Provided that a decrease in RMSEA to 0.041 was observed, which was lower than the standard-fit threshold, the SEM result indicated an appropriate fit between the hypothetical model and the sample figure associated with the elements in this study (Zumrah, 2012).

5.9.2.3 Evaluation of the Structural Model

The latent variables in the structural model (attitude, habit, awareness of information and individual, information sources, process verification, traceability, and wholesomeness) are presented in this segment. These associations could be in terms of direct or indirect impacts and the presence of relationship vice versa. Overall, all these estimates and the real nature of the relationships between exogenous and endogenous variables were evaluated, as shown in the structural model. Moreover, the testing of the fit indices of the first structural model is presented as follows:

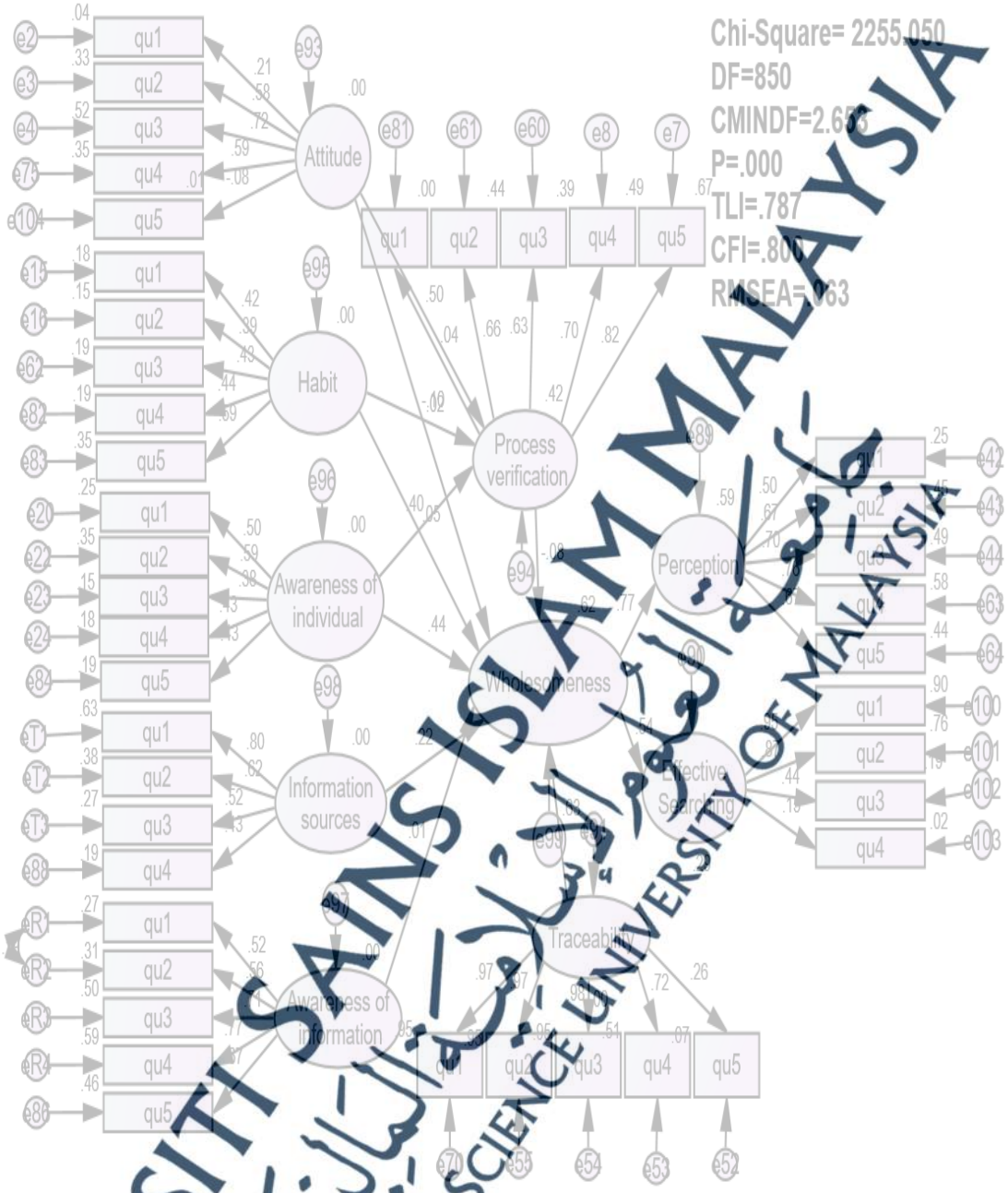

Figure 5.24: Initial of the structural model

Based on the review on the output figure from AMOS after SEM analysis, unsatisfactory fit indices of the initial structural model were recorded. Following the achievement of the model estimates, the fit indices of the initial structural model were evaluated. Subsequently, the examination of the modification indices was important to

enhance the model fit of the structural model, especially to achieve the maximum improvement to the magnitudes of fit indices (Byrne, 2010).

Table 5.34: Indices of the structural model

No	Description	Fit-Indices	Initial indices	Final indices
1	Badness of fit	Chi-square	2255.050	1217.809
2	Degree of freedom	DF	850	543
3	Normed ration	CMIN/DF	2.653	2.243
4	Model possibility	ρ-Value	000	000
5	Test of Fornell Larcker	TLI	0.787	0.910
6	Comparative Fit Index	CFI	0.800	0.918
7	Root mean squared error of approximation	RMSEA	0.063	0.054

The ultimate default structural model, which followed the crucial adjustment of fit indices, is presented in Figure 5.22.

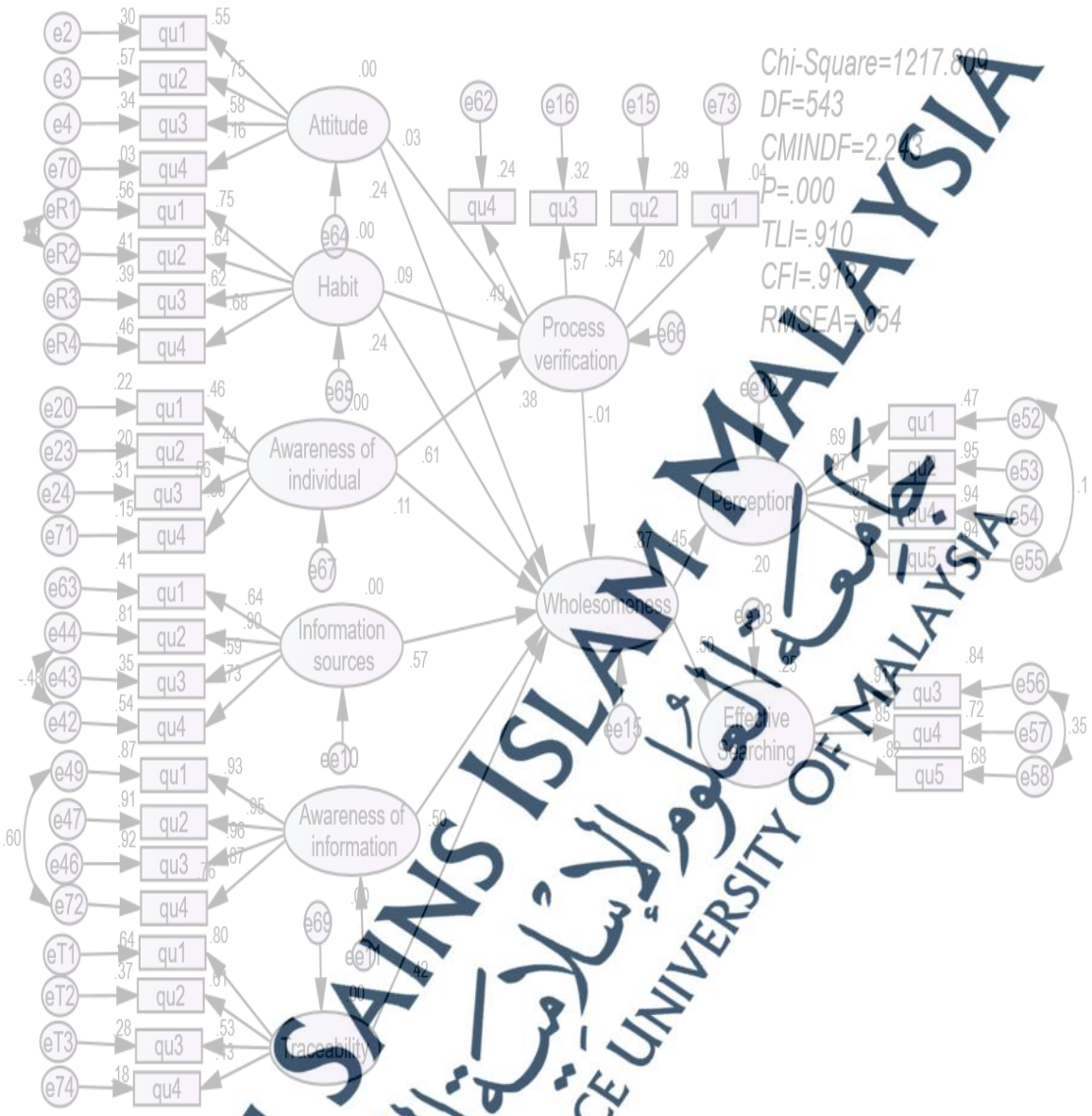

Figure 5.22: The end structural model

5.10 Summary of Model Fit

The comparison of fit indices table shown in Table 5.34 indicated that a decrease in the normed ratio (CMIN/DF) took place from the first amount of 2.653 to final amount of 2.243. Provided if the CMIN/DF < 3.00, the default structural model represented a sufficient fit, which reached the minimal difference (Byrne, 2010).

Provided that the default structural model was in line with the figure extracted from the survey, the default structural model of this research surpassed the minimal degree of the division with the examined figure. Therefore, the SEM finding implied an appropriate fit between the hypothetical model and sample figure related to research factors (Goldstein, 2011).

The normed ratio (CFI) increased from the initial value of 0.800 to the final value of 0.918. The similar increase took place in TLI from the initial value of 0.787 to the final value of 0.910. Besides, RMSEA was a notable indicator with a value smaller compared to 0.08, which indicated an acceptable approximation error. Provided if the RMSEA score was lower than 0.08, no penalty would be included for model complexity (Zumrah, 2012). The amount of RMSEA in the ultimate structural model in this research was 0.054, which demonstrated an improved fit of model related to the freedom levels.

5.10.1 Hypotheses Testing Using AMOS

This study employed structural equation modelling (SEM) to examine the hypotheses. In the structural model, dependent factor (wholesomeness) was the endogenous variable, while the independent factors (attitude, habit, awareness of information and individual, information sources, process verification, and traceability) were the exogenous variables (Goldstein, 2011).

Employed to validate each hypothesis, the critical ratio (CR) was developed by separating an estimation through its standard error. Provided that the CR referred to the standard normal distribution when the sample was large, the CR value of 1.96 or higher and -1.96 or lower indicated a two-sided prominence at 5% of the customary degree. Therefore, the hypothesis was acceptable and could be tested (Teater, 2014). Meanwhile, the finding from SEM output demonstrated significantly standardized and

unstandardized regression weights between the latent variables. To illustrate, the SEM output indicated that the variable loadings were statistically appropriate. Table 5.35 presents the standardized estimates of regression weight of latent factors.

Table 5.35: Standardized causal effects of the structural model and hypotheses assessment

Hypothesis	Latent construct			Estimates	S. E.	C.R.	P
H1	Attitude	→	Process verification	0.03	0.063	0.438	0.669
H2	Attitude	→	Wholesomeness	0.24	0.058	2.66	0.008
H3	Habit	→	Process verification	0.09	0.047	1.217	0.224
H4	Habit	→	Wholesomeness	0.24	0.043	2.78	0.004
H5	Awareness of individual	→	Process verification	0.61	0.134	4.40	***
H6	Awareness of individual	→	Wholesomeness	0.11	0.112	0.683	0.494
H7	Information sources	→	Wholesomeness	0.57	0.044	6.032	***
H8	Awareness Of information	→	Wholesomeness	0.50	0.030	6.048	***
H9	Traceability	→	Wholesomeness	0.42	0.40	4.515	***
H10	Process verification	→	Wholesomeness	-0.01	0.116	0.090	0.928

The findings from SEM output demonstrated notable associations ($\rho \leq 0.05$) between the latent factors, with the highest association identified between the awareness of individual and process verification, at 0.61.

H1: A positive relationship is present between the attitude of consumers towards halal food and process verification of halal food information.

Hypothesis H1 predicted the causal correlation between attitude factor and process verification. To identify the overall influence of attitude factor and process verification, the critical ratio (CR) amount of the correlation between these two

variables was evaluated. It was found that the C.R value amounted to 0.428 < 1.96. Notably, provided that C.R was not statistically significant at ($\rho \geq 0.05$, $\rho = 0.669$), a negative relationship between attitude factor and process verification was recorded.

Therefore, the hypothesis was not supported. This outcome is in line with several studies (Haque et al., 2015; Bashir, 2019; Omari et al., 2019b). The result shows that individual's attitude toward halal food will leads to a positive perception and their verification of halal food information. However, a weak belief leads to a negative attitude towards searching for halal food information. Ajzen (2001) stated that attitude is perceived as an evaluative structure used to form the intentions. Therefore, the use of categories for encoding information, and the interpretation, judgment, and recall of attitude-relevant information (Vogel, Bohner, and Wanke, 2014).

H2: A positive relationship is present between the attitude of consumers towards halal food and perspective of wholesomeness, resulting in efficacious searching for halal food information.

Hypothesis H2 predicted the causal association between attitude and wholesomeness. To identify the overall influence of attitude and wholesomeness, the CR number of the correlation between these factors was evaluated. As a result, it was recorded that the CR value amounted to $2.66 \geq 1.96$. Provided that the positive value of CR exhibited a statistical significance at ($\rho \leq 0.05$, $\rho = 0.008$), a positive and causal association between attitude and wholesomeness was suggested. Therefore, H2 was supported and in line with the results by Khalek et al. (2015) and Domańska & Angowski (2017), who found that attitude had a favorable impact on the behavioural attempt of halal food consumption. Therefore, it can be argued that the concepts of halal and wholesomeness of the food fulfilling the permissible requirements of the Islamic

rule. It is necessary to educate marketers on halal and wholesomeness (Tayyib) concepts in the aspects of safety, dietary content, and visual appeal of the halal products. That could increase the demand for such products by ensuring that the manufactured products are free of contamination and any haram ingredients upon the preparation, production, and packaging and halal requirement (Ismoyowati, 2015). Those characteristics of food therefore are influencing factors making halal food the most important choice in Muslim consumer's preferences. Accordingly, this study argues that increase the wholesomeness of halal food by linking human attributes and information searching attributes to achieve wholesomeness in halal food products.

H3: A positive relationship is present between the habit of consuming halal food and process verification of halal food information.

Hypothesis H3 predicted the causal correlation between habit factor and process verification. To identify the overall influence of habit factor and process verification, the CR number of the correlation between the two factors was evaluated. As a result, the CR value of 1.217 < 1.96 was recorded. Notably, if CR did not show a statistical significance at ($\rho \geq 0.05$, $\rho = 0.224$), a negative relationship between habit factor and process verification was indicated. Therefore, the hypothesis was not supported.

H4: A positive correlation between the habit of consuming halal food and perspective of wholesomeness is present, resulting in an efficacious searching of halal food information.

Hypothesis H4 predicted the causal association between habit and wholesomeness. To identify the impact of habit and wholesomeness, the CR number of

the association between these two variables was evaluated. As a result, the CR value of $2.78 \geq 1.96$ was recorded. Notably, provided that the positive value of CR exhibited a statistical significance at ($\rho \leq 0.05$, $\rho = 0.004$), a good and causal correlation between habit and wholesomeness was indicated. This result is consistent with study by several prior studies (Omari, Azman & Ismail, 2019a; Amalia, Sosianika & Suhartanto, 2020; Billah, Rahman & Hossain, 2020). Bonne et al. (2007) described that the consumption of halal meat could be perceived as a norm or a habit for several Muslims as this consumption represents themselves.

Therefore, habitual behaviours showed to be an independent predictor of process verification of halal food information. Eating halal food is a part of the Muslim or Islamic identity, indicating that the acceptance of halal products, such as halal meat, could be considered a norm or a habit for some Muslims (Ali et al., 2018). Habit can improve individual's acceptance or consumption of products due to their familiarity in it. Besides, habit is an automatic behaviour, which goes beyond an individual's awareness (Billah et al., 2020).

H5: A positive relationship is present between an individual's consciousness and process verification of halal food information.

Hypothesis H5 predicted the causal association between an individual's consciousness and process verification. To identify the overall influence of habit and wholesomeness, the CR of the relationship between these two variables was evaluated. As a result, the CR value of $4.40 \geq 1.96$. Notably, provided that the positive value of CR exhibited a statistical significance at ($\rho \leq 0.05$, $\rho = 0.000$), it was suggested that a good and causal correlation between awareness of individual and process verification was present. Therefore, hypothesis H5 as supported and consistent with the findings by Yousoff and Adzharuddin (2017), who found that Muslim families had a significant

degree of consciousness of halal food products. Moreover, Hassan et al. (2020) also stressed the significance of halal consciousness among Muslim consumers. They argue that halal consciousness moderates the relationship between participants' attitudes towards Muslim-made products and their perceived behavioural control towards the purchase intention.

This Muslim's consciousness of halal food has a strong influence on their process verification of halal food information. This result is important for marketers and manufacturers of halal food products in the market. Individuals' consciousness could be measured by monitoring and perceiving the information of the environment they are in. By understanding and awareness of the halal and haram concept for Muslims as they could strategize their marketing plans. Muslim consumers should be aware of the contents and ingredients of their food or any products when they shop. All Muslim consumers need to know about any products they attempt to buy (Omari et al., 2019a).

H6: A positive relationship is present between awareness of individual and perspective of wholesomeness, resulting in efficacious searching for data regarding halal food.

Hypothesis H6 predicted the causal association between an individual's consciousness and wholesomeness. To identify the overall influence of awareness of individual factor and wholesomeness, the CR amount for the association between these two factors was evaluated. As a result, the CR value of 0.683 < 1.96 was recorded. Notably, if CR did not present a statistical significance at ($\rho \geq 0.05$, $\rho = 0.494$), a negative relationship between awareness individual factor and wholesomeness was present. Therefore, the hypothesis was not supported.

H7: A positive relationship is present between information origin used to seek halal food and perspective of wholesomeness, resulting in efficacious searching for halal food data.

As illustrated in Table 5.35, the Structural Equation Model (SEM) was supported. The hypothesis highlighted a positive association between the origin of information used to search for halal food and the perception of halal food wholesomeness. The standardized regression weight indicated that information sources were the significant predictors of the halal food wholesomeness (SE = 0.044, CR = 6.032, $p < 0.05$). Subsequently, the support for H7 indicated that the qualifications of information sources could be considered one of the most important factors of the level of halal food wholesomeness. Provided that the value of CR amounted to 6.032, the hypothesis was supported and accepted at the level of significance (P = 0.000). Additionally, the level of the parameter estimates amounted to .57 with a positive trend, which indicated a significant impact on this hypothesis. This finding was in line with the research by Liyana and Norhidawati (2014) in their article titled "How graduate students seek for information: Convenience or guaranteed result", which demonstrated that the graduate students of computer science discipline could use the internet search engines, OPAC, online databases, and digital library to search scholarly and reliable information for their research needs. According to Mannaa, M. (2020), the concepts of halal and wholesomeness (Tayyib) is the permissible requirements of the Islamic foods. Therefore, according to this result, concepts of wholesomeness of halal food, such as safety, dietary content, and visual appeal of the halal products will influence efficacious searching for halal food data. In this case, wholesomeness could increase the demand

for such products by ensuring that the manufactured products are free of contamination and any haram ingredients upon the preparation, production, and packaging.

H8: A positive relationship is present between awareness of information towards halal food and perspective of wholesomeness, resulting in efficacious searching for halal food data.

As illustrated in Table 5.35, the Structural Model supported the hypothesis. Therefore, the positive relationship was observed between awareness of information towards halal food and perspective of halal food wholesomeness. Furthermore, the standardised regression weight implied that awareness of information a strong determinant of halal food (CR = 6.048, SE = 0.080 p< .05), while the value of CR amounted to 6.048. Therefore, H8 was supported and accepted at the level of significance (P = .000). Additionally, the degree of the parameter estimates amounted to .50 with a favourable pattern, indicating a significant influence on the awareness of information about halal food. This result was in an agreement with the study by Leckie et al. (1996) on modelling the searching of information among professionals, namely engineers, health care professionals, and lawyers. It was found from this research that professionals could consult the origin of information, which they had a familiarity about, and successfully employed it to solve previous issues or fulfil similar needs. This halal requirement was in line with the findings of several studies (Ismoyowati, 2015; Tan et al., 2017; Omari et al., 2018). Therefore, it can be argued that stated that texture, taste, variation, packaging, quality, affordability, freshness, and price were the influencing factors making halal food the most important choice in Muslim consumer's preferences and resulting in efficacious searching for halal food data.

H9: The association between the traceability of halal food information and perception of wholesomeness is positive, resulting in efficacious searching for halal food information.

The structural model analysis in Table 5.35 indicated a positive relationship between traceability of halal food information and perception of halal food wholesomeness (CR = 4.515, SE = 0.40 p < .05). With the value of CR amounting to 4.515, H9 was supported and accepted at a level of significance of P (.000). Furthermore, the level of the parameter estimates amounted to .42 with a favourable pattern, indicating a significant influence of the traceability of halal food information and perception of halal food wholesomeness. Provided that a positive and causal association was indicated from the result, hypothesis H9 was supported and consistent with the study by Ibrahim and Tasnim (2012) presented on their article titled, "Review on Knowledge Management as a Tool for Effective Traceability System in Halal Food Industry Supply Chain". The importance of the term traceability, which promotes transparency and ensures the accessibility of information along the supply chain, was observed. Concerning this matter, various food manufactures and premises were found to use unrecognized halal certificates on product packaging or at the premises.

H10: A positive relationship is present between process verification of halal food information and perspective of wholesomeness, resulting in efficacious searching for halal food data.

Hypothesis H10 predicted causal correlation between process verification factor and wholesomeness. To identify the overall influence of process verification factor and

wholesomeness, the CR number for the association between these two factors was evaluated. As a result, the CR value of 0.090 < 1.96 was recorded. Notably, if CR did not present a statistical significance at ($\rho \geq 0.05$, $\rho = 0.928$), a negative relationship between process verification factor and wholesomeness was present. Therefore, the hypothesis was not supported.

5.11 Summary

This chapter discussed on AMOS Version 22 and Statistical Program for the Social Sciences (SPSS) Version 21, which were employed to perform the analysis. The quantitative study method was adopted to obtain more information and knowledge regarding the target area of interest. Furthermore, the primary model was designed based on theories, which was tested using CFA and SEM.

The descriptive statistics regarding the demographic profiles of the survey participants were presented. Following that, the mean and standard deviation of the independent factors were identified using SPSS. The mean of each independent variable indicated the expectations regarding the factors influencing the behaviour of seeking information regarding halal food product among Malaysian Muslim consumers. Moreover, the height means, and awareness of information were identified as the independent variables. Notably, the two independent factors with the lowest mean score were process verification and traceability. Overall, the mean results were almost similar to one another. Additionally, the R square (regression coefficient) of 0.799 indicated that 79.9% of the variation in the wholesomeness of halal food could be illustrated by

attitude, individual's consciousness, the origin of data, process verification, awareness of data, and traceability.

Based on the hypotheses tested using SEM, it was found that hypotheses H2, H4, H5, H7, H8, and H9 were true and supported in the study.