CHAPTER IV

DATA ANALYSIS AND FINDING

4.1 INTRODUCTION

This chapter presents the results of the data analysis. The purpose of the study is to evaluate the current level of awareness among students in USIM and to identify the relationships between the factors that might affect the level of awareness on security functionality. The findings include the measure of reliability and validity, descriptive analysis, correlation, regression analysis and finally the hypothesis testing results. Multiple regressions was conducted to identify major factors for evaluating factors that affect the level of awareness of security functionality of the students in USIM as the users.

4.2 RESPONDENTS' CHARACTERISTICS

There were initially 375 respondents which were the students in USIM. All of them (*N*=375) managed to complete the questionnaire. None of them were rejected in this study.

4.2.1 Gender

Table 4.1 represents the gender distribution of the respondents. Majority of the respondents were female (88%). Male were only 12%.

Table 4.1 *Gender*

	N	%
Male	45	12.0
Female	330	88.0
Total	375	100

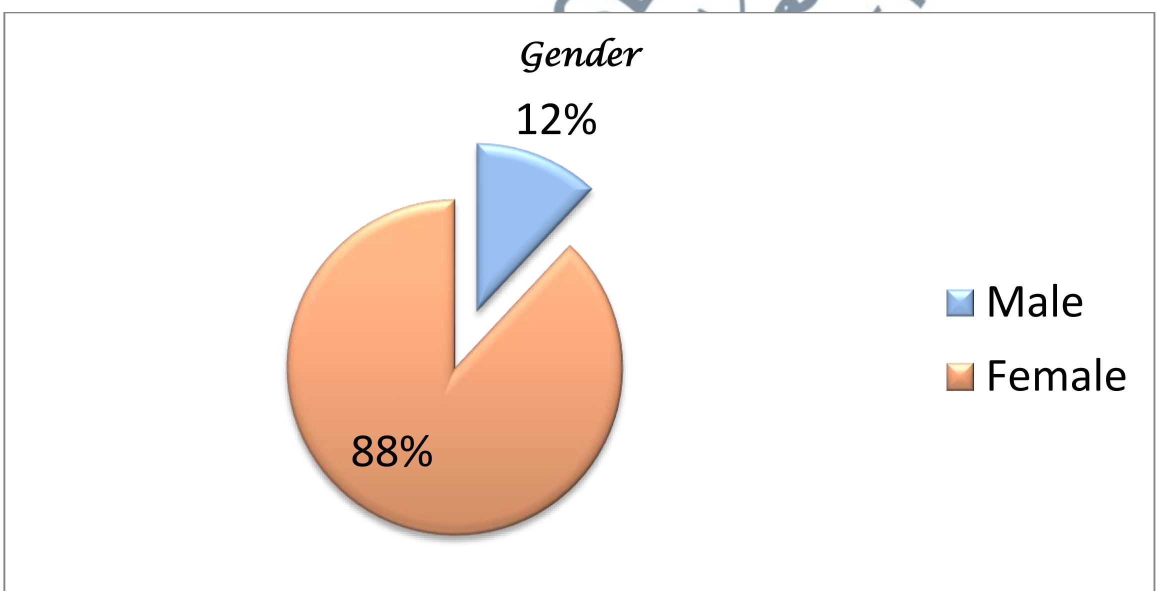

Figure 4.1 Gender

4.2.2 Age Group

Majority of the respondents were aged 20 – 25 years (85.1%) (Table 4.2). Respondents who aged 26 – 30 years were 9.9%, while above 31 years were 5.1% only.

Table 4.2 *Age Group*

Age group	N	%
20 -25 years	319	85.1
26 – 30 years	37	9.9
> 31 years	19	5.1
Total	375	100.0

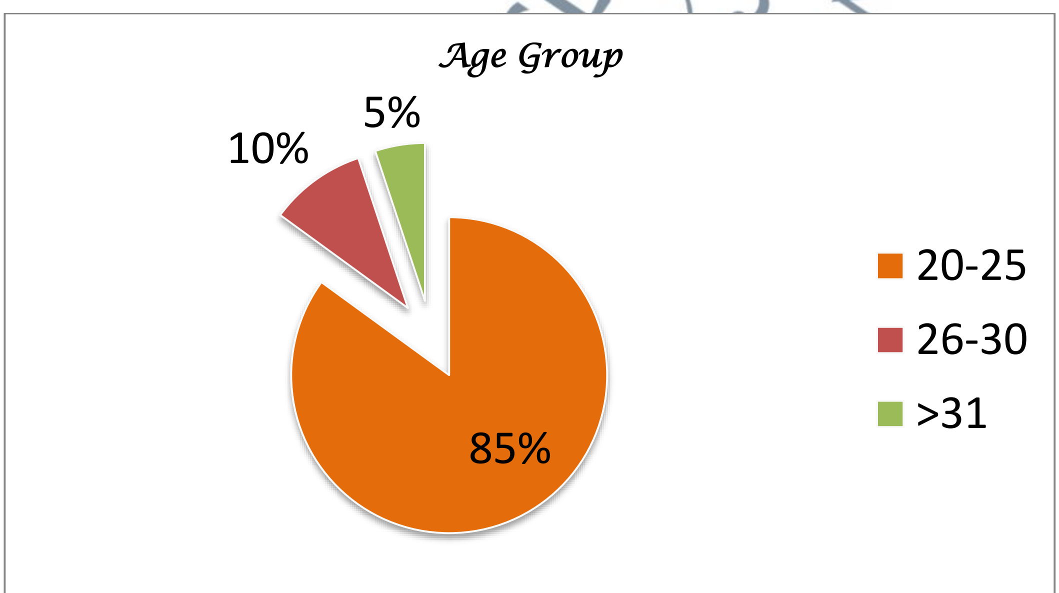

Figure 4.2 Age Group

4.2.3 Current education level

Most of the respondents were undergraduate students (85.1%), while the remaining were master degree (9.9%) and PHD students (5.1%) (Table 4.3).

Table 4.3 respondents education level

Education Level	N	%
Undergraduate (cover all USIM Faculty Nilai campus)	319	85.1
Master degree	37	9.9
PhD	19	5.1
Total	375	100.0

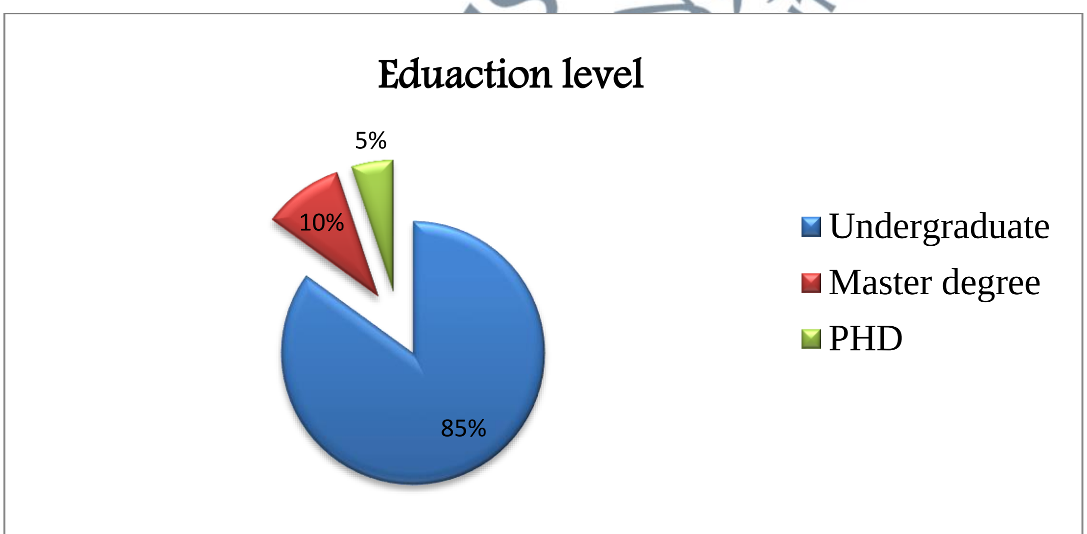

Figure 4.3 Education Level

This research doesn't ask about which faculty they are, therefore knowledge background is unknown.

4.2.4 Operating system operates of smart phone

Most of the respondents were using Android as their operating system of their smartphone (84%), followed by IOS (9.6%) (Table 4.4).Windows users were only 1 (0.03%), while respondents who were using other operating systems were only 4 (1.1%).

Table 4.4 Operating system operates of smart phone

Operating system	N	%
Android	315	84.0
IOS	36	9.6
Blackberry	19	5.1
Window	1	0.03
Others	4	1.1
Total	375	100.0

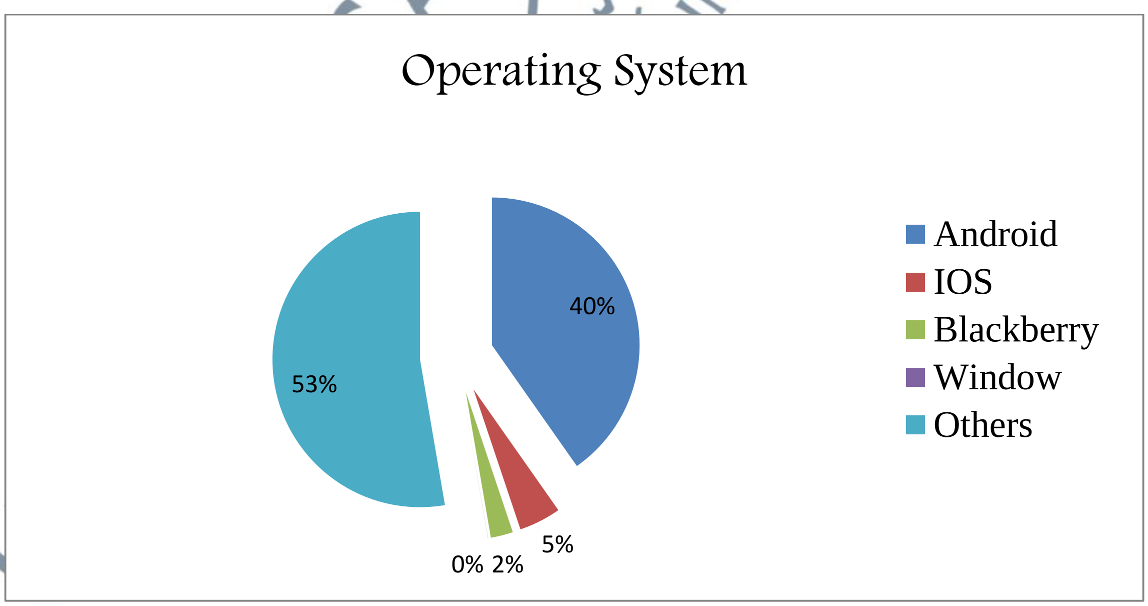

Figure 4.4 Operating System

4.3 Descriptive analysis of questionnaire

Table 4.5 represents the mean and standard deviation (M (±SD)) of variables in the study. The highest mean score was Security Behavior (4.158 (±0.690)), followed by Security Awareness (4.115 (± 0.838)), Security Training (4.079 (±0.840)), Security Attitude (4.077 (± 0.838)) and Security Knowledge (3.397 (± 0.461)). This questionnaire was scored using the Likert scale; from totally disagree to totally agree (1 – 5).

Table 4.5 Descriptive statistics for factor in the study

Factor	**Mean**	**SD**	**Min**	**Max**
Security Awareness	4.115	.838	2.71	5
Security Knowledge	3.397	.461	2.55	4.18
Security Training	4.079	.840	2.20	5
Security Attitude	4.077	.838	2.71	5
Security Behavior	4.158	.690	2.50	5

4.4 Reliability of Questionnaire

Cronbach’s Alpha is the method of examining reliability. The calculation is based on the number of items and the average inter-item correlation. The questionnaire used in this study was measure its reliability to ensure it suits to the population and measures what it needs to measure. The reliability scales for all factors are mentioned in Table 5.6.

The value shows the questionnaire was reliable as the closer the value to 1, the reliable the questionnaire. The questionnaire shows a high reliability based on the alpha score (α=0.663 – 0.911). An alpha score above 0.75 is generally indicating a scale of high reliability (Pallant, 2010), while a score of 0.5 and above is considered moderate reliability. A figure below than this indicates a scale of low reliability (Hinton, Brownlow, McMurray and Cozens, 2004).

Table 4.6 ***Reliability statistics***

Factor	**Cronbach's Alpha (α)**	**No of items**
Security Awareness	.906	6
Security Knowledge	.662	11
Security Training	.900	5
Security Attitude	.916	7
Security Behavior	.911	9

4.5 Correlation Matrix between Variables of Interest

4.5.1 Correlation matrix between Security Awareness and factors measured

Table 4.7 represents the correlations between security awareness and all the factors measured. The Security Awareness was significantly correlated with all the scientific qualification variables ($p < 0.05$). The results of the correlations can be reported as; Security Awareness and Security Knowledge, r = .595, p < .05

Security Awareness and Security Training, r = .995, p < .05

Security Awareness and Security Attitude, r = .997, p < .05

Security Awareness and Security Behavior, r = .997, p < .05.

The closer the r value to 1, the stronger the relationship. The correlations shown were moderate to very strong. There were significant relationships between Security Awareness and Security Knowledge, Security Training, Security Attitude and Security Behavior (p < .05). The relationships were further analyzed in regression analysis to test the hypotheses.

Table 4.7 ***Matrix Correlations for all Variables*** **(*N=375*)**

+	SA	SK	ST	SA	SB
Security Awareness	1				
Security Knowledge	.595**	1			
Security Training	.995**	.587**	1		
Security Attitude	.997**	.597**	.984**	1	
Security Behavior	.997**	.558**	.991**	.995**	1

**Correlation is significant at .01 (p <.01)
*Correlation is significant at .05 (p < .05).

4.6 REGRESSION ANALYSIS

In the present study, a standard regression method is used to investigate the relationships between the independent variables (demographics) and security awareness and factors measured as dependent variables as all the variables were assumed to have equal importance.

Multiple regression analysis was conducted in order to provide the researcher with different outcomes so he can answer the study questions and test the research hypotheses postulated. Authors (Hair et al., 2007; Saunders et al., 2007; and Sekaran, 2003) stated that multiple regressions are a statistical method that is used to predict the variance in a single dependent variable that is caused by the impact of more than a single independent variable. The method provides the relative contribution for individual variables and presents which of the variables among the set best predicts the outcome. For instance, R^2 shows the way a set of variables are good in predicting a particular outcome of security awareness on smart phone functionality among USIM students. The R^2 standard value is 1 which indicates a perfect linear relation between both sets of variables. Contrarily, if the value is equal to 0, it shows no linear relationship between the variables. The regression model's significance, the value of R^2, unstandardised coefficients and standardised coefficients are shown. Based on Leech, Barrett and Morgan (2005), the definitions of the above are as follows:

1. The regression model's significance: ANOVA analysis is used to test the significance of the regression model where a significant level of less than .05 indicates the combination of the independent variables significant prediction of the dependent variable.
2. Value of R^2: The value varies from 0.0-1.0 and it indicates that percentage of the variance can be depicted from the combination of the independent variables. Based on the statements of Leech, Barrett and Morgan (2005), with an R^2 value of more than 0.49, the strength of the relationship is considered extremely large, if the value is between

0.26-0.49, it is considered large, between 0.13-0.26 is medium, and between 0.2-0.13 is small.

3. Unstandardised coefficients (B): The independent variables' coefficient in the regression equation.
4. Standardised coefficients (β): The average amount the dependent variables increases by a single standard deviation. The value ranges from -1.0 to 1.0. A negative value indicates that the independent variables have a negative relationship with the dependent one while a positive value indicates a positive relationship. The value also represents the weight of every independent variable in their influence upon the dependent variable.

4.6.1 Regression Analysis Assumptions

The purpose of multiple regression analysis is to predict a dependent from a combination of several independent variables. Prior that, analysis was conducted to ensure assumptions for sufficient sample size, multicollinearity, homscedasticity, linearity, outliers, and normality were tested as recommended by Hair (2006) and Tabachnick (2007). For the purpose of generalisability, Tabachnick and Fidell (2007) provided the formula to calculate the required sample size taking into consideration the number of independent variables that is used: N > 50 + 8m (where m = number of independent variables). A total of 82 cases were recommended for four independent variables. Accordingly, because there are five independent variables in the present study therefore, there should be therefore 50+8*5 = 90 cases. Hence, the first assumption of the recommendation was met.

The next assumption is multicollinearity which is according to Hair et al., (2006) is the degree to which other variables can explicate a variable in the analysis. Tabachnick and Fidell (2007) stated that the appearance of multicollinearity occurs when a high degree of correlation is found between the variables. The challenge in clarifying the impact of any single variable owing to their relationship is explained by multicollinearity. There are several ways to measure collinerity existing between the independent variables and they include, Pearson correlations, Tolerance Value and Variance Inflation Factors (VIF). For the examination of the multicollinerity among the study variables, Pearson correlations, VIF and tolerance tests were conducted. Pearson correlations display the correlation between two or more independent variables where the correlation is considered significant at 0.01 levels or .05 levels. According to the rule of thumb, Pearson correlation with significant value over 0.80 shows multicollinerity between the independent variables (Allison, 1999; Sekaran, 2000; and Cooper et al., 2003).

Table 4.7 depicts the correlation analysis of the variables using Pearson correlation. All factors measured were significant correlated with Security Awareness.

As mentioned earlier, there are other methods to test multicollinearity between the independent variables such as Tolerance Value and (VIF). The results of the tolerance and VIF were analyzed to confirm multicollinearity did not exist before regression was performed. Tolerance is defined by Hair et al., (2006) as the amount of the variability of the selected independent variables not explained by other variables, while VIF is the opposite of the tolerance value. According to Hair et al., (2006), the common cut off threshold is a tolerance value of .10, which corresponds to a VIF value less than 10. Table 4.8 – Table 4.12 shows the result of the tolerance values for each variables **Security Attitude**; Age = .033, Gender = .956, Education level = .482, Operating System = .482. The VIF values were 30.264 (Age), 1.046 (Gender), 31.431 (Education Level), 2.074 (Operating System). **Security Behavior**; Security Software = .987, Operating System = .987. The VIF values were 1.014 (Security System), 1.014 (Operating System). **Security Knowledge**; Age = .026, Gender = .960, Education Level = .027, Security Behavior = .005, Security Training = .016, Security Attitude = .009. The VIF values were 38.428 (Age), 1.041 (Gender), 37.567 (Education Level), 218.652 (Security Behavior), 64.361 (Security Training) and 112.208 (Security Attitude). **Security Awareness;** Authentication = .991 and Security Knowledge = .991. The VIF values were 1.009 (Authentication), 1.009 (Security Knowledge). Security Awareness; Security Training = .014, Security Behavior = .003, Security Attitude = .006 and Security Knowledge = .406. The VIF values were 69.286 (Security Training), 292.693 (Security Behavior), 162.294 (Security Attitude) and Security Knowledge (2.462). In this analysis, the results obtained indicate that multicollinearity does not exist among all variables because Pearson correlation for all independent variables is less than 0.8 and Tolerance values are more than .10 and VIF values are less than 10. Therefore, the result suggests that the current study does not have any problem with multicollinearity.

Table 4.8 Analysis for multicollinearity by Pearson correlation, tolerance and VIF values (Demographics and Security Attitude)

No	Variables	Tolerance	VIF
1	Age	.033	30.264
2	Gender	.956	1.046
3	Education level	.032	31.431
4	Operating system	.482	2.074

Table 4.9 Analysis for multicollinearity by Pearson correlation, tolerance and VIF values (Security Software, Operating System and Security Behavior)

No	Variables	Tolerance	VIF
1	Security Software	.987	1.014
2	Operating System	.987	1.014

Table 4.10 Analysis for multicollinearity by Pearson correlation, tolerance and VIF values (Demographics, Security Behavior, Security Training and Security Attitude)

No	Variables	Tolerance	VIF
1	Age	.026	38.428
2	Gender	.960	1.041
3	Education level	.027	37.567
4	Security Behaviour	.005	218.652
5	Security Training	.016	64.361
6	Security Attitude	.009	112.208

Table 4.11 Analysis for multicollinearity by Pearson correlation, tolerance and VIF values (Authentication and Security Awareness)

No	Variables	Tolerance	VIF
1	Authentication	.991	1.009
2	Security Knowledge	.991	1.009

Table 4.12 Analysis for multicollinearity by Pearson correlation, tolerance and VIF values (Security Training, Security Behavior, Security Attitude, Security Knowledge and Security Awareness)

No	Variables	Tolerance	VIF
1	Security Training	.014	69.286
2	Security Behavior	.003	292.693
3	Security Attitude	.006	162.294
4	Security Knowledge	.406	2.462

The third assumption for the regression is the homoscedasticity of the variables. Homoscedasticity appears when the variance over a variety predictor variable seems to be constant. In other words, the values of the variance of the dependent variable concentrate in only a limited range of the independent variable (Hair at al., 2006).

4.7 EVALUATING EACH OF THE INDEPENDENT VARIABLE

This section aims to identify and compare the strength of prediction of the independent variables on the dependent variable. In other words, this study aims to identify which variables in the model contributed to the prediction of the dependent variable using Beta value. In this study, we are interested to compare the contribution of each independent variable in the model.

The results in Table 4.14 show that Age (β = 1.095, $p < .05$) and Education level (β = -.876, $p < .05$) contribute significantly to the security attitude. Gender and Operating System does not significantly contribute to security attitude ($p > .05$).

As can be seen from Table 4.13, the R^2 was statistically significant, with $F = 7.441$ and $p < .00$

As a result, the common expression of the regression equation is stated as follows: Security Attitude = 4.303 + 1.153 Age + (-.026) Gender + (-1 .265) Education level (-.029) Operating System. The four independent variables were observed to have a positive correlation to the security attitude as indicated by the positive *R* value of .273 in Table 4.13. A computed R^2 value of .074 suggests that the variables explain more than 7.4% of the variance in the security attitude (with a standard error estimate of .715). In other words, age and education level have a magnitude affect to security attitude on smart phone functionality.

Table 4.13 Results of multiple regression (model summary) between variables (Age, Gender, Education level and Operating System) and Security Attitude (dependent variable)

Model Summary[b]

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.273	.074	.064	.715

a. Predictors: (Constant), Age, Gender, Education level and Operating System
b. Dependent Variable: Security Attitude

Table 4.14 Relative contributor of independent variables to Security Attitude

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	4.303	.273		15.842	.001*
Age	1.153	.290	1.095	3.978	.001*
Gender	-.026	-.116	-.012	-.227	.820
Education level	-1.265	.406	-.876	-3.123	.002*
Operating System	-.029	.081	-.025	-.352	.725

a. Dependent Variable: Security Attitude
*Significant level is at .05 ($p < .05$).

The results in Table 4.16 show that Security System (β = .976, $p < .05$) contribute significantly to the security behavior. Operating System did not significantly contribute to security behavior ($p > .05$).

As can be seen from Table 4.15, the R^2 was statistically significant, with F = 3888.091 and $p < .001$. As a result, the common expression of the regression equation is stated as follows: Security Behavior = 1.609 + .636 Security System + .009 operating System. The two independent variables were observed to have a positive correlation to the security behavior as indicated by the positive R value of .977 in Table 4.15. A computed R^2 value of .954 suggests that the variables explain more than 95.4% of the variance in the security behavior (with a standard error estimate of .148). In other words, only security system has a magnitude effect to security attitude on smart phone functionality.

Table 4.15 Results of multiple regression (model summary) between variables (Security System and Operating System) and Security Behavior (dependent variable)

Model Summary[b]

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.977	.954	.954	.148

a. Predictors: (Constant), Security System and Operating System
b. Dependent Variable: Security Behavior

Table 4.16 Relative contributor of independent variables to Security Behavior

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.609	.032		50.526	.001*
Security System	.636	.007	.976	87.490	.001*
Operating System	.009	.012	.009	.798	.425

a. Dependent Variable: Security Behavior
*Significant level is at .05 ($p < .05$).

The results in Table 4.18 show that Security Attitude (β = 4.294, $p < .05$). Security Behavior (β = -5.528, $p < .05$), Security Training (β = 1.936, $p < .05$), Age (β = -1.036, $p < .05$) and Education level (β = .675, $p < .05$) contribute significantly to the security knowledge. Gender did not significantly contribute to security knowledge ($p > .05$).

As can be seen from Table 4.17, the R^2 was statistically significant, with F = 165.319 and $p < .001$. As a result, the common expression of the regression equation is stated as follows: Security Knowledge = 3.456 + 2.675 Age + (-3.689) Security Behavior + Security Training + (-.679) Age + (-.008) Gender + (.608) Education level. The six independent variables were observed to have a positive correlation to the security behavior as indicated by the positive R value of .854 in Table 4.17. A computed R^2 value of .729 suggests that the variables explain more than 72.9% of the variance in the security knowledge (with a standard error estimate of .242). In other words, security attitude, security behavior, security training, age and education level have a magnitude effect to security knowledge on smart phone functionality.

Table 4.17 Results of multiple regression (model summary) between variables (Security Attitude, Security Behavior, Security Training, Age, Gender and Education Level) and Security Knowledge (dependent variable)

Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.854	.729	.725	.242

a. Predictors: (Constant), Sec Attitude, Sec Behavior, Sec Training, Age, Gender and Education level
b. Dependent Variable: Security Knowledge

Table 4.18 Relative contributor of independent variables to Security Knowledge

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.456	.199		17.332	.001*
Security Attitude	2.675	.179	4.294	14.950	.001*
Security Behavior	-3.689	.268	-5.528	-13.787	.001*
Security Training	1.065	.120	1.936	8.900	.001*
Age	-.679	.110	-1.036	-6.163	.001*
Gender	-.008	.039	-.006	-.208	.836
Education Level	.608	.150	.675	4.062	.001*

a. Dependent Variable: Security Knowledge
*Significant level is at .05 ($p < .05$).

The results in Table 4.20 show that Security Knowledge ($\beta = .002$, $p < .05$), Security Attitude ($\beta = .528$, $p < .05$), Security Behavior ($\beta = .062$, $p < .05$) and Security

Training (β = .412, $p < .05$), contribute significantly to the Security Awareness. Authentication did not contribute significantly to security awareness ($p > .05$).

As can be seen from Table 4.19, the R^2 was statistically significant, with F = 457610.250 and $p < .001$. As a result, the common expression of the regression equation is stated as follows: Security Awareness = -.054 + .004 Security Knowledge + .041 Authentications + .556 Security Attitude + .070 Security Behavior + .383 Security Training. The five independent variables were observed to have a positive correlation to the security behavior as indicated by the positive R value of .999 in Table 4.19. A computed R^2 value of .999 suggests that the variables explain more than 99.9% of the variance in the security awareness (with a standard error estimate of .010). In other words, security knowledge, security attitude, security behavior and security training have a magnitude effect to security awareness on smart phone functionality.

Table 4.19 Results of multiple regression (model summary) between variables (Security Knowledge, Authentication, Security Attitude, Security Behavior and Security Training) and Security Awareness (dependent variable)

Model Summary[b]

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.999	.999	.999	.010

a. Predictors: (Constant), Sec Knowledge, Authentication, Sec Attitude, Sec Behavior, Sec Training
b. Dependent Variable: Security Awareness

Table 4.20 Relative contributor of independent variables to Security Awareness

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-.054	.010		-5.650	.001*
Sec Knowledge	.004	.002	.002	2.036	.042*
Authentication	.001	.001	.001	1.382	.168
Security Attitude	.556	.009	.528	61.500	.001*
Security Behavior	.070	.013	.062	5.361	.001*
Sec Training	.383	.005	.412	74.111	.001*

a. Dependent Variable: Security Awareness
*Significant level is at .05 ($p < .05$).

4.8 HYPOTHESIS TESTING

This section investigates the relationship between demographics (age, gender, education level, operating system used, authentication and security software used) and factors measured; security knowledge, security training, security attitude, security behavior and security awareness on smart phone functionality. The purpose of the investigation is to achieve the following research objectives: to determine the current level of functional security in smartphones to create awareness among students in the USIM and to identify whether the knowledge in security smart phone, can affect on level of awareness in USIM based on the identified factors. To support the investigation, the following hypotheses were tested. The acceptance or rejection of the stated hypotheses can be found in Table 4.21 at the end of this section. The hypotheses to be examined are;

H1a. There is a positive relationship between age, gender users and users' attitude in smart phone security functionality.

The results in table 4.14 show there are significant relationship between age and users' security attitude on smart phone functionality (β = 1.095, t= 3.978, p = .001 (p < .05). There is no significant relationship between gender and security attitude on smart phone functionality (β = -.012, t= -.227, p = .820 (p > .05)). Therefore hypothesis 1a is rejected.

H1b. There is a positive relationship between education level and users' attitude in smart phone security functionality.

The results in table 4.14 show there is a significant relationship between education level and users' security attitude on smart phone functionality (β = -.876, t= -3.123, p = .002 (p < .05). Therefore, hypothesis 1b is accepted.

H1c. There is a positive relationship between type of item or service and users' attitude in smart phone security functionality.

The results in table 4.14 show there is no significant relationship between operating system used and users' security attitude on smart phone functionality (β = -.025, t= -.352, p = .725 (p > .05). Therefore, hypothesis 1c is rejected.

H2a. There is a positive relationship between security system and users' behavior in smart phone security functionality.

The results in table 4.16 show there is a significant relationship between security system and security behavior on smart phone functionality (β = .976, t= 87.490, p = .001 ($p < .05$). Therefore hypothesis 2a is accepted.

H2b. There is a positive relationship between type of item or service and users' behavior in smart phone security functionality.

The results in table 4.16 show there is no significant relationship between operating system used and security behavior on smart phone functionality (β = .009, t= .798, p = .425 ($p > .05$). Therefore hypothesis 2B is rejected.

H3a. There is a positive relationship between users' attitude and security knowledge in smart phone security functionality.

The results in table 4.18 show there is a significant relationship between security attitude and security knowledge on smart phone functionality (β = 4.294, t= 14.950, p = .001 ($p < .05$). Therefore hypothesis 3a is accepted.

H3b. There is a positive relationship between users' behavior and security knowledge in smart phone security functionality.

The results in table 4.18 show there is a significant relationship between security behavior and security knowledge on smart phone functionality (β = -5.528, t= -13.787, p = .001 ($p < .05$). Therefore hypothesis 3b is accepted.

H3c. There is a positive relationship between users' training and security knowledge in smart phone security functionality.

The results in table 4.18 show there is a significant relationship between security training and security knowledge on smart phone functionality (β = 1.936, t= 8.900, p = .001 ($p < .05$). Therefore hypothesis 3c is accepted.

H3d. There is a positive relationship between age, sex users and security knowledge in smart phone security functionality.

The results in table 4.18 show there is a significant relationship between age and security knowledge on smart phone functionality (β = -1.036, t= -6.163, p = .001 ($p < .05$)). There is no significant relationship between gender and security knowledge on smart phone functionality (β = -.006, t= -.208, p = .836 ($p > .05$)). Therefore hypothesis 3d is rejected.

H3e. There is a positive relationship between education level and security knowledge in smart phone security functionality.

The results in table 4.18 show there is a significant relationship between education level and security knowledge on smart phone functionality (β = .675, t= 4.062, p = .001 ($p < .05$)). Therefore hypothesis 3e is accepted.

H4a. There is a positive relationship between security knowledge and security functionality in smart phone security functionality.

The results in table 4.20 show there is a significant relationship between security knowledge and security awareness on smart phone functionality (β = .002, t= 2.036, p = .042 ($p < .05$)). Therefore hypothesis 4a is accepted.

H4b. There is a positive relationship between authentication method and security functionality in smart phone security functionality.

The results in table 4.20 show there is no significant relationship between authentication method and security awareness on smart phone functionality ($\beta = .001$, $t = 1.382$, $p = .168$ ($p > .05$)). Therefore hypothesis 4b is rejected.

H5a. There is a positive relationship between security knowledge and level of awareness security functionality in smart phone security functionality.

The results in table 4.7 shows there is a positive relationship between security knowledge and level of awareness security functionality in smart phone security functionality ($r = .595$, $p < .05$). Therefore hypothesis 5a is accepted.

H5c. There is a positive relationship between users' attitude and level of awareness security functionality in smart phone security functionality.

The results in table 4.20 show there is a significant relationship between security attitude and security awareness on smart phone functionality ($\beta = .528$, $t = 61.500$, $p = .001$ ($p < .05$)). Therefore hypothesis 5c is accepted.

H5d. There is a positive relationship between users' behavior and level of awareness security functionality in smart phone security functionality.

The results in table 4.20 show there is a significant relationship between security behavior and security awareness on smart phone functionality (β = .062, t= 5.361, $p = .001$ ($p < .05$)). Therefore hypothesis 5d is accepted.

H5e. There is a positive relationship between users' training and level of awareness security functionality in smart phone security functionality.

The results in table 4.20 show there is significant relationship between security training and security awareness on smart phone functionality (β = .412, t= 74.111, $p = .001$ ($p < .05$)). Therefore hypothesis 5e is accepted.

Table 4.21 summarizes the results of hypotheses testing.

Table 4.21 Hypotheses testing results

Hypothesis	Significance	Supported or not supported
H1a	Age and user's attitude (Yes)	Not supported
	Gender and users' attitude (No)	
H1b	Education level and user's attitude (Yes)	Supported
H1c	Operating system used And users' attitude (No)	Not supported
H2a	Security software and user's behavior (Yes)	Supported

H2b	Operating system used (type of service or item) and users' behavior (No)	Not supported
H3a	Users' attitude and Security Knowledge (Yes)	Supported
H3b	Users' behavior and Security Knowledge (Yes)	Supported
H3c	Users' training and Security Knowledge (Yes)	Supported
H3d	Age and Security Knowledge (Yes), Gender and Security Knowledge (No)	Not supported
H3e	Education level and Security Knowledge (Yes)	Supported
H4a	Security Knowledge and Security Awareness (Yes)	Supported
H4b	Authentication method and Security Awareness (No)	Not supported
H5a	Security Knowledge and Security Awareness level (Yes)	Supported
H5c	Users' attitude and Security Awareness (Yes)	Supported
H5d	Users' behavior and Security Awareness (Yes)	Supported
H5e	Users' training and Security Awareness (Yes)	supported

Figure 4.5 shows the relationships between variables. Broken line shows indicate on relationship between variables. While black line shows relationship between variables.

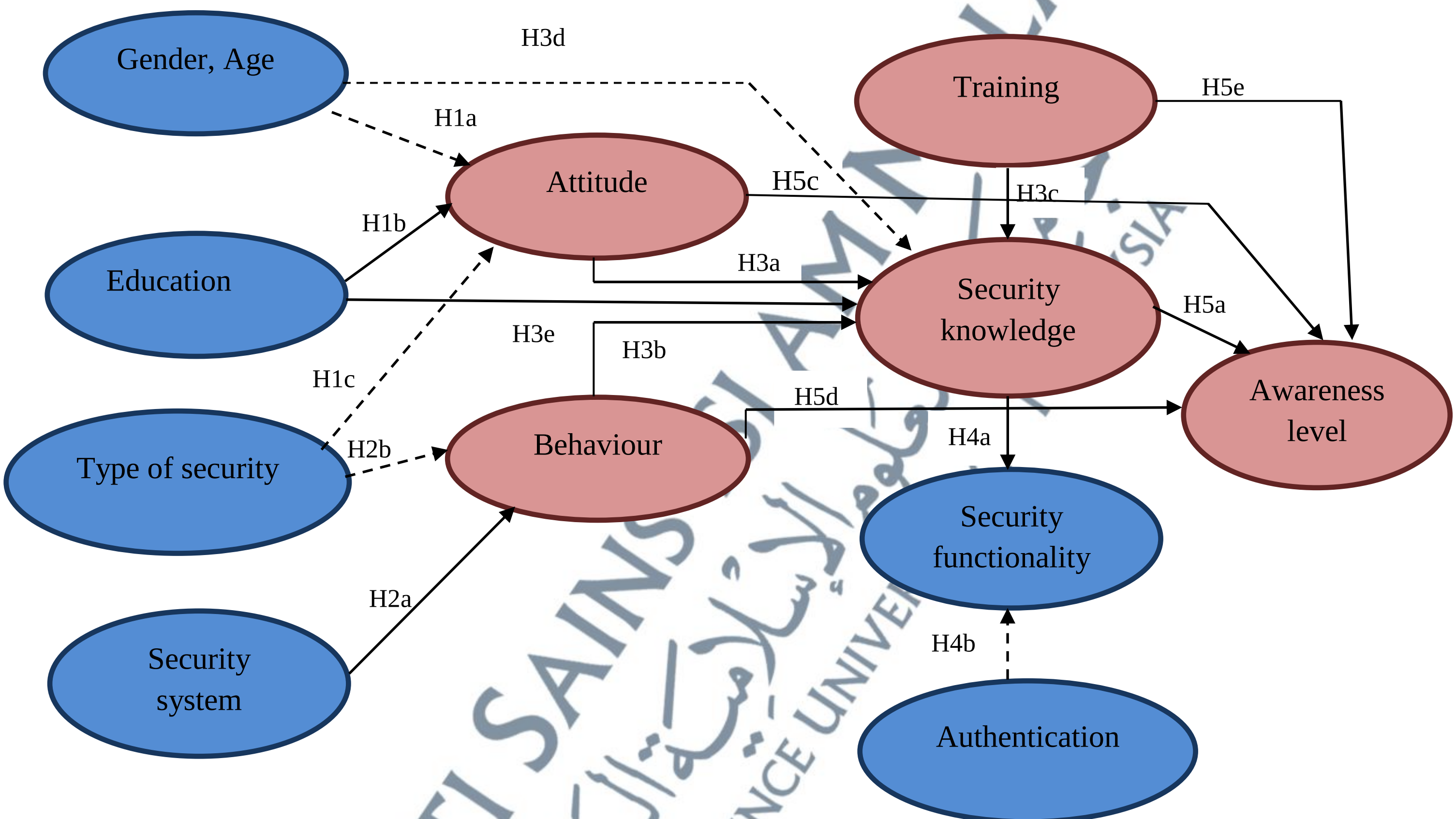

Figure 4.5 Relationships between variables (1)

Figure 4.6 depicted the variables that have significant relationship.

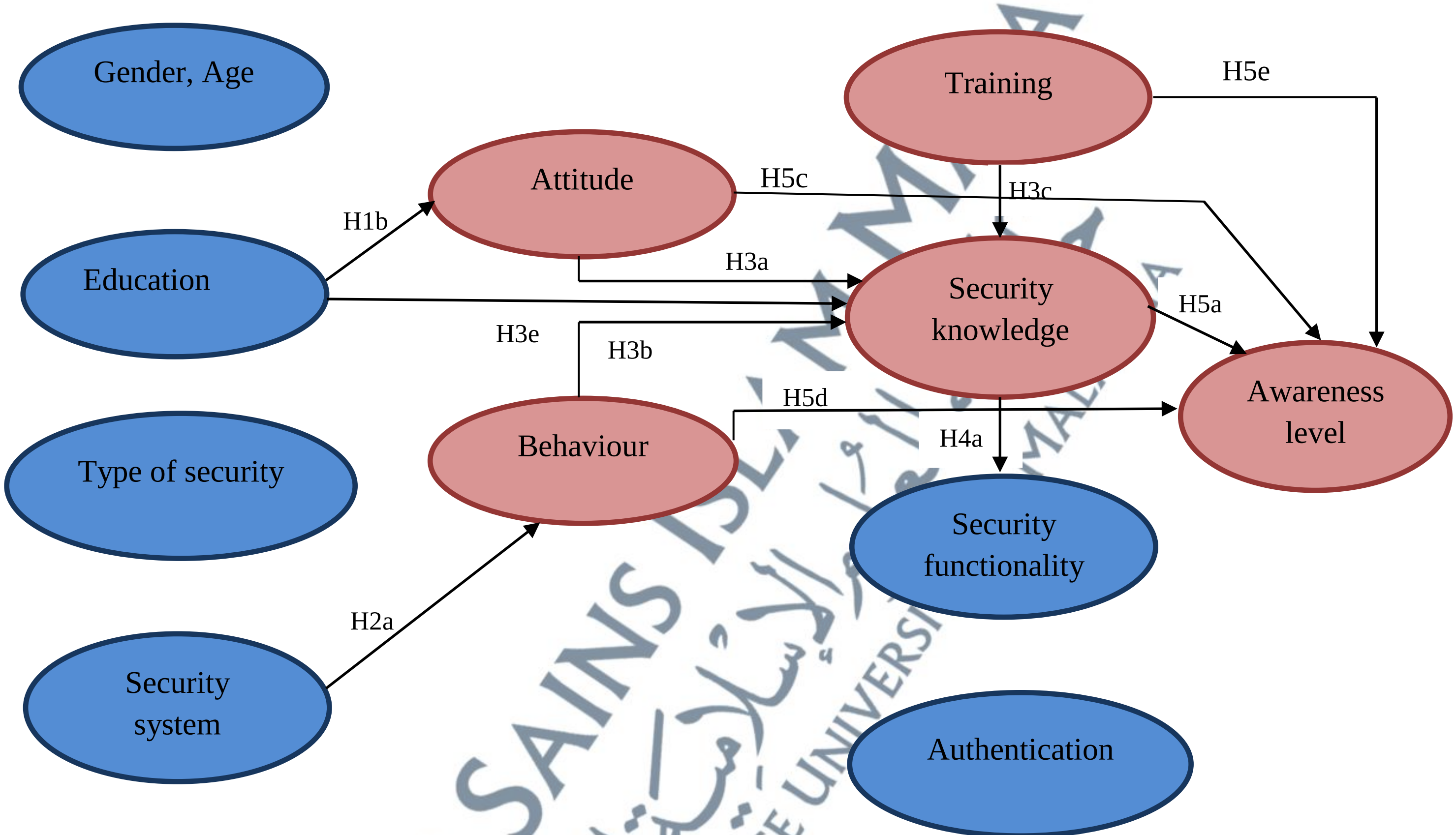

Figure 4.6 Relationships between variables (2)

Figure 4.6 shows the factors effect on the variables. Education level affect on security attitude in smart phone functionality. Security system affect on security behavior in smart phone functionality. Gender, age and education level affect on security knowledge in smart phone security functionality. Attitude, behavior and training affect on security knowledge in smart phone security functionality. Security knowledge affect on awareness security functionality in smart phone security functionality. Security knowledge affect on level of awareness security functionality in smart phone security functionality. Behavior and attitude affect on level of awareness security functionality in smart phone security functionality.

4.9 SUMMARY

This chapter presents the data analyses and results pertaining to reliability assessment, demographic profile, descriptive analysis, correlations and regression analyses, and hypotheses testing. In the first part of the analysis the researcher tested reliability analysis to test the reliability of the items in each constructs or accuracy of measuring instrument used in this research. The result indicated that the instrument used in this research is reliable and is appropriate to measure the construct.

The descriptive analysis was employed to demographic profile of the sample. This includes the personal characteristics and descriptive profile of the investigated factors or the variables. In addition, correlations test was conducted between the independent and dependent variables. The findings revealed that all the independent variables were found to be statistically correlated to each other. Further, Standard multiple regression was conducted in order to investigate the relationships between independent variables and factors; security knowledge, security training, security behavior and security attitude. The most important variable is the security awareness on smart phone functionality. Age and education level were found has significant contribution to users' attitude towards security on smart phone functionality, while gender and type of service or item the users' used were found not significant. Users' behavior to security on smart phone functionality did influence by the security system used but not on the type of service or items used by the users. On the other hand, security knowledge in smart phone security functionality was influenced by the users' attitude, behavior, training, age, and education level. However, gender did not give significant contribution to the users' security knowledge. In the most important variable tested, which was the users' security awareness in smart phone security functionality, all factors contributed significantly to their security awareness. Authentication method did not influence significantly to this dependent variable. This concludes that with knowledge, attitude, behavior and training, the users which were also the students in USIM will have better security awareness towards their smart phone security functionality

4.10 Summary on level of awareness on smart phone security functionality among USIM students

Table 4.22 Descriptive statistics for factors in the study

Factor	**Mean**	**±SD**
Security Awareness	4.115	.838
Security Knowledge	3.397	.461
Security Training	4.079	.840
Security Attitude	4.077	.838
Security Behavior	4.158	.690

There are five important variables measured in this study; security awareness, security knowledge, security training, security attitude and security behavior. The important variable is security awareness. The variables were measured using Likert scale; 1 – 5 (strongly disagree to strongly agree). The results show that all the variables at high level; a score of 4 and above is considered high level, less than 5 is moderate and 2.0 and below is low. Thus, the security awareness is at high level. This explains that the students' awareness level in smart phone security functionality is high. On the other hand, the factors which may influence the security awareness; security training, attitude and behavior are also high. Security knowledge is at moderate level.

This study concluded that the USIM students' level of awareness in smart phone security functionality is high and the factors influenced it.