

Statistical Analysis of Student's Life Satisfaction at Higher Learning Institution

Norafefah Binti Mohamad Sobri^{1*}, Nor Azima Ismail², Wan Faizah Wan Yaacob³, Noor Ilanie Nordin⁴, Wan Mohd Zawir Bin Wan Mokhtar⁵, Muhammad Nur Aidil Ariff Bin Muhamad Yusuf⁶ and Muhamad Akmal Bin Abdullah Zawawi⁷

^{1,2,3,4}Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Kelantan, Bukit Ilmu, Machang, Kelantan, Malaysia

^{5,6,7}Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Kelantan, Lembah Sireh, Kota Bharu, Kelantan, Malaysia

*noraf378@uitm.edu.my

Abstract: Life satisfaction is one of the important aspects of life for students since it is part of their daily life. Due to the decreasing life satisfaction among students, this study was carried out with the intention to find out the determinants of students' life satisfaction at higher institution. There are several factors investigated in the study including stress, academic performance, peer's relation and financial status. Stratified random sampling method was implemented to select 298 students in UiTM Kota Bharu as respondents in this study. Demographic analysis used to analyze the socio-demographic data. Pearson's correlation coefficient was utilized to analyze the significant relationship between students' life satisfaction and independent variables; namely stress, academic performance, peer's relation and financial status. The result shows that all the independent variables are significantly have relationship between the life satisfaction. Independent t-test was carried out to analyze the significant different of students' life satisfaction between gender. It can be concluded that there is no significant different between gender (male and female) and life satisfaction. Multiple linear regression method was applied to determine the significant factors that influence students' life satisfaction. As a result, the four factors turned out to have a significant effect towards students' life satisfaction.

Keywords: Life Satisfaction, stress, academic performance, peers relation and financial status.

1 Introduction

World Happiness Report 2018 (WHR) reported that there are 82 percent of young adult from age 18 - 26 tend to get into depression in life compare to other age group [1]. Life satisfaction is essential for a productive, effective, and satisfying life for every individual. Life satisfaction refer to a cognitive and judgemental process in which individuals evaluate their quality of life based on a set of criteria that have different values in different individuals [2]. Pavot [3] has done a study on life satisfaction and he found that people still believe that happiness and satisfaction with life are having the same meaning. However, there are a few minor differences between satisfaction and happiness, even though the concept is the same where satisfaction of life corresponds to a person's overall feelings towards their lifestyles. Life satisfaction also can predict the activities of a person either positive or negative indicators of mental health. Marum [4] stated that, negative life events were shown to be drastically related with life satisfaction. Therefore, a person should avoid from involving in doing bad things in order to manage their life satisfaction from being affected. In reviewing the literatures on life satisfaction, various studies have been done on the factors contributing towards students' life satisfaction. Socioeconomics characteristic, relationship with parents, peers and teachers and stress have been identified as the factors that could influence life satisfaction of students [5]. In the previous study by Kumar [6] on psychological distress and life satisfaction among university students shows that there was significant correlation between psychological distress and life satisfaction. Study done by Puri [7] found that stress and life satisfaction were significantly negatively correlated. This study also found that higher levels of perceived stress were associated with lower levels of satisfaction with life among the students. Another factor that contributes to life satisfaction is academic performance. Antaramian [8] stated that the more

satisfied students earn higher Grade Point Averages (GPAs) than their less satisfied peers' relation. Previous study showed that high rates of life satisfaction are related to high academic efficacy, positive socio-economic status, reduced outsourcing and internalization of classroom behaviours, and increased involvement of students in school [9-11]. Result from the study done by Ng [12] shows a strong correlation in a study of Canadian university students between life satisfaction and self-reported GPA.

Relationship between friends or peers also give more impact to improve life satisfaction compare to other factors. It is proven that life satisfaction with peers could be more robust than satisfaction with family and academic achievements [13-14]. Several studies suggest that social support and supportive social relationships have beneficial effects on mental and physical health and subjective well-being among older adults. This are correlated with greater life satisfaction with different features of social interaction and social support, self-esteem, happiness, and general well-being [15-17].

Financial status also one of the factors that contribute to life satisfaction. Individuals with a financial stability consider themselves happier. Students experiencing high financial stress are more dissatisfied with their lives compared with those with moderate and low financial stress [18]. Das [19] stated that main factors that affect life satisfaction of students are economic and mental health. This shows that life satisfaction is a critical issue. Thus, the aim of this study is to model the students' life satisfaction among undergraduate in Higher Education Institution. The finding of this study will improve the understanding of life satisfaction, especially in managing and utilizing emotion among students. Therefore, this study became a basis model to improve students' life satisfaction at the campus.

2 Research Materials and Design

A. Study Design and population

The cross-sectional study was conducted among 298 among students from Universiti Teknologi Mara (UiTM) Kota Bharu, Kelantan. The total number of students in UiTM Kota Bharu is 1325, where 298 students were selected using a proportionate stratified random sampling technique. The population is separated into six strata which are BA240, BA242, BA249, BA250, CS241 and CS249, and the selected sample involves 44 students from BA240, 77 students from BA242, 53 students from BA249, 39 students from BA250, 81 students from CS241 and 4 students from CS291. The inclusion criteria of the population are undergraduate students from semester 1 until semester 6 at UiTM Kota Bharu. The sample is separated into six strata which are BA240, BA242, BA249, BA250, CS241 and CS291. The exclusion criteria are the respondents from part 7 which is the intern students.

B. Instruments and data collection

A self-administrated questionnaire was used as an instrument tool to collect the data that contains 6 sections where Section A is about the Demographic profile while Section B is about Life satisfaction. The third section is Section C which is Stress and Section D is Academic Performance. Next, Section E is about Peers Relation and the last section is Section F which is Financial Status. A 7-point Likert scale was used starting from Section B until Section F. Data was collected from the respondents using google form. The questionnaire was distributed randomly to the respondents by using WhatsApp. The questionnaire was distributed in both English and Malay language.

3 Method of Data Analysis

Analysis was performed by using Statistical Package of Social Sciences (SPSS) software version 22 (IBM Inc., USA). Frequency and percentage using a graphical presentation were analysed for socio-demographic variables. Life satisfaction, stress, academic performance, peer relation, and financial status were expressed as mean.

A. Pearson's Correlation

The relationship between life satisfaction and stress, academic performance, peer's relation, and financial status was evaluated using Pearson's correlation coefficient. Statistical test was run using 95% confidence interval. Pearson's correlation measure the direction and the strength of linear relationship between the dependent variable which is life satisfactions and independent variables (stress, academic performance, peer's relation and financial status). Values of strength relationship can be measured between -1 and +1. The closer the correlation to ± 1 if the stronger correlation is measured.

B. Independent t-test

Independent t-test were applied to compare the mean of life satisfaction between gender. This test was done to see a significant difference in life satisfaction between male and female students. Significant value (p-value) is used to determine the significant of the two independent variables. P-value less than alpha value at 0.05 significance level. the test is considered significant and we can conclude that there is significant difference between life satisfaction between male and female.

C. A Multiple Linear Regression

Regression analysis can explain how the value of the response variable or dependent variable changes if one of the independent variable varies, while the others independent variables are being constant [20]. Factors associated to life satisfaction (Y) were determined by using Multiple Linear Regression Analysis. The following independent variables were included for analyse multiple linear regression are stress (x_1), academic performance (x_2), peer's relation (x_3), and financial status (x_4). In Multiple Linear Regression analysis, variable for inclusion in the model were selected by using backward elimination. Independent variables with a p-value less than 0.05 reported to dependent variable which is life satisfaction influenced by independent variables. Goodness-of-fit model was checked using coefficient of determination and adjusted coefficient of determination. The model is specified as Life Satisfaction (Y) = $\beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \varepsilon_t$ where $\beta_0, \beta_1, \beta_2, \beta_3$ and β_4 are the regression coefficient estimated from the sample. ε_{ij} is represented as error random.

D. Model Adequacy Checking

Model adequacy checking was done to check the assumptions of regression model. Normality plot and residual versus predicted plot were used to check both normality of the error and homoscedasticity of the error assumptions. Variance Inflation Factor (VIF) and tolerance value were used to check multicollinearity. If the value of VIF > 10 and tolerance value < 0.1 , therefore serious multicollinearity exists.

4 Results

A. Reliability Study

Table 1 shows the result of reliability test after conduct the actual study for all question in the questionnaire. All item in Section B until Section F gives value of Cronbach's Alpha is more than 0.6. Therefore, all the variables are reliable and consistent to the study.

Table 1: Realibility Test

Section	Variable	Number of Item	Cronbach's Alpha
B.	Life Satisfaction	8	0.813
C.	Stress	6	0.830
D.	Academic Performance	6	0.858
E.	Peers	7	0.894
F.	Financial	6	0.806

B. Socio-demographic characteristics

Table 2 showed summary of demographic profile of the respondents. Majority of the respondents were female (74.83%) with small percentages of males (25.17%). Most of the respondents were aged 21 to 23 years old (92.95%) and the rest were 24 to 26 years old (7.05%). The percentage of respondents according to programme are from BA240 (14.77%), BA242 (25.84%), BA249 (17.78%), BA250 (13.09%), CS241 (27.18%) and CS291 (1.34%). Small percentage of respondents from Semester 1 (0.67%) Semester 2 (1.68%), Semester 3 (13.42%), Semester 4 (45.97%), Semester 5 (23.16%) and Semester 6 (15.1%).

Table 2: Summary of demographic profile

Variable	Class Variable	Number of Sample (n)	Percentage (%)
Gender	Female	223	74.83
	Male	75	25.17
Age	Below 20 years old	0	0
	21-23 years old	277	92.95
	24-26 years old	21	7.05
Programs	BA240	44	14.77
	BA242	77	25.84
	BA249	53	17.78
	BA250	39	13.09
	CS241	81	27.18
	CS291	4	1.34
Semester	1	2	0.67
	2	5	1.68
	3	40	13.42
	4	137	45.97
	5	69	23.16
	6	45	15.1

C. Results of Correlation Analysis

Table 3 shows that all independent variables; stress, academic performance, peer's relation and financial status have a moderate positive relationship with a life satisfaction with Pearson's correlation coefficient of 0.533, 0.599, 0.517 and 0.580 respectively. All the independent variables which are stress, academic performance, peer's relation and financial status have significant relationship with life satisfaction with p-value <0.001 less than level of significance 0.05.

Table 3: Result of Pearson Correlation between life satisfaction and independent variable

Variables	Correlation Coefficient (r)	p-value
Life satisfaction * Stress	0.533	<0.001
Life satisfaction * Academic Performance	0.599	<0.001
Life satisfaction * Peers Relation	0.517	<0.001
Life satisfaction * Financial Status	0.580	<0.001

D. Independent Sample T-test

Independent sample t-test was used to test the significant mean different of student's life satisfaction among gender (male and female).

i. Normality Assumption

Normality assumption had been performed before proceeding to the statistical analysis.

Table 4: Result of Normality Checking

Variables	Frequency	Skewness
Life Satisfaction	298	-0.416
Gender (Male)	75	-0.284
Gender (Female)	223	-0.475

Table 4 shows the result normality of life satisfaction and gender and it can be considered as normally distributed since the value of skewness is between -1 and 1.

ii. Homogeneous Assumption

Levene's test was used to check the assumption of equal variance of life satisfaction among the gender (male and female).

Table 5: Equality of Variance

Levene's Test for Equality of Variances	F	p-value
Life satisfaction	0.535	0.465

Table 5 shows the result of assumption of equal variance. The variables found to be homogenous in variance for gender (male and female) since the p-value were 0.465 which is greater than 0.05. Therefore, the assumption of equality variances assumes in this independent t-test.

iii. Independent Sample T-Test Result

Further analysis on independent t-test can be done since both normality assumption and equal variance assumption are satisfied. The result of independent t-test shown in the table below:

Table 6: T-test for Equality of Means of Life Satisfaction between Gender

T-test for Equality of Means	Test Statistic	Sig. (2-tailed)
Life satisfaction	-1.182	0.238

Table 6 shows the result of comparison on mean of life satisfaction between gender (male and female). The p-value was 0.238 which is greater than the alpha value 0.05. Therefore, this study can conclude that there is no significant mean difference of gender (male students and female students) towards life satisfaction.

E. Multiple Linear Regression Analysis Model

The regression analysis is used to investigate the factors contributing to the students' life satisfaction. Model adequacy checking has been done before further analysis on multiple linear regression model.

i. Model Adequacy checking

Normality Assumption

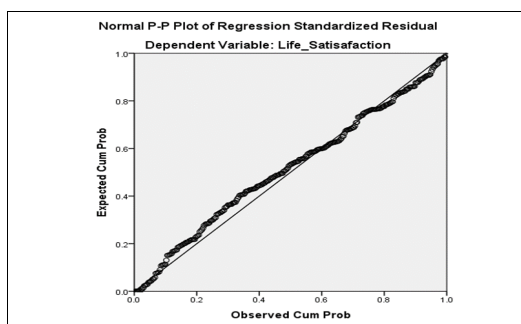


Figure 1: Normality Plot of residual

Homogeneity Assumption

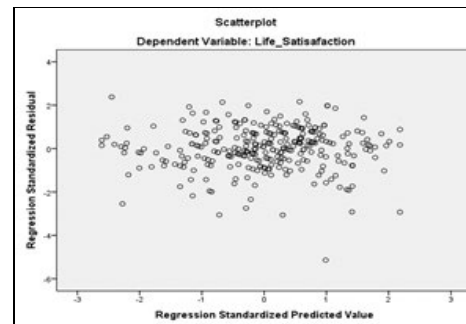


Figure 2: Residual versus predicted

Figure 1 shows the P-P plot of residual. Since most of the points are scattered roughly along the line, therefore it can be concluded that the normality assumption of error is satisfied. Scatterplot of residual versus predicted in Figure 2 shows no pattern of increasing or decreasing in any circumstances. Thus, it is shows that homoscedasticity of error variance assumption is satisfied.

ii. Goodness of Fit of the Model

Goodness of fit of the regression model is assessed using the value of R-squared for multiple linear regression. R-squared is statistical measure of how close the data are to the fitted regression line.

Table 7: Goodness of Fit (R-Square and R-Square Adjusted)

Model	R Square	R square Adjusted
1	0.473	0.466

Table 7 above shows that based on the coefficient of determination it can be concluded that 47.3% of the total variation in general life satisfaction (Y) is explained by stress (x_1), academic performance (x_2), peer's relation (x_3) and financial status (x_4) while the balance 52.7% is explained by other factors. The R^2 adjusted for this model is 0.466 which indicates that the variation in life satisfaction (Y) is reduced by 46.6% when x_1, x_2, x_3 and x_4 are considered into the regression model. Based on both values, it can be concluded that the regression line is fit in this model.

iii. Multicollinearity

Based on the Table 8, the result shows the value of variance inflation for the independent variable which are the life satisfaction towards stress, academic performance, peers' relation and financial status. From the value, it was found that all the independent variables are not correlated within each other since the value of VIF are less than 10 while the value of Tolerance is more than 0.1. Therefore, multicollinearity does not exist.

Table 8: Multicollinearity among Independent Variables

Model	Collinearity	
	Tolerance	VIF
Life Satisfaction towards Stress	0.546	1.833
Life Satisfaction towards Academic Performance	0.468	2.137
Life Satisfaction towards Peers Relation	0.598	1.671
Life Satisfaction towards Financial Status	0.600	1.666

iv. Result on model significant (ANOVA)

Table 9 shows the F-value and significant value to testing the significant of regression model. The F-value and significant are 65.697 and 0.001 respectively. Since the significant value is less than p-value, which is 0.05, therefore the model is significant. Based on the result, we do not confirm yet whether all or a few of independent variables are significant.

Table 9: Overall F-Test – Test for Significance of Regression Model

F	p-value
65.697	< 0.001

v. **Model Formulation**

Further analysis on statistically significant of independent variables can be done after the regression model is significant.

Table 10: Analysis of the predictors on life satisfaction

Variable	p-value	Decision Rule	Conclusion
Constant	0.000	Reject Ho	Significant
Stress	0.010	Reject Ho	Significant
Academic Performance	< 0.001	Reject Ho	Significant
Peers Relation	0.007	Reject Ho	Significant
Financial Status	< 0.001	Reject Ho	Significant

Table 10 it shows the significance of the independent variable. There are 4 independent variables in the study. The significant variables are the life satisfaction towards stress, academic performance, peer's relation, and financial status where their p-value are 0.010, < 0.001, 0.007 and <0.001 respectively. Therefore, all the independent variables have significant influence on the life satisfaction. The predicted model is $\hat{y} = 1.020 + 2.610x_1 + 4.162x_2 + 2.721x_3 + 5.078x_4$

5 Conclusion

The result shows that there is no significant mean difference between gender (male student and female student) towards life satisfaction. The relationship between stress, academic performance, peer's relation and financial status towards life satisfaction are positive moderate relationship. This means increase in stress, academic performance, peer's relation and financial will increase life satisfaction among the students. Finally, the last objective is to investigate the factors that influencing life satisfaction. The findings show all the independent variable (stress, academic performance, peers' relation and financial status influence the life satisfaction. This study suggests that by improving student's life satisfaction, student can contribute to the development of student's community welfare as well as to university administration. Promoting life satisfaction to the highest possible degree may become an important initiative at universities in order to facilitate peak student performance

Acknowledgements

The authors gratefully acknowledge use of the facilities of Universiti Teknologi MARA Cawangan Kelantan. The authors also would like to take the opportunity to thank the staff of Academic Affair and all students at UiTM Kota Bharu, Kelantan.

References

- [1] John F.Helliwell, R. L. and J. D. S. (2018). World Happiness Report 2018. *Global Happiness Policy Report 2018*. Retrieved from <http://worldhappiness.report>.
- [2] Berlin, M., & Connolly, F. F. (2019). The association between life satisfaction and affective well-being. *Journal of Economic Psychology*, 73, 34-51.
- [3] Pavot, W., & Diener, E. (2008). The satisfaction with life scale and the emerging construct of life satisfaction. *The journal of positive psychology*, 3(2), 137-152.
- [4] Marum, G., Clench-Aas, J., Nes, R. B., & Raanaas, R. K. (2014). The relationship between negative life events, psychological distress and life satisfaction: a population-based study. *Quality of Life Research*, 23(2), 601-611.

- [5] Cho, E. Y. N. (2019). A multilevel analysis of life satisfaction among secondary school students: Do school-level factors matter?. *Children and Youth Services Review*, 102, 231-242.
- [6] Kumar, H., Shaheen, A., & Rasool, I. (2016). shafi M (2016) Psychological Distress and Life Satisfaction among University Students. *J Psychol Clin Psychiatry*, 5(3), 00283.
- [7] Puri, P., Yadav, K., & Shekhawat, L. (2016). Stress and life satisfaction among college students. *Indian Journal of Positive Psychology*, 7(3), 353.
- [8] Antaramian, S. (2017). The importance of very high life satisfaction for students' academic success. *Cogent Education*, 4(1), 1307622.
- [9] Diseth, Å., Danielsen, A. G., & Samdal, O. (2012). A path analysis of basic need support, self-efficacy, achievement goals, life satisfaction and academic achievement level among secondary school students. *Educational Psychology*, 32(3), 335-354.
- [10] Lyons, M. D., Otis, K. L., Huebner, E. S., & Hills, K. J. (2014). Life satisfaction and maladaptive behaviors in early adolescents. *School Psychology Quarterly*, 29(4), 553.
- [11] Lewis, A. D., Huebner, E. S., Malone, P. S., & Valois, R. F. (2011). Life satisfaction and student engagement in adolescents. *Journal of Youth and Adolescence*, 40(3), 249-262.
- [12] Ng, Z. J., Huebner, S. E., & Hills, K. J. (2015). Life satisfaction and academic performance in early adolescents: Evidence for reciprocal association. *Journal of school psychology*, 53(6), 479-491.
- [13] Chang, Q., Xing, J., Ho, R. T., & Yip, P. S. (2019). Cyberbullying and suicide ideation among Hong Kong adolescents: The mitigating effects of life satisfaction with family, classmates and academic results. *Psychiatry research*, 274, 269-273.
- [14] Van der Horst, M., & Coffé, H. (2012). How friendship network characteristics influence subjective well-being. *Social Indicators Research*, 107(3), 509-529.
- [15] Markides, K. S., & Martin, H. W. (1979). A causal model of life satisfaction among the elderly. *Journal of gerontology*, 34(1), 86-93.
- [16] Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: a meta-analysis. *Psychology and aging*, 15(2), 187.
- [17] Ryan, A. K., & Willits, F. K. (2007). Family ties, physical health, and psychological well-being. *Journal of aging and health*, 19(6), 907-920.
- [18] Kim, J., & Garman, E. T. (2004). Financial stress, pay satisfaction and workplace performance. *Compensation & Benefits Review*, 36(1), 69-76.
- [19] Das, P., Naylor, C., & Majeed, A. (2016). Bringing together physical and mental health within primary care: a new frontier for integrated care.
- [20] Montgomery, D. C., Peck, E. A., & Vining, G. G. (2021). Introduction to linear regression analysis. JohnWiley & Sons.