

Statistical Analysis of the Factors Affecting The Selfie Addiction Among Millennials using Multiple Regression Analysis

Nurul Nasya Rahim¹, Khairul Najwaa Kamarazman², Siti Aina Shahidah Shaharudin³, Nurul Bariyah Ibrahim^{4*},
Nur Safwati Ibrahim⁵, Noor Zafarina Mohd Fauzi⁶, Nor Hazreeni Hamzah⁷, Shamsunarnie Mohamed Zukri⁸

^{1,2,3,4,5,6,7,8}Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA Kelantan, Bukit Ilmu, Machang,
Kelantan, Malaysia

baryyah@uitm.edu.my

n.nasyarahim@gmail.com

wawakamarazman@gmail.com

aynasyahida97@gmail.com

*Corresponding author

Abstract: Selfie has been a part of people's daily routine and it became a world phenomenon since people nowadays easily taking selfie using smartphone, digital camera or webcam almost every second. The photos taken uploaded with a unique caption and tons of hash tags in social networking platform especially among young generations. The aim of the study was to identify the relationship between independent variables (narcissism, loneliness, self-esteem) and the selfie addiction. Besides, to determine the factors (gender, narcissism, loneliness, self - esteem) that are influencing the addiction towards selfie among millennials. Cross sectional survey design was used and the target population for this study involved all students in Universiti Teknologi Mara (UiTM) Kelantan, Kampus Kota Bharu. Proportionate Stratified sampling technique was used to collect the data. A set of questionnaires was used as a measuring instrument for data collection and there were 276 respondents of undergraduated students were selected to complete the questionnaires. Correlation analysis results indicate that there are significant positive relationships between the independent variables (narcissism, loneliness, self-esteem) and the selfie addiction. Multiple regression analysis also revealed that the selfie addiction among youngsters was influenced by gender, narcissism, and self - esteem variables.

Keywords: loneliness, millennials, narcissism, selfie, self-esteem

1 Introduction

Selfie is defined as a photograph that taken of oneself and shared via social media [13]. Selfie become popular and trending in early 2013 as the smartphone industries integrate the front-facing camera as the special features in their smartphone innovation programme. It was estimated by Google that the total number of selfies being uploaded in 2015 were over 24 billion proved that the evolution of selfie had become very popular in the world. That average is heavily skewed by age, with Millennials leading the pack with an estimated one hour each week spent taking and editing selfies, whereas Baby Boomers may snap only a few on special occasions. It also varies by country, with selfies being particularly popular with young people around the world as in Cardinal [2]. Nowadays, majority of the youth all over the world considering that their most favourite hobby is taking selfies. However, this trend can be quite alarming as it can cause addiction towards the selfie-takers. Millennials refers to individuals who were born between the 1980s and early 2000s and also called Gen Y.

Despite from being the most popular thing in this era, many incidents regarding selfie have been reported. According to Lyons et al. [7], during the summer period, a case series of upper extremity trauma across all age groups due to taking selfies had been reported. In Malaysia, there was a case involving a 36 years-old man who almost died after bravely climbed up the safety gate at Darul Hana Bridge in Kuching, Sarawak just to take a selfie with the beautiful scenery of Kuching city as in Kawi [7]. Other than that, according to Yunus [19], in Kuala Besut, Terengganu, an incident five university's students fell into the gorge with the depth of 24 metre had been reported in 2016. This

incident happened just because the students slipped while trying to take selfies from the top of Kluang Hills.

It is undeniable that selfie also carried positive impacts. The positive feedbacks given by the public would encourage them to upload more selfies in the future as in Schryver [14]. Other than that, selfies also help people to be more recognisable as Clarke [4] found that it is easier for people to identify a person by using oneself pictures. For instance, a survey done by Common Sense Media, over 1000 teenagers between the age of 13 and 17 feel more confident, popular and increase their self-esteem after uploading their selfies online as in Monro [10]. Contrary, Wang et al. [17] had found that frequent selfie viewing is able to lower self-esteem of a person and decreased his or her life satisfaction.

It is notable that selfies have its own benefit nevertheless it also gave the bad impacts for certain people in some certain situations. However, the harmful effects are the one that should be concerned about to ensure it will not continue to happen. Therefore, more studies need to be conducted to ascertain the factors that leads to selfie addiction among millennials and initiatives can be taken in order to control one's selfie behaviour.

The main objective of this study is to determine the factors that influence the behaviour of selfie addiction among millennials using multiple linear regression model. The corresponding factors includes narcissism, loneliness and self-esteem of individuals. This topic was identified as being of importance to community especially the youth in providing them knowledge and clear pictures regarding the effect of selfies.

2 Research Design

This research data was composed from five programmes in Universiti Teknologi MARA Kampus Kota Bharu involving 966 full time students. There are 282 students nominate as the participants of this study consisting students from Bachelor of Business Administration (Hons) Marketing, Bachelor of Business Administration (Hons) Finance, Bachelor of Business Administration (Hons) Islamic Banking, Bachelor of Business Administration (Hons) Business Economics, and Bachelor of Computer Science and Mathematics (Hons) Statistics. A study sample was meticulously designed to represent the millennials in UiTM Kota Bharu. The proportionate stratified sampling technique was applied to select the target respondents. The students were stratified according to five programmes in UiTM Kota Bharu and the sample was retrieved from each strata. Simple random sampling was applied to select the samples from each programme. The respondents being approached face to face and the information collected using the structured questionnaire provided, answered within stipulated time given.

The research instrument used for data collection is a 30-item questionnaire that was adopt from Charoensukmongkol [3] and adapted by researcher in order to fulfil the purpose of the research. The questionnaire is divided into section A and B where section A contain questions related to the demographic characteristics of the respondent such as their gender while section B contained the items constructed to elicit information's on the research question. The instrument was based on ten point Likert scale: Strongly Disagree (1) to Strongly Agree (10). The items questionnaire for each determinant exhibit as in Table 1.

Table 1: Items for each Determinant

Determinant	Items
Level of Selfie Addiction	I will take selfie whenever I get a chance. I think taking selfie is a must in my daily life I feel selfies make me happy I always find a nice place for taking selfies. I failed to cut down the amount of daily selfies

Level of Narcissism	I like to be the centre of attention. I like having authority over people. I find it easy to manipulate people. I like to look at myself in the mirror I am glad when people notice how I look when I go out in public.
Level of Loneliness	I feel alone when I am with my family. I think no one in my family support me I do not have any friends who understand me, but I wish I did. I do not have any friends who shares my view, but I wish I did. I am unable to depend on my friend, but I wish I can
Level of Self Esteem	I like to display behaviours that make other people pay attention to me I normally behave in a way that makes me stand out from the crowd. I always take good selfies I really love when other people appreciate my works I prefer individual selfies compared to group selfies

3 Method of Data Analysis

Cronbach Alpha was used to test the internal consistency of the multiple Likert questions apply in this research throughout the pilot study. Reliability of the measuring instrument considered high if the Cronbach Alpha higher than 0.7 as explained in Nunally and Bernstein [12]. Pearson Correlation and Multiple Linear Regression analysis was performed to investigate the association between the dependent variable ‘selfie addiction’ and three explanatory variables. Multiple regression analysis highly useful in the situations where the predictor variables can be controlled. The predictor variables can be investigated simultaneously because almost always more than one key predictor variable influences the response [8]. With regard to this study, the regression model included three explanatory variables (narcissism, loneliness and self-esteem) are presented in Figure 1. Regression analysis was conducted using Statistical Package for Social Science (SPSS) software version 22.

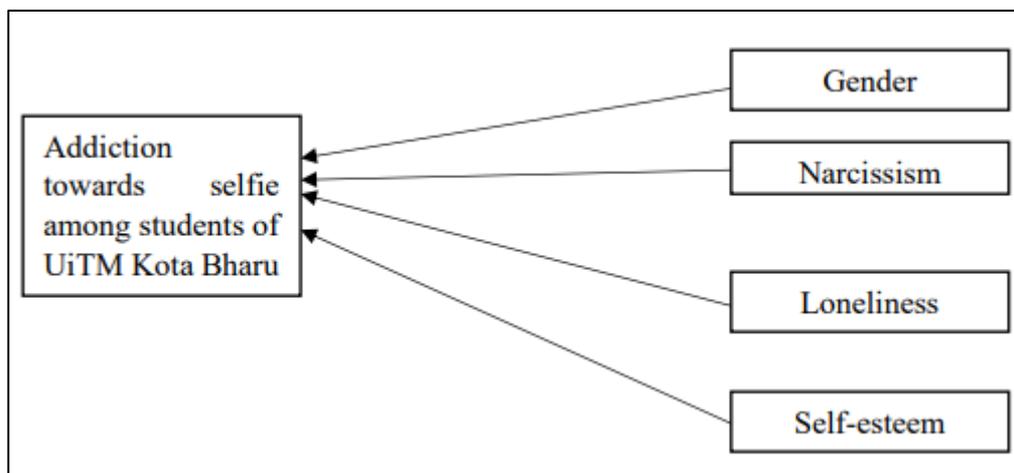


Figure 1: Theoretical model of selfie addiction

The model equation is given by

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik} + \varepsilon_i \quad (3.1)$$

where X_{i1} is the dummy variable created for gender defined as 1 for male and 0 for female, X_{ik} , $i=2, \dots, k$ are the other independent factors being investigated and Y_i is the response factor. While β_j , $i=1, \dots, k$ are the coefficients of predictor variables and

$$\varepsilon_i = Y_{ij} - \hat{Y}_i \quad (3.2)$$

are the regression error terms.

Model adequacy checking was conducted which there are several assumptions that need to be fulfill in order to use multiple linear regression including linearity between the independent factors and response factor, normality of errors, independence of errors, constancy of the error variances, and multicollinearity [8].

3 Results and Discussion

Cronbach's alpha reliability coefficient for variable selfie addiction, narcissism, loneliness and self-esteem are 0.861, 0.830, 0.870, and 0.798 respectively. All the variables are higher than 0.7 reflects the high reliability of the measuring instrument. Furthermore, this results indicates high level of internal consistency.

Table 2: Average mean score and standard deviation

Variable	Average mean score	Standand Deviation
Selfie Addiction	5.05	2.03
Narcissism	4.20	2.11
Loneliness	2.65	1.93
Self- Esteem	4.73	1.94

Table 2 shows the average mean score for each variable. Average mean score for selfie addiction is 5.05 (SD = 2.03) indicates that on average the respondents were neutral on being selfie addicted. Mean average 4.20 (SD = 2.11) for narcissism prudent that the respondents relatively disagree that they have narcissistic behaviors. Equally with loneliness variable, all participants almost disagree that they were lonely which lead them to selfie frequently since the average mean score is 2.65 (SD = 1.93). With average mean score is 4.73 (SD = 1.94) for self-esteem variable interpreted that the respondents were about to disagree in having high self-esteem. However, some of the respondents are neutral when answer the self-esteem item question.

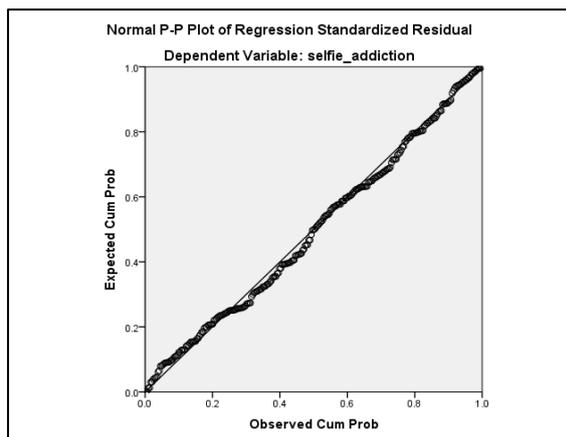


Figure 2: P-P Plot of Residuals

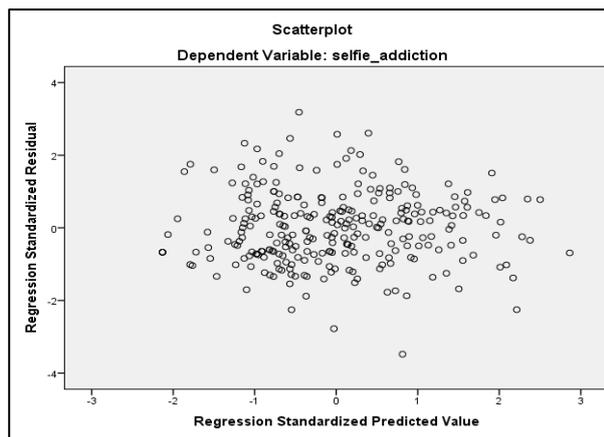


Figure 3: Standardized Residual vs Standardized Predicted Plot

Figure 2 indicates that normality assumption was met since residual points follows the straight solid line while the residual plot shows in Figure 3 stipulates that it does not have an obvious pattern, there are points equally distributed above and below zero on the X axis, and to the left and right of zero on the Y axis concluded that the homogeneity assumption was fulfilled. The residual plot also certified that no outlier exist.

Correlation test and multiple regression analysis were carried out to pursue the main objective of this paper. The sampling distribution for mean of each variable would be normally distributed because the normal is always correct for large samples [6]. Pearson correlation test was used to verify the correlation between factors and the behaviour of selfie addiction among millennials as in Table 3. Narcissism, loneliness and self-esteem variables are significantly related with selfie addiction since *p*-value of the test is less than $\alpha=0.01$. Furthermore, narcissism and self-esteem have significant moderate positive relationship with selfie addiction since the value of Pearson correlation coefficient are 0.612 and 0.662 respectively. This value indicates that once an individual has narcissistic personality and high self-esteem, he/she will more relish to enjoy the selfie. This result parallel with the study done by Fox and Rooney [5] found that there was a positive relationship between narcissism and selfie addiction. Moreover, loneliness has a significant weak positive relationship with selfie addiction with value of Pearson Correlation less than 0.2.

Table 3: Pearson Correlation Coefficient Results

		Selfie Addiction
Narcissism	Pearson Correlation Coefficient	0.612
	<i>p</i> -value	0.000
Loneliness	Pearson Correlation Coefficient	0.198
	<i>p</i> -value	0.001
Self-esteem	Pearson Correlation Coefficient	0.662
	<i>p</i> -value	0.000

Multiple linear regression analysis was carried out as there is no intercorrelation between continuous independent variables since the variance inflation factors (VIF) value for each variable are less than 10 while tolerance value is greater than 0.1 as shown in Table 4. Moreover, value R^2 (0.504) indicates that 50.40% of the total variation in selfie addiction are explained by gender, narcissism, self-esteem and loneliness. Test for significance of the overall model procure that the overall model is significant (F -stat= 88.405, *p*-value = < 0.001). Along with that, normal probability plot shows that the points form an approximately straight line and the scatter plot of residual display that the points randomly

dispersed around the horizontal axis as shown in Figure 2 exhibit that regression analysis is appropriate for the data of study.

Table 4: Collinearity Statistics

Model	Collinearity Statistics	
	Tolerance	VIF
Narcissism	0.490	2.042
Loneliness	0.822	1.217
Self-Esteem	0.523	1.912

Table 5 represents the regression coefficients for each variable of interest. Using $\alpha=0.05$, the results suggest that gender, narcissism and self-esteem are significant factors which revealed that this three determinant will affect the behaviour of selfie addiction among millennials. A millennial with narcissism characteristic and high self-esteem apparently tends to selfie a lot. This statement similar with Sorokowski et al. [15] in their study found that, a narcissist loves to take selfie and uploading it online to satisfy their personal desire. Furthermore, the finding from a study conducted by Biolcati [1] discovered that a person with higher self-esteem usually posted more selfies. This study also found that gender is another significant factor that contribute to the behaviour of selfie addictions among the millennials. It is no surprised as a study confirmed that women spent more of their free time managing their profile picture compared to males [18]. This result found parallel with Nguyen [11] in her study disclose that female tends to take more selfies that portray themselves. Variable loneliness is not significant in this study dispute the result from a research done by Charoensukmongkol [3] which found that individuals that are lonely tend to be more addicted to selfie as compared to others. As Nitika and Seema[15] in their study found that lonelier people are more likely to take more selfies, but there is an inverse relationship between loneliness and age which suggest that as people get older, they become less lonely most probably because of changes in the lifestyle. Loneliness variable found to be not significant in this study possibly because of the age element for this study population which this study only involve the millinneals. The young people perhaps participate more social activities as they tend to use most of their time for leisure and make many new friends.

Table 5: Regression Coefficient of the Model

Model	Beta	<i>t</i>	<i>p</i> -value
Constant	1.264	0.286	< 0.001
Gender	0.531	0.215	0.014
Narcissism	0.318	0.059	< 0.001
Loneliness	-0.092	0.062	0.067
Self Esteem	0.482	7.853	< 0.001

4 Conclusion

Selfie becoming a trend everywhere aligned with the technology that evolves via media socials and smartphones. This evolution stimulating the youngster's obsession in taking selfies and uploading them online. The study revealed that there exist positive relationship between the selfie addiction among millennials with the narcissism, loneliness and the person's self esteem since the *p*-value of correlation coefficient are all less than 0.5. The findings from the study also suggest that gender, high narcissism characteristic and self-esteem among the millennials influence the addiction of selfie among the millennials.

5 Recommendations

Future studies can address more on the effects of addiction towards selfies on self-esteem that would find out whether selfies have the power to increase the levels of self-esteem. Futher research can be

done to see the effect of each significant factors in other broad context and population. Besides, the larger sample size will be able to improve the generalizability of the finding and adding the other possible independent variables might be increase the model goodness of fit. The results of this study hopefully able to help in educating universities students and millennials to love themselves and readjust the ideal standard of beauty. In addition, it should give other researchers a clear vision of determinants that leads to selfie addiction.

References

- [1] R. Biolcati, "Low Self-Esteem and Selfie Posting Among Young Women." *The Open Psychology Journal* 12, no. 1 (2019): 155–68. <https://doi.org/10.2174/1874350101912010155>.
- [2] D. Cardinal, "The Evolution of The Selfie." DXOMARK, January 22, 2019. <https://www.dxomark.com/the-evolution-of-the-selfie/>.
- [3] P. Charoensukmongkol, "Exploring Personal Characteristics Associated with Selfie-Liking." *Cyberpsychology: Journal of Psychosocial Research on Cyberspace* 10, no. 2 (2016). <https://doi.org/10.5817/cp2016-2-7>.
- [4] A. Clarke, "Why You Should Be Taking Selfies." Red Online, September 12, 2017. <https://www.redonline.co.uk/red-women/blogs/a529372/why-you-should-be-taking-selfies/>.
- [5] Fox, Jesse, and C.R. Margaret, "The Dark Triad and Trait Self-Objectification as Predictors of Men's Use and Self-Presentation Behaviors on Social Networking Sites." *Personality and Individual Differences* 76 (2015): 161–65. <https://doi.org/10.1016/j.paid.2014.12.017>.
- [6] J. Toby Mordkoff, *The Assumption(s) of Normality*.
- [7] M.R. Kawi, "Swafoto Hampir Bawa Maut." *Harian Metro*. March 15, 2019. <https://www.hmetro.com.my/mutakhir/2019/03/433928/swafoto-hampir-bawa-maut>.
- [8] M.H. Kutner, C.J. Nachtsheim and J. Neter, *Applied Linear Regression Model*. New York: McGraw- Hill, 2008.
- [9] Lyons, F. Rebecca, C.K. John, and G.M. Collin, "The Selfie Wrist - Selfie Induced Trauma." *Irish Medical Journal* 110 (June 2017). <https://imj.ie/the-selfie-wrist-selfie-induced-trauma/>.
- [10] N. Monro, "Psychological Advantages of Selfies." TALK English Schools, September 9, 2014. <https://blog.talk.edu/college-life/psychological-advantages-selfies/>.
- [11] A.J. Nguyen, "Exploring the Selfie Phenomenon : the Idea of Self-Preservation and Its Implications among Young Women ." Thesis, Smith ScholarWorks, 2014.
- [12] Nunally, Jum, and B. Ira, "The Assessment of Reliability. Psychometric Theory." *Applied Psychological Measurement* 19, no. 3 (1995). <https://doi.org/https://doi.org/10.1177/014662169501900308>.
- [13] Oxford Dictionaries 2013, "The Oxford Dictionaries word of the year 2013 is 'selfie'," at <http://blog.oxforddictionaries.com/2013/11/word-of-the-year-2013-winner/>
- [14] K. Schryver, "When Selfie-Improvement Apps Go Too Far." *Parenting, Media, and Everything In Between* (blog). common sense media, April 22, 2014. <https://www.common sense media.org/blog/when-selfie-improvement-apps-go-too-far>.
- [15] Shah, Nitika, and S. Seema, "Understanding Selfie Addiction: Role of Personality Traits and Sense of Loneliness." *Asian Resonance* 7, no. 2 (April 2018).
- [16] Sorokowski, Piotr, S. Agnieszka, O. Anna, F. Tomasz, H. Anna, and P. Katarzyna, "Selfie Posting Behaviors Are Associated with Narcissism among Men." *Personality and Individual Differences* 85 (2015): 123–27. <https://doi.org/10.1016/j.paid.2015.05.004>.
- [17] Stefanone, A. Michael, L. Derek, and R. Devan, "Contingencies of Self-Worth and Social-Networking-Site Behavior." *Cyberpsychology, Behavior, and Social Networking* 14, no. 1-2 (2011): 41–49. <https://doi.org/10.1089/cyber.2010.0049>.
- [18] Wang, Ruoxu, Y. Fan, and M.H. Michel, "Let Me Take a Selfie: Exploring the Psychological Effects of Posting and Viewing Selfies and Groupies on Social Media." *Telematics and Informatics* 34, no. 4 (2017): 274–83. <https://doi.org/10.1016/j.tele.2016.07.004>.
- [19] A. Yunus, "Lima Pelajar Jatuh Gaung Ketika Ambil Gambar 'Selfie'." *Mstar*, April 21, 2016. <https://www.mstar.com.my/lokal/semasa/2016/04/21/pelajar-jatuh-gaung-semasa-selfie>.