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Measuring Satisfaction with Life-Construct among University Students during Covid-19 Pandemic in Sabah, Malaysia

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Abstract
This study aimed to develop a dependable and valid tool for assessing Satisfaction with Life (SWL) constructs among 108 university students in Sabah, Malaysia. The exploratory factor analysis (EFA) procedure was employed for this purpose. Utilizing the Principal Component Analysis (PCA) with Varimax Rotation as the extraction method, a SWL construct component was identified with an eigenvalue of 3.1. This component accounted for 62% of the variance. The SWL construct demonstrated a Cronbach's alpha value of .817, indicating good internal consistency. The scale's development and validation process affirmed its reliability and stability when applied to university student samples.

Keywords**:** Satisfaction with life, university students, measurement, scale development.

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1.0 Introduction

Life satisfaction is a cognitive component that refers to an individual's level of satisfaction with himself/herself based on the standards that the individual has defined as the desired life (Diener, Emmons, Larsen & Griffin, 1985). Individuals who show high levels of satisfaction with their lives can enjoy significant benefits such as maintaining a healthy lifestyle (De Neve, Diener, Tay & Xuereb, 2013).

Several measurement instruments have been built to measure life satisfaction. Among these, the most frequently used is the Satisfaction with Life Scale (SWLS) constructed by Diener et al. (1985). The peculiarity of the measurement of life satisfaction constructed by Diener et al. (1985), which is mainly used in measuring the level of life satisfaction to date, is Diener et al. (1985) constructed the measurement as an evaluative and cognitive process.

Initially, the SWLS contained 48 items that measured life satisfaction positively and negatively. Of the 48 item lists, the saturation that scores lower than 0.60 was eliminated, bringing the total number of items remaining to 10. Next, five more items were removed due

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to semantic similarity. Thus, it makes the total number of final SWLS items down to five items measured using a Likert scale of 7 (1 = Strongly Disagree to 7 = Strongly Agree). Factoring analysis conducted on five SWLS items found that the five items were unidimensional showing a saturation level between 0.61 and 0.84, with 66% explained of the total variance (de Sousa, Santos, Lopez, de Costa & Cristino, 2015).

Psychometric measurements of SWLS have been conducted extensively in most countries and various samples. For example, in Brazil, psychometric testing of SWLS was conducted on several samples such as the elderly (Albuquerque, Sousa & Martins, 2010), university students in the Rio Grande do Sul (Rosa, 2006; Gouveia, Milfont, Fonseca & Coelho, 2009) and the general population (Gouveia, Chaves, Oliveira, Dias, Gouveia & Andrade., 2003). Psychometric testing was also conducted on the Korean general population (Yun, Rhee, Kang & Sim, 2019), Iranian infertile women (Maroufizadeh, Ghaheri, Omani-Samani & Ezabadi, 2016), and the Lithuanian population (Dirzyte, Perminas & Biliuniene, 2021). Although many psychometric tests have been done, psychometric testing on SWLS has never stopped due to the factors of cultural context differences and phenomena that occur. According to Diener and Suh (1999) and Schimmack, Radhakrishnan, Oishi, Dzokoto, and Ahadi (2002), individual life satisfaction is likely to be influenced by cultural factors. Neubauer, Witkop, and Varpio (2019) suggested that phenomena that occur become subjective experiences that can affect an individual's level of life satisfaction. For example, the phenomenon of Covid-19's Outbreak has a very significant impact on individual life satisfaction, especially on the students whose teaching and learning systems are forced to undergo a new norm, i.e., online class (Alghamdi, 2021; Browing, Larson, Sharaievska, Rigolon, McAnirlin, Mullenbach, Cloutier, Vu, Thomsen, Reigner, Metcalf, D'Antoni Helbich, Bratman & Alvarez, 2021).

Satisfaction with life among university students is a very important construct. Based on a study conducted by Diener (2000) on college students from 17 different countries found that life satisfaction is more important than money to most college students. This is due to life satisfaction being closely related to physical health (Darling, McWey, Howard & Olmstead, 2007), academic achievement (Chow, 2005), and optimistic attitudes (Extremera, Duran & Rey, 2009). A study conducted by Paschali and Tsistas (2010) on 200 university students found that the level of life satisfaction did not differ between male and female students. The study explained that students who reported low scores in anxiety showed high levels of life satisfaction and vice versa. The study also explained that the life satisfaction scores of first-year students were lower than those of students who were in their final year of study.

The outbreaks of Covid-19 have dramatically impacted people's mental health, especially the satisfaction of life. Most people were under lockdown due to the pandemic, which will cause long-term economic, academic, and health impacts (Kim, Majid, Judge, Crook, Nathawani, Selvapatt e,t al., 2020). University students are among the strongly affected by Covid-19 because of uncertainty regarding their future. This is because students start to face worries about their academic success, future careers, and life. Before the pandemic occurred, university students were usually met with academic stress, but after the pandemic hit, their anxiety increased, and the level of anxiety affected their life satisfaction (Holm-Hadulla & Koutsoukou-Argyraki, 2015). Therefore, the researchers found that there is a need to conduct psychometric testing on SWLS among students of public and private universities, especially in the state of Sabah, which is also faced with the impact of COVID-19 outbreaks.

2.0 Methodology

This study employed cross-sectional design research through an online survey using a self-administered questionnaire. Using the pilot study data obtained from 108 university students, the aims were to investigate the validity and reliability instrument of the Satisfaction with Life Scale (SWLS) to measure the construct of satisfaction with life (SWL) among university students in Sabah Malaysia.

A total of 108 students were selected using a non-random sampling method. The data was collected through an online survey using a self-administered questionnaire. All participants were volunteers to participate. Before conducting this research, students were informed to obtain approval for voluntary participation. Data were collected by distributing online questionnaires designed using a Google form link to students. This study has been reviewed by the Ethics Committee of the Faculty of Psychology and Education, Universiti Malaysia Sabah (UMS). They decided that the study had been following ethical standards of Psychology. Furthermore, informed consent was obtained from all participants for this study.

The measurement of the study The Satisfaction with Life Scale (SWLS) was developed by Diener et al. (1985) with a single dimension consisting of five items. The SWLS evaluates global life satisfaction of one's own life (e.g., *"The conditions of my life are excellent"*). The respondents were asked to indicate their degree of agreement with the five statements using the 10-point interval scale (1 = Strongly disagree to 10 = Strongly agree). Originally, the SWLS was measured using the seven-point Likert scale, as suggested by Diener et al. (1985). In the current study, the researchers employed the 10-point interval scale to meet the assumptions of parametric statistical analysis (Baistaman, Awang, Asthanorhan & Rahim, 2020) and obtain more extensive choices as well as more independence (Ehido, Awang, Abdul Halim & Ibeabuchi., 2020). Previously, the SWLS reported good internal consistency with university students (Delgado-Lobete, Montes-Montes, Vila-Paz, Talavera-Valverde, Cruz-Valino, Gandara-Gafo, Avila-Alvarez & Santos-del-Riego, 2020). Scores can range from 10 (lowest score) to 50 (highest score) with the highest scores signifying that respondents are more satisfied with their life.

Data collection was performed through an online survey using a self-administered questionnaire, and then researchers did it. Participants were informed that participation in the study was voluntary and honorariums were not given to them. Secrecy and confidentiality concerning the participants' identity were ensured and explicitly indicated in the informed consent. Their agreement was obtained upon their willingness to proceed to answer the online questionnaire.

The method used for the translation of the SWLS was the forward translation technique. The English version of SWLS was translated into the Malay language by the Translation and Editing Unit (UTUMS), Universiti Malaysia Sabah, Sabah, Malaysia. Revision of the translation and modifications were done by the research team to ensure the understandability and confirm the accuracy of the Malay

version of SWLS. Data were processed using the statistical software package IBM SPSS 25. The exploratory factor analysis (EFA) procedure has been done using the extraction method of Principal Component Analysis (PCA) with Orthogonal Varimax Rotation to analyze the structure of the SWL construct. The researchers used Orthogonal Varimax Rotation with assumptions that each factor/item is independent of one other (Field, 2005). The method of rotation on SWLS was implemented in many studies such as Yun, Rhee, Kang, and Sim (2019), Lopez-Ortega, Torres-Castro, and Rosas-Carrasco (2016), and Dirzyte, Permits, and Biliuniene (2021). The assessments of factor analysis have been done in terms of component, and total variance explained. While internal consistency reliability has been evaluated using Cronbach's alpha.

3.0 Results and Discussions

The current study was intended to develop a valid and reliable instrument of the Satisfaction with Life Scale (SWLS) to measure satisfaction with life (SWL) construct through an exploratory factor analysis (EFA) procedure involving university students in Sabah, Malaysia. The EFA procedure was performed to carry out the Principal Component Analysis (PCA) of the SWL construct. The SWL construct consists of five items in a questionnaire. The 10-point interval scale was employed to obtain more extensive choice and more independence. The results in Table 1 show the descriptive statistics for each item measuring the SWL construct. The mean values for every item ranged from 4.28 to 6.00, with standard deviation values ranging from 2.042 to 3.044.

Table 1. The descriptive statistics for items measuring SWL construct

Items	Mean	Std. Deviation
In most ways, my life is close to my ideal.	5.16	2.284
The conditions of my life are excellent.	5.71	2.042
I am satisfied with my life.	6.00	2.312
So far, I have gotten the important things I want in life.	5.76	2.513
If I could live my life over, I would change almost nothing.	4.28	3.044

Bartlett's Test and Kaiser-Meyer-Olkin (KMO) Test were examined to determine the suitability of data for structure detection. Table 2 demonstrates that Bartlett's Test of Sphericity is highly significant ($p < .000$). Overall, the sampling adequacy by KMO (KMO = 0.839) is excellent (see Table 2). The KMO values for each item are between .814 and .877 (see Table 3), indicating that all items are highly adequate for factor analysis. These results (Bartlett's Test is significant and KMO > .60) suggest that the data is satisfactory to continue with the data reduction technique.

Table 2. The Bartlett's Test and Kaiser-Meyer-Olkin Test values

Type of Tests		
Kaiser-Meyer-Olkin Test for Sample Adequacy		.839
Bartlett's Test of Sphericity	Approx. Chi-Square	233.466
	df	10
	Sig.	.000

Table 3. Kaiser-Meyer-Olkin Test value for each item

Items	KMO
In most ways, my life is close to my ideal.	0.814
The conditions of my life are excellent.	0.847
I am satisfied with my life.	0.824
So far, I have gotten the important things I want in life.	0.877
If I could live my life over, I would change almost nothing.	0.870

Table 4 shows the single component from the EFA procedure analysis based on the Eigenvalue greater than 1.0. The eigenvalue of component 1 is 3.101, and the variance explained for this component is 62.030%. The variance explained for measuring SWL has surpassed the minimum requirement of 60%.

Table 4. The component and total variance explained for the SWL construct

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Tota	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.101	62.030	62.030	3.101	62.030	62.030

Figure 1 demonstrates that one component surfaced from the EFA procedure for the SWL construct. The EFA procedure grouped the five items into one component. The component matrix shows the items that belong to one component.

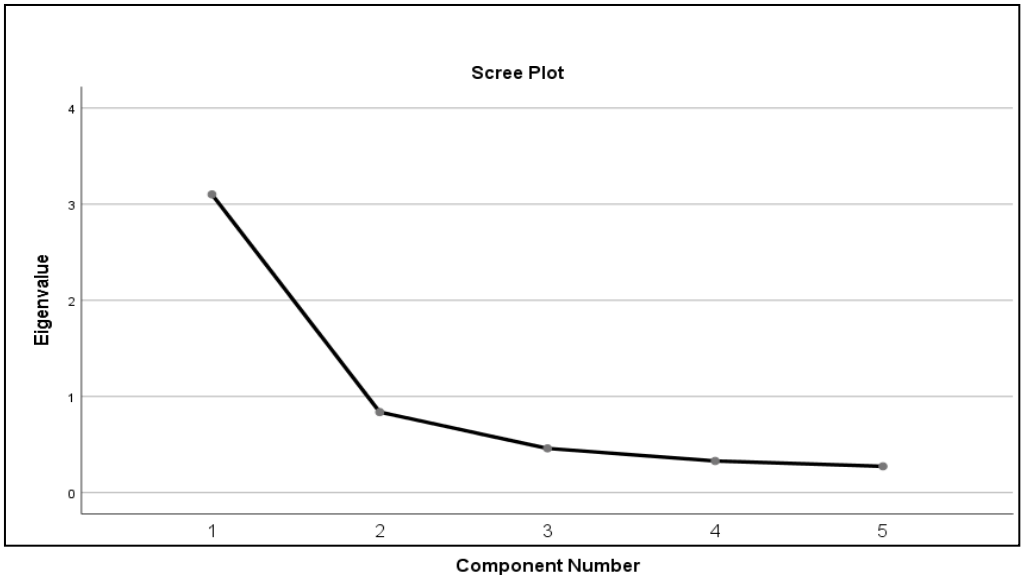

Fig. 1: The scree plot for the SWL construct extracted one component.

While Table 5 shows the components and their respective items. The factor loading for each item is higher than .50. Therefore, all five items will be retained and are suitable to assess the SWL construct.

Table 5. The components and items

Items	Component
	1
In most ways, my life is close to my ideal.	.875
The conditions of my life are excellent.	.874
I am satisfied with my life.	.846
So far, I have gotten the important things I want in life.	.764
If I could live my life over, I would change almost nothing.	.523

The final test is to determine the value of Cronbach's alpha for the extracted component to evaluate the internal reliability of measuring the SWL construct. Internal reliability assesses the consistency of results across items measuring the same construct. Based on Table 6, Cronbach's alpha for the component measuring SWL construct is .817, indicating that the internal consistency reliability is excellent.

Table 6. The reliability analysis for component measuring SWL construct

Name of Component	No. of Items	Cronbach's Alpha
Component 1	5	.817

The main aim of this work is to present results from the study that uses a sample of students to validate the Satisfaction with Life Scale (SWLS). The scale was widely used in a variety of studies and samples and different languages as well. Results from the analysis indicate that the SWLS is a reliable measure of satisfaction with life in the context of university students in Sabah. The internal consistency in this study showed that the reliability coefficients are acceptable and high internal consistency, producing an alpha Cronbach equal to 0.817, consistent with other previous studies such as Lopez-Ortega, Torres-Castro, and Rosas-Carrasco (2016) and Yun, Rhee, Kang, and Sim (2019). Additionally, the SLWS shows good psychometric properties in the context of public and private university students in Sabah, with a unidimensional scale. This study's exploratory factor analysis of the SWLS has surpassed the minimum requirement of 60%, which is 62.03%, explaining the total variance. The results of Diener et al. (1985) consistently found that the single-factor structure explained by the total variance is as much as 66%. Several other studies also obtained a score range that is more or less the same between 0.61 and 0.84.

The scree plot results in this study which form a component with eigenvalues at 3.101, are consistent with the study results obtained by de Sousa, Santos, Lopes, da Costa, and Cristino (2015) with almost identical eigenvalues of 3.0, explaining 60% of the total variance. In line with the Kaiser criterion, the scree plot in this study forms a component consistent with several previous studies, such as de Sousa et al. (2015). Meanwhile, the value of the factor loading obtained is more significant than> .50, explaining that all items are well represented by one factor. Only item 5 (*J If I could live my life over, I would change almost nothing.*) shows the lowest saturation factor loading compared to other items but is still within the set criteria. These results are similar to the results of a study conducted by de Sousa et al. (2015), Gouveia et al. (2009) as well as a study conducted by Diener et al. (1985), of which item 5 showed the lowest factor loading in most of the psychometric tests conducted. This is likely due to the content of the items as suggested by de Sousa et al. (2015).

As the content in item 5 mentions, *'would not change almost anything,* illustrates that the content of the item is less explicit as suggested by Pasquali (2010), which tends to confuse the respondent to be damaging its homogeneity and saturation.

Generally, this study is in support of the results of studies reported in the literature based on obtained eigenvalues, factor loading, and single-component successfully extracted from the analysis (Clench-Aas, Nes, Dalgard & Aaro, 2011; Glaesmer, Grande, Braehler & Roth, 2011; Sancho, Galiana, Gutierrez, Francisco & Tomas2014; Zanon, Bardagi, Layous & Hutz, 2014). Therefore, it can be said that life satisfaction can be influenced by phenomenal factors experienced by respondents at the time the study was conducted. However, the study used samples with different characteristics, such as dealing with the COVID-19 phenomenon, and similar results regarding the psychometric properties and relevance of the measure to assess subjective cognitive well-being.

4.0 Conclusion

As mentioned, phenomena experienced by individuals, such as the COVID-19 outbreaks that urge the entire world population to adopt new living norms, have significantly influenced life satisfaction. University students, whose teaching experience the same thing and learning practices that have been practiced since ancient times, that is, face-to-face and engaging in physical activities, have forced students to change 360 degrees of their learning patterns to virtual. These new norms significantly impact students' life satisfaction at university. Therefore, it is necessary to conduct a study to promote different levels of life satisfaction among university students. Even though this study has limitations based on the respondents only 108 students, psychometric testing on life satisfaction research tools should be done first to ensure the instrument's content is relevant and represents the context of current phenomena. The study's results found that all five items in the SWLS were consistent and suitably used in measuring the life satisfaction of university students facing the impact of the COVID-19 outbreak. Therefore, this study has achieved the objective which indicates that the SWLS is a reliable measure of satisfaction with life in the context of university students in Sabah.

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Paper Contribution to Related Field of Study

This paper contributes to the field of psychology.

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