Validity study of the EPOCH Measure of Adolescent Well-being in Malaysian samples

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Abstract: The EPOCH (Engagement, Perseverance, Optimism, Connectedness, Happiness) Measure of Adolescent Well-being is a newly developed scale designed to evaluate adolescent well-being and positive functioning. This study assesses its validity and reliability in a Malay language version. A total of 444 participants (189 boys and 255 girls) aged 13 and 14 were recruited from public schools in Malaysia. The EPOCH measure demonstrated excellent construct, convergent, concurrent, and discriminant validity, as well as reliability, in the sample. Confirmatory factor analysis showed an adequate model fit (CMIN/df = 2.99, RMSEA = .07, CFI = .91, GFI = .90, TLI = .89), while all the subscales had composite reliability above .70, indicating satisfactory convergent validity. The measure and its subscales exhibited significant positive correlations with cognitive reappraisal (CR), ranging from .21 to .31 (p < .01), and negative correlations with expressive suppression (ES), ranging from .04 to .18 (p < .01). Two subscales (engagement and perseverance) showed non-significant correlations with ES, while discriminant validity showed negative correlations with depression, anxiety and stress (r = .14 to .54, p < .01), except for the engagement subscale. It is concluded that the EPOCH measure is valid and reliable for assessing adolescent well-being in Malaysia, providing culturally relevant instruments for such assessment.

Keywords: adolescent; EPOCH measure; reliability; validation; well-being

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Introduction

Adolescence is a developmental stage characterized by simultaneous and significant changes in biological, cognitive, and social-emotional development (Chamizo-Nieto et al., 2020). During the transition phase, adolescents frequently struggle with intense negative emotions. They also face challenging situations and develop emotional sensitivity (Zimmermann & Iwanski, 2014). Consequently, they frequently find themselves faced with multiple social challenges (Bakar & Hamzah, 2019), which can precipitate conditions such as depression, anxiety, and stress. These mental health challenges have the potential to disrupt their overall well-being and restrict their ability to perform essential life functions (Nasir et al., 2023).

Patalay and Fitzsimons (2018) discovered that adolescents reported having lower life satisfaction compared to other developmental stages. In line with this understanding, the National Adolescent Health Policy (2021), developed under the Ministry of Health Malaysia, views adolescents' health holistically, covering social well-being, together with physical, mental, and spiritual well-being. This policy aims to create nurturing environments that facilitate conducive lives for adolescents, thereby promoting an optimal health transition into adulthood. The Malaysian Youth Index, conducted by the Institute for Youth Research Malaysia (IYRES) in 2020, showed a reasonable level of living standards and holistic well-being among the Malaysian youth population, consistent with the current policy framework (IYRES, 2021).

Adolescents who have greater levels of well-being are not only inclined to enjoy successful psychological adjustments but also tend to navigate the transition into adulthood with greater ease and safety (González-Carrasco et al., 2019). Moreover, those with greater well-being exhibit better capability and resilience in coping with academic challenges and upholding values within the school environment (Hascher, 2010). Cultivating well-being is recognized as a pivotal emotional and cognitive prerequisite for fostering an effective and successful learning process (Hascher & Hagenauer, 2020). Consequently, prioritizing interventions and support mechanisms to promote adolescent well-being is of immense significance, specifically in terms of their psychological adjustment, academic achievement, and overall learning outcomes.

Traditionally, well-being has been assessed by certain indicators such as financial resources, life expectancy, educational achievement, individual employability, and crime levels (Helliwell & Aknin, 2018). However, within psychology research disciplines, it is conceptualized as the integration of emotional experiences and performance across multiple domains of life (Diener et al., 2006; Ryan & Deci, 2001). The concept of well-being consists of two main aspects: hedonic well-being, which alludes to feeling pleasurable feelings, and eudaemonic well-being, which relates to the sense of functioning effectively (Diener, 1984; Ryff, 1989). Hedonic well-being relates to positive emotions such as comfort, enjoyment, and pleasure; conversely, eudaimonic well-being involves a process of discovering oneself and pursuing one's intrinsic values (Deci & Ryan, 2008). Therefore, considering the various ideologies that underlie the concepts of hedonism and eudaimonism will help future researchers formulate a better and deeper concept of well-being.

It is imperative to employ a multidimensional methodology in assessing the well-being of adolescents, which consists of a variety of favorable indicators (Suldo, 2016). This approach is especially important due to the wide range of concepts that are related to the well-being of adolescents. A systematic review conducted by Rose et al. (2017) found that four measurements had been developed to measure well-being which

focused only on adolescents. These were the EPOCH measure; the Patient Generated Index Well-being Scale (PGIWS); the Social and Emotional Health Survey (SEHS); and the Child and Adolescent Wellness Scale (CAWS). Kern et al. (2016) developed the EPOCH measure to serve as a key instrument in assessing adolescents' well-being. The Patient Generated Index Well-being Scale (PGIWS) was developed by Verma et al. (1983) to measure patient-reported well-being, while the Social and Emotional Health Survey (SEHS) created by Furlong et al. (2014) is another measurement tool employed to evaluate social and emotional health aspects. Finally, the Child and Adolescent Wellness Scale (CAWS) was developed by Copeland et al. (2010) to assess well-being among children and adolescents. The EPOCH measure and PGIWS were designed to assess both feelings and functioning, with each measurement consisting of 20 items. In contrast, CAWS and SEHS concentrate exclusively on functioning, with the former comprising 100 items and the latter 36 items.

Among these four assessment tools, the EPOCH measure examines all five subscales of positive well-being, including engagement, perseverance, optimism, connectedness, and happiness. Moreover, the EPOCH measure was not only created for the adolescent population but also focuses on both hedonic and eudaimonic well-being. Conversely, CAWS and SEHS exclusively concentrate on the dimension of eudaimonic well-being. The EPOCH measure assesses optimal adolescent functioning by reflecting both the attitudes and characteristics that lead to positive outcomes for them (Kern et al., 2016). Therefore, it serves as a valuable addition to the assessments designed to evaluate positive psychological functioning in adolescents.

The EPOCH measure was developed based on Seligman's (2011) theory of flourishing. According to Seligman (2011), the concept of human flourishing consists of five subscales: positive emotion (P), engagement (E), relationship (R), meaning (M), and accomplishment (A). The subscales, referred to as PERMA, are crucial for individuals to thrive and experience satisfying lives. The PERMA model is also widely used as the conceptual basis for applying positive psychology. Positive emotions entail a sense of well-being, whereas engagement entails full immersion in activities. Relationships should involve authentic connections with others and meaning that pertains to a sense of purpose and significance in existence. Finally, accomplishment is described by Seligman as the experience of a sense of accomplishment and success. Kern et al. (2016) subsequently developed the EPOCH measure, a unique assessment tool built exclusively for adolescents. It consists of five distinct subscales: engagement (E), perseverance (P), optimism (O), connectedness (C), and happiness (H). Engagement is the active participation in actions taken; perseverance signifies goal-driven determination; optimism involves belief in a positive future; connectedness relates to positive social interactions; and happiness encompasses feelings of joy, contentment, and life satisfaction.

Initially, Kern et al. (2016) employed the English version of the EPOCH measure to analyze a group of 4,480 adolescents aged between 10 and 18. The participants were sourced from varied demographic backgrounds in the United States and Australia. The measure was finalized from 60 to 20 items after ten series of validity and reliability investigations had been conducted. Kern et al. (2016) were also responsible for the development of a well-being theory addressing positive psychological functioning among adolescents. Through their study, they found that the EPOCH measure had good factor structure and convergent validity.

The EPOCH measure has undergone translation and adaptation in multiple languages and contexts. These include the Indonesian (Setyandari, 2019; Simanjuntak et al., 2023);

Chinese (Zeng & Kern, 2019); Swedish (Maurer et al., 2021); Turkish (Demircia & Ekşib, 2015); German (Buerger et al., 2023), Persian (Taheri et al., 2022), Australian (Kern et al., 2016; Zeng & Kern, 2019); and North American (Choi et al., 2021; Kern et al., 2016, 2019). Research has also shown that the construct validity for the five-factor correlated model of the EPOCH measure has an excellent model fit (Buerger et al., 2023; Kern et al., 2019; Maurer et al., 2021; Simanjuntak et al., 2023; Taheri et al., 2022).

In Malaysia, several studies have focused on assessing the well-being of adolescents utilizing various instruments. These include the Ryff Scales of Psychological Well-being (RSPWB) (Rathakrishnan et al., 2019; Sulaiman et al., 2021; Talib & Kutty, 2022; Visvanathan et al., 2021); the Youth Well-being Scale (YWS) (Zaremohzzabieh et al., 2019); the Spiritual Well-being Scale (SWBS) (Ibrahim et al., 2019); and the PERMA-Profiler (Ramli et al., 2024). The instruments assess different aspects of well-being among adolescents in Malaysia. However, only a few studies have used the EPOCH Measure of Adolescent Well-being (Rahim, 2021; Sobri, 2020; Sobri et al., 2019). Therefore, it is crucial to adopt and validate the EPOCH measure to assess the well-being of Malaysian adolescents.

In Malaysia, it would be advantageous to have a Malay translation of the EPOCH measure for its effective implementation. The initial adaptation of the measure was made by Sobri et al. (2019), who conducted a research study involving 132 participants aged between 13 and 18 from the Kafe@TEEN Adolescents Center in Pulau Pinang. The results showed that the Content Validity Index (CVI) value for the EPOCH measure was .88. At the same time, its reliability was demonstrated by Cronbach's alpha value of .90.

However, Sobri et al. (2019) conducted a psychometric evaluation of the EPOCH measure, focusing solely on assessing its reliability and content validity. Therefore, more extensive validity testing, such as for construct validity, convergent validity, concurrent validity, and discriminant validity, is required. For example, previous studies, especially among Asian countries such as China (Zeng & Kern, 2019); Indonesia (Setyandari, 2019; Simanjuntak et al., 2023); and Iran (Taheri et al., 2022) have exhibited favorable results in terms of validity.

This study aims to re-evaluate the reliability of the EPOCH measure to assess the stability of the measurement tools. According to Simanjuntak et al. (2023), reliability concerns can arise due to cultural differences, which result in varying levels of respondent comprehension. Additionally, while the study by Sobri et al. (2019) was limited to one state which is Pulau Pinang, our study is designed to incorporate a broader geographical coverage and multiple states across Malaysia, including Kedah, Johor, Pahang, Selangor, Sabah, and Sarawak.

This study highlights several key novelties and distinctions from previous literature regarding the EPOCH measure. First, although Sobri et al. (2019) was the first to translate the EPOCH measure into the Malay language, further validation and reliability testing are needed to confirm its effectiveness. Sobri et al. (2019) only assessed content validity and internal consistency, but these alone are not sufficient to fully evaluate the psychometric properties of the EPOCH measure (McNeish, 2018; Messick, 1993). A comprehensive psychometric assessment should also be included such as construct, convergent, concurrent, and discriminant validity (Ohiri et al., 2024).

Second, while the studies by Sobri et al. (2019) and Rahim (2021) focused on one state, this study included six different states in Malaysia, providing a broader geographical coverage. Lastly, although various well-being instruments are used in Malaysia to assess adolescents' well-being (Ibrahim et al., 2019; Rathakrishnan et al., 2019; Sulaiman et al., 2021; Talib & Kutty, 2022; Visvanathan et al., 2021; Zaremohzzabieh et al.,

2019), the EPOCH measure's focus on adolescent well-being and positive functioning highlights the need for more comprehensive tools specifically for adolescents, particularly in the Malay language. This underscores the importance of promoting the use of the EPOCH measure in Malaysian research.

The main objective is to evaluate the construct validity, convergent validity, concurrent validity, discriminant validity, and reliability of the EPOCH measure within the Malaysian adolescent sample. To assess concurrent validity and discriminant validity, the Malay versions of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) developed by Ali et al. (2022), and the Depression, Anxiety, and Stress Scale-21 (DASS-21) designed by Musa et al. (2007) were utilized. These were selected for their relevance and differentiation with the EPOCH measure.

To measure concurrent validity, each subscale of the EPOCH measure was correlated with the ERQ-CA subscales to determine how well the new test aligns with an established measure. The ERQ-CA is one of the instruments that contribute to assessing positive well-being. Furthermore, a study by Lin (2022) showed a positive association between the EPOCH measure and the ERQ-CA subscales.

In addition, discriminant validity was assessed by correlating each subscale of the EPOCH measure with the DASS-21 to observe whether they measured different constructs and, therefore, were not closely related to each other. Previous studies (Kern et al., 2016; Maurer et al., 2021; Zeng & Kern, 2019) show weak associations between the EPOCH measure and the DASS-21 subscales. In conclusion, two main research questions were formulated to guide the research: 1) What is the construct, convergent, discriminant, and concurrent validity of the Malay-translated EPOCH measure? 2) What is the reliability of the Malay-translated EPOCH measure?

Methods

Participants

The total number of Malaysian adolescent participants was 444, including 189 boys (42.6%) and 255 girls (57.4%). Of these, 223 (50.2%) were 13 years old, while 221 (49.8%) were 14 years old. The selection of these ages was due to the significant transitions during this stage of life, which encompass changes in physical, cognitive, scholastic, and socio-emotional domains (Santrock, 2019). Consequently, individuals within this demographic cohort are predisposed to encounter significant emotional challenges and manifest heightened emotional volatility (Soto et al., 2011). Participants were recruited from six different states: 53 (11.9%) from Kedah; 90 (20.3%) from Johor; 32 (7.2%) from Pahang; 121 (27.3%) from Selangor; 79 (17.8%) from Sabah; and 69 (15.5%) from Sarawak.

The stratified sampling technique was used for the recruitment due to its practicality and suitability for the characteristics of this population (Creswell, 2015). The researchers selected all the participants, including individuals attending secondary public schools; those who volunteered to participate; and those who had parental consent. Exclusion criteria were those with special needs, cognitive impairments, or a history of psychological treatment.

Measurements

The Malay-translated Version of the EPOCH Measure

Sobri et al. (2019) translated the original EPOCH measure (Kern et al., 2016) into the Malay language. Authorization was obtained from Sobri et al. (2019) to include the questionnaire in this study. This questionnaire evaluates positive functioning in adolescents and is composed of 20 items consisting of five subscales: engagement, perseverance, optimism, connectedness, and happiness. Each subscale contains four items. All

were calculated using a five-point Likert scale ranging from 1 to 5, indicating "*almost never*", "*sometimes*", "*often*", "*very often*", and "*almost always*". The overall score for each subscale was determined by adding together all the corresponding items based on each subscale. A higher score indicated a greater level of well-being.

The Malay version of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA)

The Malay version of ERQ-CA developed by Mohd Ali et al. (2022) involves two main subscales: cognitive reappraisal (CR), and expressive suppression (ES). The questionnaire is available for access without restrictions and consists of 10 items. Expressive suppression contains four items, while cognitive reappraisal contains six items. Expressive suppression encompasses the deliberate inhibition of ongoing emotional expression. In contrast, cognitive reappraisal is related to the way individuals frame situations that shape how they feel about having a different emotional reaction. All items were also measured using a five-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The overall score for each subscale was calculated by totaling the related items, with a higher score indicating greater use of emotional regulation measures.

The Malay Version of the Depression, Anxiety, and Stress Scale-21 (DASS-21)

The Malay adaptation of DASS-21, developed by Musa et al. (2007), is employed to assess recent emotional states associated with stress, anxiety, and depression. The scale is freely accessible. It comprises 21 items and evaluates three primary subscales: depression, anxiety, and stress. There are a total of seven items within each subscale, and are rated from 0, indicating "*not applicable to me*," to 3, indicating "*very applicable to me*". The scores obtained on this scale represent the intensity of symptoms, with higher scores suggesting a more severe display of symptoms.

Procedure

The National University of Malaysia (UKM)'s Research Ethics Committee (REC) approved the research. Subsequently, approval from the Ministry of Education Malaysia and the education departments of specific states was also secured. The adolescent population in Malaysia was then categorized into six primary regions, encompassing the Northern, Southern, Eastern, and Western parts of Peninsular Malaysia, together with Sabah and Sarawak. For the study, all four regions of Peninsular Malaysia were represented by a random selection of states. Kedah was chosen to represent the North zone; Johor the South zone; Pahang the East zone; and Selangor the West zone. Based on population figures from the Department of Statistics Malaysia, 11.9% of the sample size was recruited from Kedah; 20.3% from Johor; 7.2% from Pahang; 27.3% from Selangor; 17.8% from Sabah; and 15.5% from Sarawak. In the final stage, eleven public schools were selected to represent the states.

Subsequently, permission from the selected schools was obtained. After the school administration approved the study, representative teachers from the schools randomly chose students for participation in line with the inclusive and exclusive criteria. Since all the participants were under 18 years old, it was crucial to acquire informed consent from their parents. The students were then provided with necessary details regarding the study and informed that the answers they provided would be kept strictly confidential.

Overall, the data were collected from September 2022 until February 2023. During this time frame, a total of 461 questionnaires, together with corresponding parental consent forms, were distributed and successfully retrieved by the researchers, signifying a high level of participant engagement and cooperation. However, upon thorough screening utilizing the listwise deletion

method, it was established that 17 returned questionnaires were incomplete, prompting their exclusion from the subsequent analysis. Consequently, only 444 fully completed questionnaires remained eligible for the analytical phase. It should be noted that despite the slight reduction in sample size, the remaining responses offered a strong foundation for the following statistical analyses. The participants completed the questionnaire in an average of 20 minutes.

Analysis

The statistical processing was conducted using the latest version of SPSS, version 29, while confirmatory factor analysis (CFA) was performed using AMOS, version 28. A preliminary analysis was conducted to identify any missing data, with the listwise deletion method used to address this issue. The researchers then examined skewness, kurtosis, and outliers. Tabachnick and Fidell (2013) suggest that the rule of thumb for skewness should be between ±2, while for kurtosis, it should be between ±5. To analyze outliers, the researchers accepted Tabachnick and Fidell's (2013) recommendation that values should be less than 4 and utilized the Mahalanobis D^2 method from AMOS version 28.

Next, to assess construct validity, CFA was conducted to evaluate the model fit of the EPOCH measure utilizing maximum likelihood estimation. Initially, factor loadings for each item were scrutinized, and items with loadings exceeding 1, negative values, or ones below .40 were considered for removal (Kline, 2010). Subsequently, model fit indices were employed to gauge the adequacy of the five-factor correlated model of the EPOCH measure. The model fit was tested using goodness-of-fit statistics and the indices with the rule-of-thumb suggested by Hu and Bentler (1999). Root means square error of approximation (RMSEA) values should be below .08; Tucker-Lewis's Index (TLI) and comparative fit index (CFI) values should exceed .90; and the relative chi-square (χ^2/df) should be under 5.0.

Convergent validity was assessed using average variance extracted (AVE). Hair et al. (2014) suggest that AVE is calculated using the Formula 1:

$$AVE = (\Sigma \lambda^2)/n \qquad .... (1)$$

λ = factor loadings
n = number of items in the model

Convergent validity is considered satisfactory for the subscales when their AVE values exceed .50 (Awang, 2012; Fornell & Larcker, 1981; Zainudin et al., 2017). According to Fornell and Larcker (1981), an AVE of less than .50 is considered acceptable if composite reliability (CR) exceeds .60. Additionally, Hair et al. (2014) suggest that the composite reliability is calculated using the Formula 2:

$$CR = (\textstyle\sum\lambda)^2/[(\textstyle\sum\lambda)^2 + (\textstyle\sum 1 - \lambda^2)] \;............ (2)$$

λ = factor loadings

Finally, the concurrent validity of EPOCH was tested with positive well-being indicators, using the Malay version of the ERQ-CA developed by Ali et al. (2022). Concurrent validity involved correlating each subscale of the EPOCH measure with the subscales of the ERQ-CA. Therefore, the correlation results were obtained as evidence to support concurrent validity.

Discriminant validity was tested with negative well-being indicators using the Depression, Anxiety, and Stress Scale-21 (DASS-21) of Musa et al. (2007). Discriminant validity involved correlating each subscale of the EPOCH measure with subscales in the DASS-21 to observe which tests measured different constructs and were therefore not strongly related to each other (Piaw, 2022).

To conclude, the EPOCH measure underwent an evaluation process to provide a comprehensive understanding of its validity across diverse dimensions of well-being. Subsequently, an extensive bivariate correlation study was conducted to establish the level of association

between the EPOCH measure and the subscales. This analysis provided valuable insights into the concurrent and discriminant validity of the EPOCH measure, specifically concerning the participants' positive and negative aspects of well-being.

Results

The listwise deletion method was used to address any missing data present in the dataset. It showed less than .04% missing data across all the items from all the instruments that had been measured (ERQ-CA, DASS-21, and the EPOCH measure). Findings from the normality analysis using AMOS software indicated that the data exhibited normal distribution, with skewness values of -0.70 to 0.26, and kurtosis values ranging from 0.32 to -1.13. Subsequently, to evaluate the outliers, Mahalanobis D^2 was employed, with the Mahalanobis D^2 value being 71.38. This value was then divided by the overall number of indicators (20), generating a calculated value of 3.5. This result indicates that there were no outliers in the data. The summary in Table 1 shows the mean, standard deviation, skewness, and kurtosis of each subscale and individual item in the EPOCH measure.

Initially, the researchers checked factor loading for each item in the EPOCH measure. Figure 1 and Table 2 show that the factor loadings for all items were above .51.
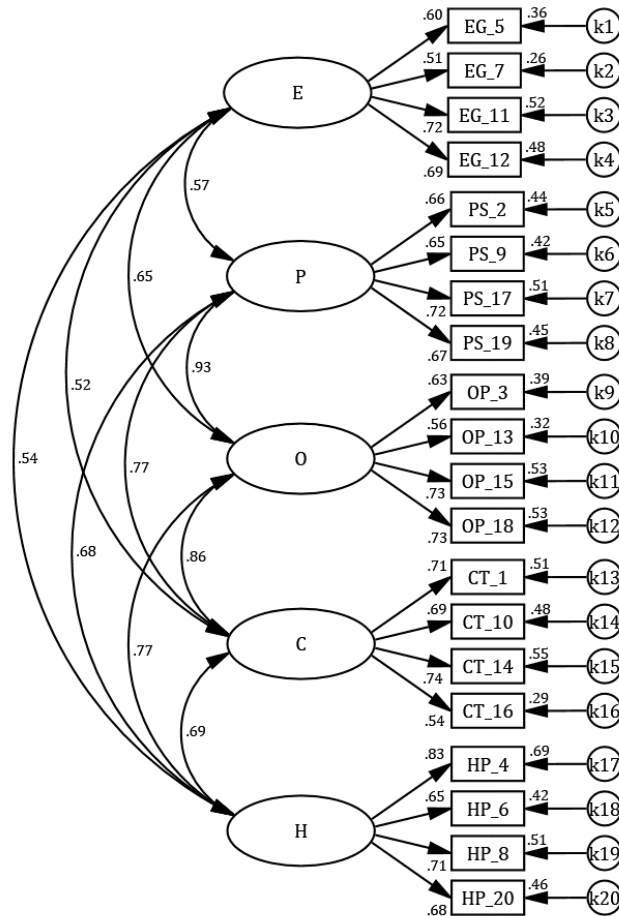
Table 1

Means, Standard Deviations, Skewness, and Kurtosis of ERQ-CA, DASS-21, and EPOCH

Item	M	SD	Skewness	Kurtosis
EPOCH Total	67.93	13.69		
Engagement	12.80	3.27		
Item 5	3.68	1.11	-0.49	-0.65
Item 7	2.90	1.12	0.26	-0.65
Item 11	3.02	1.11	0.17	-0.67
Item 12	3.21	1.08	-0.08	-0.68
Perseverance	13.36	3.33		
Item 2	3.35	0.99	0.03	-0.67
Item 9	3.33	1.16	0.04	-1.13
Item 17	3.31	1.10	-0.05	-0.76
Item 19	3.37	1.06	-0.10	-0.63
Optimism	14.17	3.37		
Item 3	3.86	1.08	-0.70	-0.32
Item 13	3.38	1.11	-0.19	-0.76
Item 15	3.38	1.11	-0.21	-0.76
Item 18	3.56	1.09	-0.33	-0.77
Connectedness	13.52	3.55		
Item 1	3.32	1.15	-0.15	-0.88
Item 10	3.07	1.26	-0.01	-1.09
Item 14	3.36	1.13	-0.17	-0.80
Item 16	3.78	1.09	-0.65	-0.41
Happiness	14.05	3.06		
Item 4	3.57	1.09	-0.32	-0.67
Item 6	3.46	1.10	-0.17	-0.88
Item 8	3.48	1.15	-0.19	-0.96
Item 20	3.55	1.20	-0.31	-0.97

Figure 1

Goodness-of-fit Indices; Two Hypothetical Models

Therefore, all items were retained and are suitable for further investigation. Moreover, the findings from the correlation analysis showed that all subscales of the EPOCH measure (engagement, perseverance, optimism, connectedness, and happiness) were significant at p < .01. The highest correlation was found to be between perseverance and optimism (r = .93), while the lowest was between engagement and connectedness (r = .52).

The results outlined in Table 2 suggest that the five-factor model exhibited adequate model fit, as evidenced by CMIN/df = 2.99, p < .001; CFI = .91, GFI = .90, TLI = .89, and RMSEA = .07. AVE was then used to assess the convergent validity of the correlated five-factor model within the EPOCH measure. Table 2 shows that only the happiness scale was above .50, while the others were below .50. Nonetheless, Fornell and Larcker (1981) advocate that an AVE value below .50 is justifiable if the composite reliability is greater than .60. Since Table 2 shows that the composite reliability of all the subscales is above .70, each subscale of the EPOCH measure had justifiable convergent validity.

The composite reliability value was utilized to estimate the reliability of the EPOCH measure. The

results for composite reliability displayed in Table 2 show an adequate value range from .73 to .81.

Concurrent validity measured the correlation between the subscale scores of the EPOCH measure and the ERQ-CA using Pearson correlation coefficients, as shown in Table 3. In general, as expected, all the EPOCH measure scales (engagement, perseverance, optimism, connectedness, and happiness) were shown to have moderate and positive correlations with each other, ranging from .40 to .87. All correlations were significant with p < .01. Moreover, the correlation analysis revealed that the all the subscales of the EPOCH measure (engagement, perseverance, optimism, connectedness, and happiness) exhibited significantly positive correlations with

cognitive reappraisal, ranging from .21 to .30. All correlations were significant p < .01. The overall EPOCH measure also appears to have a significantly positive correlation with cognitive reappraisal (r = .31, p < .01).

Table 3 also shows that only three subscales of the EPOCH subscales (optimism, connectedness, and happiness) and the overall measure had a negative correlation with expressive suppression (.04 to .18, p < .01). However, both the engagement and perseverance scales showed a non-significant correlation with expressive suppression. The overall EPOCH measure also showed a significantly negative correlation with expressive suppression (r = .12, p < .01).

Table 2

Factor Loadings, CR and AVE of the EPOCH Measure

Item	Factor Loading	CR	AVE
Engagement		.73	.40
Item 5	.60		
Item 7	.51		
Item 11	.72		
Item 12	.69		
Perseverance		.77	.46
Item 2	.66		
Item 9	.65		
Item 17	.72		
Item 19	.67		
Optimism		.76	.44
Item 3	.63		
Item 13	.56		
Item 15	.73		
Item 18	.73		
Connectedness		.77	.46
Item 1	.71		
Item 10	.69		
Item 14	.74		
Item 16	.54		
Happiness		.81	.52
Item 4	.83		
Item 6	.65		
Item 8	.71		
Item 20	.68		

Notes: CR = Composite Reliability; AVE = Average Variance Extracted

Table 3

Correlation between the EPOCH Subscales and the Positive and Negative Well-being Indicators

Scale	1	2	3	4	5	6	7	8	9	10	11	12
E	1											
P	.42**	1										
O	.51**	.69**	1									
C	.40**	.59**	.65**	1								
H	.66**	.54**	.61**	.56**	1							
EPOCH	.69**	.81**	.87**	.81**	.80**	1						
CR	.22**	.21**	.30**	.25**	.26**	.31**	1					
ES	.01	-.06	-.04**	-.18**	-.18**	-.12**	.25**	1				
DASS	.01	-.25**	-.27**	-.27**	-.48**	-.31**	-.14**	.28**	1			
D	-.06	-.31**	-.29**	-.32**	-.54**	-.39**	-.19**	.27**	.92**	1		
A	.07	-.15**	-.14**	-.17**	-.35**	-.19**	-.11*	.24**	.91**	.72**	1	
S	.03	-.23**	-.20**	-.24**	-.42**	-.27**	-.09*	.26**	.94**	.79**	.80**	1

Furthermore, Table 3 shows the discriminant validity of the EPOCH measure subscales with the DASS-21 using Pearson correlation coefficients. The results show that the overall EPOCH measure and four of its subscales (perseverance, optimism, connectedness, and happiness) had a negative correlation with depression, anxiety, and stress (r = .14 to .54, p < .01). However, the engagement scale shows a non-significant correlation between depression, anxiety, stress, and the overall DASS score.

Discussion

Overall, the findings demonstrate good results for the validity and reliability of the EPOCH measure. Specifically, the composite reliability values for all EPOCH subscales were found to be satisfactory. Moreover, the five-factor correlated model exhibited acceptable validity, with each EPOCH subscale demonstrating adequate convergent, concurrent, and discriminant validity.

The factor loading values for all items were found to be above .51. The factor loading results are in line with those of previous studies (Buerger et al., 2023; Choi et al., 2021; Kern et al., 2019; Maurer et al., 2021; Simanjuntak et al., 2023; Taheri et al., 2022; Zeng & Kern, 2019).

The composite reliability values indicate that the reliability of all the EPOCH subscales was satisfactory. The results are consistent with a previous study conducted in Malaysia with an adolescent population sample by Sobri et al. (2019). Furthermore, when compared to studies utilizing the English version and other language translations (Indonesian, Persian, Chinese and Swedish) of the EPOCH measure, our results are consistent with theirs (Buerger et al., 2023; Kern et al., 2016, 2019; Maurer et al., 2021; Simanjuntak et al., 2023; Taheri et al., 2022; Zeng & Kern, 2019).

Overall, the conclusions reached by the five-factor correlated model are acceptable and consistent with previous studies, such as Buerger et al. (2023), Choi et al. (2021), Kern et al. (2016), Kern et al. (2019), Maurer et al. (2021), Simanjuntak et al. (2023), Taheri et al. (2022), and Zeng and Kern (2019). Moreover, the results related to the EPOCH measure subscales indicate good convergent validity and are in line with findings from previous investigations conducted by Kern et al. (2016), Taheri et al. (2022), and Zeng and Kern (2019).

Each scale of the EPOCH measure showed positive correlations with cognitive reappraisal.

Gross and John (2003) state that cognitive reappraisal is an individual's way of readjusting thinking about an emotional event. Therefore, adolescents who possess the ability to readjust and reassess their cognitive processes exhibit positive emotions and behavior. They utilize cognitive reappraisal strategies to create positive recognition of life occasions, thus encouraging the advancement of overall well-being (Lin, 2022).

This study has also shown that expressive suppression is adversely related to optimism, connectedness, and happiness. Optimism can be defined as an individual's perspective on life, characterized by a positive interpretation of daily occurrences (Jenaabadi et al., 2015). Connectedness refers to the feeling of being nurtured through positive interpersonal connections, while happiness envelops the nearness of positive emotions that include feelings of happiness and affection (Kern et al., 2016).

In previous studies (Kern et al., 2016; Maurer et al., 2021), the well-being dimension has consistently been related to positive outcomes. On the other hand, the concept of expressive suppression, as proposed by Gross (1998), is associated with negative outcomes. There are negative correlations between expressive suppression, optimism, connectedness, and happiness, which align with previous research (Balzarotti et al., 2016). Additionally, expressive suppression contributes to an increase in negative emotional experiences (Dryman & Heimberg, 2018). It is ascertainable that diverse emotions exhibit distinct regulatory influences, thereby resulting in variations in the ramifications on the well-being of adolescents.

The study results reveal negative correlations in all the EPOCH measures and mental health subscales, such as depression, anxiety, and stress. The happiness variable exhibited the strongest negative correlations, consistent with previous studies (Maurer et al., 2021; Zeng & Kern, 2019). According to the description provided by Kern et al. (2016), happiness refers to a perpetual state of optimistic emotions, wherein individuals experience contentment with their own life. Therefore, adolescents who feel happy with their lives tend to have fewer mental health issues.

However, the results show a non-significant correlation between engagement, expressive suppression, depression, anxiety, and stress. Maurer et al. (2021) propose that engagement is associated with flow, a state characterized by complete absorption in an activity, free from positive and negative emotions. Hence, it has been explained that flow involves being fully focused and concentrated on the present moment (Lopez & Snyder, 2009). Consequently, adolescents who maintain such focus on their tasks may find themselves less affected by mental health issues.

The validation of the Malay-translated version of the EPOCH measure provides significant advantages. Specifically, it facilitates Malaysian adolescents' comprehension and responsiveness to the measurement tools. Therefore, providing them with well-being instruments in their native language enhances accessibility and cultural relevance. Additionally, the utilization of the EPOCH measure by practitioners such as academicians, psychologists, and counselors could help to assess adolescent well-being and inform the design of targeted intervention programs aimed at promoting positive mental health outcomes.

The study does have several limitations. First, concerning concurrent validity, the utilization of just one positive well-being subscale, which is cognitive reappraisal, may constrain the comprehensiveness of the assessment. Future investigations would benefit from the inclusion of multiple positive well-being indicators to enhance the robustness of the concurrent validity outcomes. Second, the researchers evaluated the five factors of the EPOCH measure using composite reliability. However, they acknowledge that the absence of a test-retest evaluation represents a notable gap in the study. Consequently, it is suggested that forthcoming studies incorporate a test-retest assessment to

ascertain the reliability of the instrument over time. Additionally, future research could also include other types of validity assessments, such as criterion validity. Finally, the unequal distribution of study samples across ages and ethnicities indicates a potential source of bias. This limitation could be overcome by including participants from diverse ethnic backgrounds and a wider range of ages, especially older adolescents. This would make the results more applicable to the general population.

Conclusion

In summary, the study outcomes offer evidence that endorses the acceptable validity and reliability of the EPOCH measure when employed with Malaysian adolescents, as also confirmed by the utilization of CFA. The instrument therefore emerges as a valuable tool for assessing various dimensions of well-being among adolescents in Malaysia. Its demonstrated effectiveness suggests that practitioners across disciplines, including academicians, psychologists, and counselors, can confidently utilize the measure in their professional endeavors intended to enhance and evaluate the well-being of adolescents. By utilizing this validated instrument, professionals may gain valuable insights into the well-being of adolescents, allowing for the design of assistance and guidance techniques tailored to the specific needs of this demographic group.[]

Author Contribution Statement

Siti Rashidah Yusoff: Conceptualization; Data Curation; Formal Analysis; Investigation; Methodology; Visualization; Writing Original Draft. **Suzana Mohd Hoesni:** Funding Acquisition; Project Administration; Resources; Validation; Writing, Review & Editing. **Nur Afrina Rosharudin:** [√] Data Curation; Validation; Writing, Review & Editing. **Noor Azimah Muhammad:** Funding Acquisition; Resources; Writing, Review & Editing.

References

Awang, Z. (2012). *Research methodology and data analysis second edition*. UiTM Press.

Bakar, A. A. A., & Hamzah, M. I. (2019). Faktor keterlibatan remaja dengan masalah sosial. *Jurnal Hadhari*, *11*(1), 1–17. https://ejournals.ukm.my/jhadhari/article/view/32738

Balzarotti, S., Biassoni, F., Villani, D., Prunas, A., & Velotti, P. (2016). Individual differences in cognitive emotion regulation: Implications for subjective and psychological well-being. *Journal of Happiness Studies*, *17*(1), 125–143. https://doi.org/10.1007/s10902-014-9587-3

Buerger, S., Holzer, J., Yanagida, T., Schober, B., & Spiel, C. (2023). Measuring adolescents' well-being in schools: The adaptation and translation of the EPOCH measure of adolescent well-being—a validation study. *School Mental Health*, *15*(2), 611–626. https://doi.org/10.1007/s12310-023-09574-1

Chamizo-Nieto, M. T., Rey, L., & Sánchez-Álvarez, N. (2020). Validation of the Spanish version of the Cognitive Emotion Regulation Questionnaire in adolescents. *Psicothema*, *32*(1), 153–159. https://doi.org/10.7334/psicothema2019.156

Choi, J.-K., Ryu, J.-H., & Yang, Z. (2021). Validation of the engagement, perseverance, optimism, connectedness, and happiness measure in adolescents from multistressed families: Using first- and second-order confirmatory factor analysis models. *Journal of Psychoeducational Assessment*, *39*(4), 494–507. https://doi.org/10.1177/0734282920986395

Copeland, E. P., Nelson, R. B., & Traughber, M. C. (2010). Wellness dimensions relate to happiness in children and adolescents. *Advances in School Mental Health Promotion*, *3*(4), 25–37. https://doi.org/10.1080/1754730X.2010.9715689

Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Pearson.

Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie Canadienne*, *49*(1), 14. https://doi.org/10.1037/0708-5591.49.1.262

Demircia, İ., & Ekşib, F. (2015). Five-dimensional model of adolescent well-being: Validity and reliability of the Turkish version of the EPOCH measure. *Journal of Youth Research*, *3*(3), 21–30. /https://yayinlar.gsb.gov.tr/Public/Files/GAD_7.Sayi.pdf#page=23

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, *95*(3), 542–575. https://doi.org/10.1037/0033-2909.95.3.542

Diener, E., Lucas, R. E., & Scollon, C. N. (2006). Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist*, *61*(4), 305–314. https://doi.org/10.1037/0003-066X.61.4.305

Dryman, M. T., & Heimberg, R. G. (2018). Emotion regulation in social anxiety and depression: A systematic review of expressive suppression and cognitive reappraisal. *Clinical Psychology Review*, *65*, 17–42. https://doi.org/10.1016/j.cpr.2018.07.004

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *1*, 39. https://doi.org/10.2307/3151312

Furlong, M. J., You, S., Renshaw, T. L., Smith, D. C., & O'Malley, M. D. (2014). Preliminary development and validation of the social and emotional health survey for secondary school students. *Social Indicators Research*, *117*(3), 1011–1032. https://doi.org/10.1007/s11205-013-0373-0

González-Carrasco, M., Vaqué, C., Malo, S., Crous, G., Casas, F., & Figuer, C. (2019). A qualitative longitudinal study on the well-being of children and adolescents. *Child Indicators Research*, *12*(2), 479–499. https://doi.org/10.1007/s12187-018-9534-7

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*(3), 271–299. https://doi.org/10.1037/1089-2680.2.3.271

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, *85*(2), 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate data analysis*. Pearson Education.

Hascher, T. (2010). Learning and emotion: Perspectives for theory and research. *European Educational Research Journal*, *9*(1), 13–28. https://doi.org/10.2304/eerj.2010.9.1.13

Hascher, T., & Hagenauer, G. (2020). Swiss adolescents' well-being in school. *Swiss Journal of Educational Research*, *42*(2), 367–390. https://doi.org/10.24452/sjer.42.2.5

Helliwell, J. F., & Aknin, L. B. (2018). Expanding the social science of happiness. *Nature Human Behaviour*, *2*(4), 248–252. https://doi.org/10.1038/s41562-018-0308-5

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Ibrahim, N., Che Din, N., Ahmad, M., Amit, N., Ghazali, S. E., Wahab, S., Abdul Kadir, N. B., Halim, F. W., & A. Halim, M. R. T. (2019). The role of social support and spiritual wellbeing in predicting suicidal ideation among marginalized adolescents in Malaysia. *BMC Public Health*, *19*(S4), 553. https://doi.org/10.1186/s12889-019-6861-7

IYRES. (2021). *Facts & figures Malaysian Youth Index 2020 (MYI'2020): Measuring quality of life and well-being of Malaysian youth*. Institute For Youth Research Malaysia (IYRES). https://www.iyres.gov.my/images/penerbitan/Facts & Figures Malaysian Youth Index 2020.pdf

Jenaabadi, H., Ahani, M. A., & Sabaghi, F. (2015). Examining the relationship of optimism and emotion regulation strategies with general health among students of University of Sistan and Baluchestan. *Health*, *07*(07), 865–872. https://doi.org/10.4236/health.2015.77102

Kern, M. L., Benson, L., Steinberg, E. A., & Steinberg, L. (2016). The EPOCH measure of adolescent well-being. *Psychological Assessment*, *28*(5), 586–597. https://doi.org/10.1037/pas0000201

Kern, M. L., Zeng, G., Hou, H., & Peng, K. (2019). The Chinese version of the EPOCH measure of adolescent well-being: Testing cross-cultural measurement invariance. *Journal of Psychoeducational Assessment*, *37*(6), 757–769. https://doi.org/10.1177/0734282918789561

Kline, R. B. (2010). *Principles and practice of structural equation modeling* (3rd ed.). The Guilford Press.

Lin, Z. (2022). Emotion regulation strategies and sense of life meaning: The chain-mediating role of gratitude and subjective wellbeing. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.810591

Lopez, S. J., & Snyder, C. R. (2009). *Oxford handbook of positive psychology*. Oxford University Press.

Malaysia, K. K. (2021). *Dasar kesihatan remaja negara [National adolescenct health policy]*. Kementerian Kesihatan Malaysia.

Maurer, M. M., Daukantaitė, D., & Hoff, E. (2021). Testing the psychometric properties of the Swedish version of the EPOCH measure of adolescent well-being. *Plos One*, *16*(10), e0259191. https://doi.org/10.1371/journal.pone.0259191

McNeish, D. (2018). Thanks coefficient alpha, we'll take it from here. *Psychological Methods*, *23*(3), 412–433. https://doi.org/10.1037/met0000144

Messick, S. (1993). Foundations of validity: Meaning and consequences in psychological assessment. *ETS Research Report Series*, *1993*(2). https://doi.org/10.1002/j.2333-8504.1993.tb01562.x

Mohd Ali, M., Mohd Hoesni, S., Rosharudin, N. A., Yusoff, S. R., Razman, M. O. I., Khairuddin, K. F., Mohd Daud, T. I., Muhammad, N. A., & Puad Mohd Kari, D. N. (2022). Translation and validation of the

Malay version of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA). *International Journal of Environmental Research and Public Health*, *19*(18), 11399. https://doi.org/10.3390/ijerph191811399

Musa, R., Fadzil, M. A., & Zain, Z. (2007). Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). *ASEAN Journal of Psychiatry*, *8*(2), 82–89.

Nasir, M. A. M., Omar, M. S. L. S., Ismail, S., Ali, N. A. M., & Faudzi, F. N. M. (2023). Exploring the underlying factor structure of youth mental health in Malaysia. *Psychology*, *14*(05), 880–897. https://doi.org/10.4236/psych.2023.145047

Ohiri, S. C., Ihebom, I., & Nnennaya, C. (2024). Psychometric properties of a test: An overview. *International Journal of Research Publication and Reviews*, *5*(2), 2217–2224. https://doi.org/10.55248/gengpi.5.0224.0539

Patalay, P., & Fitzsimons, E. (2018). Development and predictors of mental ill-health and wellbeing from childhood to adolescence. *Social Psychiatry and Psychiatric Epidemiology*, *53*(12), 1311–1323. https://doi.org/10.1007/s00127-018-1604-0

Piaw, C. Y. (2022). *Asas statistik penyelidikan* (4th ed.). McGraw Hill.

Rahim, N. F. (2021). *Impact of COVID-19 on higher education: A study on the effect of emotional intelligence toward students' psychological well-being in Universiti Malaysia Sarawak* [Unpublished final year project report]. Universiti Malaysia Sarawak.

Ramli, S. A., Zaremohzzabieh, Z., Idris, K., Bolong, J., & Abdullah, H. (2024). Psychometric validity, and measurement invariance of the PERMA model among youth in Malaysia. *Cogent Psychology*, *11*(1). https://doi.org/10.1080/23311908.2024.2316419

Rathakrishnan, B., Sanu, M. E., Yahaya, A., Singh, S. S. B., & Kamaluddin, M. R. (2019). Emotional intelligence and psychological well-being of rural poor school students in Sabah, Malaysia. *Psympathic : Jurnal Ilmiah Psikologi*, *6*(1), 65–72. https://doi.org/10.15575/psy.v6i1.4082

Rose, T., Joe, S., Williams, A., Harris, R., Betz, G., & Stewart-Brown, S. (2017). Measuring mental wellbeing among adolescents: A systematic review of instruments. *Journal of Child and Family Studies*, *26*(9), 2349–2362. https://doi.org/10.1007/s10826-017-0754-0

Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*(1), 141–166. https://doi.org/10.1146/annurev.psych.52.1.141

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*(6), 1069–1081. https://doi.org/10.1037/0022-3514.57.6.1069

Santrock, J. W. (2019). *Life-span development* (17th ed.). McGraw Hill Education.

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being*. Free Press.

Setyandari, A. (2019). Adaptation of EPOCH measure of adolescent well-being into Bahasa Indonesia. *Proceedings of the 3rd International Conference on Current Issues in Education (ICCIE 2018)*. https://doi.org/10.2991/iccie-18.2019.6

Simanjuntak, H., Maruli, S., & Silitonga, L. L. (2023). The EPOCH measure of adolescent well-being: Psychometric test of the Indonesian version. *Research Militaris*, *13*(2), 5716–5726. https://resmilitaris.net/issue-content/the-epoch-measure-of-adolescent-well-being-psychometric-test-of-the-indonesian-version-1960

Sobri, N. A. (2020). *Kaitan antara penglibatan remaja di pusat remaja luar waktu persekolahan dengan kemakmuran: Satu kajian kes tentang Kafe@Teen di Pulau Pinang* [Unpublished master thesis]. Universiti Sains Malaysia.

Sobri, N. A., Hashim, I. H. M., & Mohammad, T. (2019). Validity and reliability of the Malay-translated version of the EPOCH measure of adolescent well-being questionnaire. *International Conference on Management and Social Sciences.*

Soto, J. A., Perez, C. R., Kim, Y.-H., Lee, E. A., & Minnick, M. R. (2011). Is expressive suppression always associated with poorer psychological functioning? A cross-cultural comparison between European Americans and Hong Kong Chinese. *Emotion*, *11*(6), 1450–1455. https://doi.org/10.1037/a0023340

Sulaiman, W. S. W., Kamaluddin, M. R., Zakaria, E., Ibrahim, F., Hassan, N., Nen, S., Manap, J., Zamani, Z. A., & Yusooff, F. (2021). Sokongan sosial dan kesihatan mental dan pengaruhnya terhadap kerentanan penglibatan penagih dadah serta pelencongan sosial dalam kalangan remaja. *E-BANGI Journal*, *18*(5).

Suldo, S. M. (2016). *Promoting student happiness: Positive psychology interventions in schools*. Guilford Publications.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2013). *Using multivariate statistics* (Vol. 6). Pearson Education.

Taheri, A., Pourshahriari, M., Abdollahi, A., & Hosseinian, S. (2022). Psychometric assessment of the Persian translation of the EPOCH measure among adolescent girls. *Current Psychology*, *41*(7), 4961–4970. https://doi.org/10.1007/s12144-020-01013-7

Talib, N. 'Aina F., & Kutty, F. M. (2022). Ikatan keibubapaan dan perapatan rakan sebaya terhadap kesejahteraan psikologi belia Felda Chini, Pahang. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, *7*(4), e001449. https://doi.org/10.47405/mjssh.v7i4.1449

Verma, S. K., Dubey, B. L., & Gupta, D. (1983). P.G.I General Well Being Scale: Some correlates. *Indian Journal of Clinical Psychology*, *10*, 299–304.

Visvanathan, N., Rahman, M. N. A., & Muhamad, A. S. (2021). Psychological well-being of adolescents in Selangor, Malaysia. *Jurnal Psikologi Malaysia*, *35*(1), 98–110. https://spaj.ukm.my/ppppm/jpm/article/view/645

Zainudin, A., Habsah, M., Fauzilah, S., Mohammad, A. S., Hoque, M., & Kamaruzaman, J. (2017). Social business efficiency: Instruments development and validation procedure using structural equation modelling. *International Business Management*, *11*(1), 222–231.

Zaremohzzabieh, Z., D'Silva, J. L., Abu Samah, A., Dahalan, D., Mohamed, N. A., & Shaffril, H. A. M. (2019). Malaysian youth well-being scale: Development and initial validation. *Asia-Pacific Social Science Review*, *19*(2), 193–203.

Zeng, G., & Kern, M. L. (2019). The Chinese EPOCH measure of adolescent wellbeing: Further testing of the psychometrics of the measure. *Frontiers in Psychology*, *10*. https://doi.org/10.3389/fpsyg.2019.01457

Zimmermann, P., & Iwanski, A. (2014). Emotion regulation from early adolescence to emerging adulthood and middle adulthood. *International Journal of Behavioral Development*, *38*(2), 182–194. https://doi.org/10.1177/0165025413515405

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