

Secure Flourish Index: Evaluation of Psychometric Properties among Malaysian Adults

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Abstract

In a pioneering exploration of human flourishing among Malaysian adults, the Secure Flourish Index (SFI) emerges as a powerful tool, revealing the key determinants that influence well-being while providing crucial guidance for developing targeted policies and interventions to foster a thriving society. Initially tested in the United States, the SFI's psychometric properties have yet to be evaluated in the Malaysian context. This study aimed to assess the psychometric properties of the SFI among Malaysian adults. Employing a quantitative research design, data were collected from a sample of 201 Malaysian adults using the Secure Flourish Index. The data was analysed using SmartPLS 4.0 to assess the psychometric properties of SFI. The findings demonstrate that the SFI exhibits strong psychometric properties, as evidenced by its discriminant validity, convergent validity, and composite reliability. These results empower researchers in Malaysia to confidently utilize the SFI to measure human flourishing among adults. This will then enable the development and implementation of comprehensive community programs designed to enhance the flourishing of grown-ups in the community.

Keywords: Human Flourishing, Secure Flourish Index, Psychometric Properties, Adults

Introduction

Human flourishing originates from the Latin word *florere*, meaning "to blossom". It is defined as a state in which all aspects of an individual's life are thriving (VanderWeele, 2017). Throughout history, individuals have sought meaning in life and the pursuit of happiness. Interestingly, human flourishing encapsulates the continuous development of a person's optimal well-being, characterized by meaningful relationships and engagement in activities that align with personal and humanistic values, ultimately enhancing life satisfaction. A person's ability to achieve flourishing depends on their active participation and the presence of supportive environments (De Ruyter et al., 2022). The four primary pathways to flourishing include family, education, work, and religious community (VanderWeele, 2017). It is essential

to consistently foster positive psychological states, such as human flourishing, as research has shown that higher levels of human flourishing are associated with lower anxiety, irritability, and burnout (Berend et al., 2020; Chopra, 2023). Furthermore, human flourishing plays a crucial role in enhancing individuals' resilience (Berend et al., 2020). In Malaysia, nurturing a flourishing community is crucial, especially given the sharp rise in mental health disorders over the past decade (Institute for Public Health, 2015). The well-being of Malaysian citizens remains a priority as the country transitions from a middle-income to a high-income economy. However, rapid development driven by urbanization and globalization has been linked to increasing levels of distress (Raaj et al., 2021).

Over recent years, several instruments have been widely used to measure human flourishing, including the Flourish Index (Węziak-Białowolska et al., 2017), the Secure Flourish Index (Węziak-Białowolska et al., 2017), and the Flourishing Scale (Diener et al., 2010). The Secure Flourish Index (SFI) is preferred over the Flourish Index because, in addition to the five broad domains measured by the Flourish Index, namely (D1) happiness and life satisfaction, (D2) mental and physical health, (D3) meaning and purpose, (D4) character and virtue, and (D5) close social relationships, the SFI incorporates an additional domain: (D6) financial and material stability. While the first five domains are universally desirable and each represents an end in itself, the sixth domain, financial and material stability, is significant for sustaining flourishing rather than being an end in itself (VanderWeele, 2017). Thus, the SFI is considered a practical instrument for more effectively capturing the dynamics of flourishing over time.

The happiness and life satisfaction domain (D1) evaluates individuals' judgments of their overall life satisfaction and levels of evaluative happiness (Weziak-Bialowolska et al., 2019b). The mental and physical health domain (D2) assesses both physical and mental aspects. While physical health is often overlooked in many well-being or flourishing measures, it plays a crucial role in providing a comprehensive assessment of overall flourishing (Weziak-Bialowolska et al., 2019b). The meaning and purpose domain (D3) is regarded as the classical eudaimonic measure of well-being, reflecting the subjective value of one's life. The character and virtue domain (D4) is structured in alignment with Aristotle's belief that possessing an excellent character and practicing virtuous behavior are essential for achieving complete eudaimonic well-being. The close social relationships domain (D5) gauges both the quantity and quality of social connections that individuals need and experience. The financial and material stability domain (D6) measures the sustainability of flourishing by considering the role of financial and material resources in maintaining well-being over time.

In the instrument development and validation study conducted by Węziak-Białowolska et al. (2017), the psychometric properties of the SFI were examined using responses from 4210 residents of North Carolina, United States. The study employed both exploratory and confirmatory factor models to investigate item groupings, the hierarchical structure of the indices, the level of common variance, the percentage of uncontaminated correlations, measurement invariance, convergent validity, and discriminant validity. The validation study affirmed that the SFI is a valid and reliable instrument for assessing human flourishing among adults. The findings confirmed the classification of items into six distinct domains of flourishing. Furthermore, the analysis conducted using the Factor Analytical Framework indicated that the scores derived from the SFI primarily reflected a single

common source, thereby validating the legitimacy of using the average or sum of raw scores. The scale also demonstrated strong convergent validity, discriminant validity, and measurement invariance.

In addition to the initial validation study conducted on residents of North Carolina, United States, subsequent validation studies involving a total of 8873 adults from Sri Lanka, China, Cambodia, and Mexico also yielded satisfactory results. These findings suggest that the SFI is a reliable tool for measuring human flourishing across culturally distinct populations (Weziak-Bialowolska et al., 2019b). The Cronbach's alpha coefficients demonstrated the satisfactory reliability of the translated SFI across populations in the United States, Sri Lanka, China, Cambodia, and Mexico. These results align with the findings of Weziak-Bialowolska et al. (2019a), who validated the SFI in workplace settings through a study of 5565 employees from two Fortune 500 manufacturing companies in the United States. The above studies provide strong evidence supporting the psychometric properties of the SFI within these diverse populations. However, no validation study has yet been conducted in Malaysia, leaving uncertainty regarding the applicability of the scale to the Malaysian adult population. Cultural factors such as religiosity and collectivist values may influence the psychometric properties of the instrument, necessitating further investigation.

In the context of human flourishing in Malaysia, various studies have examined the well-being of university students (Benlahcene, 2021), postgraduate students (Ch'ng et al., 2022), older adults (Hamid et al., 2021), and community-dwelling widowed older adults (Foong et al., 2023). However, these studies have primarily utilized the Flourishing Scale (FS) developed by Diener et al. (2010) to assess human flourishing among Malaysian adults. The FS consists of eight items that evaluate respondents' self-perceived success in relationships, meaning and purpose, self-esteem, and optimism. It has been validated and used across various populations to measure flourishing and has been translated into more than ten languages, including Malay, Mandarin, French, Spanish, Portuguese, Japanese, Russian, Turkish, Egyptian, Urdu, and Persian. Despite its broad applicability, the FS does not assess several key dimensions of human flourishing that are covered by the SFI, such as physical health, character and virtue, and financial and material stability. Physical health and character and virtue are often overlooked in well-being and flourishing assessments, even though philosophical perspectives emphasize their essential role in achieving flourishing (Aristotle, 2009; Baril, 2016). Additionally, existing studies in Malaysia tend to focus on university students and older adults, leaving a gap in understanding the flourishing of young working adults and middle-aged individuals. These groups, which make up a significant portion of the workforce, remain largely underrepresented in research on flourishing in Malaysia. Further studies are needed to explore their flourishing and provide valuable insights for policy and intervention strategies.

Węziak-Białowolska et al. (2017) argued that although the SFI is a concise measure consisting of twelve items across six domains of flourishing, it remains highly practical due to its time efficiency, cost-effectiveness, and ability to comprehensively capture the complexity of human flourishing. Short-form measures are not uncommon in the field of well-being research. For instance, Huppert and So (2013) proposed a flourishing index containing only ten items, and since 2011, the United Kingdom's Office for National Statistics has assessed well-being using just four questions (Allin & Hand, 2017). Such brief yet comprehensive

instruments are particularly valuable for measuring human flourishing among Malaysian adults, as flourishing is often examined as one of multiple variables in a study. In these cases, while a longer instrument may offer greater conceptual depth, it can become burdensome for respondents and increase the likelihood of straight-lining responses when completing questionnaires. As highlighted earlier, the SFI has yet to be validated in Malaysia. Therefore, it is essential to assess the psychometric properties of the scale among Malaysian adults before psychologists, researchers, and policymakers can confidently utilize it to measure individuals' flourishing. Moreover, by accurately evaluating human flourishing among Malaysian adults using a valid instrument, effective intervention programs can be developed to further enhance the well-being of the community.

Methods

Research Design

This study employed a quantitative research approach to examine the psychometric properties of the SFI in the Malaysian adult population. The structured questionnaire facilitated the collection of numerical data for confirmatory factor analysis in the current study. The research design incorporated a cross-sectional approach, allowing data on the SFI to be gathered from Malaysian adults concurrently within a short period. Data collection was conducted via Google Forms, enabling participants to complete the questionnaire at their convenience.

Participants

A total of 201 Malaysian adults participated in this study. The sample size is deemed adequate, as it met the criterion of five observations per indicator, as proposed by Hair et al. (2017). The respondents were recruited from various settings, including community centers, workplaces, and online platforms. The selection criteria encompassed a diverse range of individuals to ensure comprehensive representation. The study included Malaysian adults of both genders, spanning different developmental stages, thereby reflecting a broad age spectrum. Participants came from various educational backgrounds, ranging from high school graduates to individuals holding postgraduate degrees. Additionally, the study considered individuals with diverse employment statuses, including full-time, part-time, unemployed, and self-employed individuals. Furthermore, the participant pool included individuals with varying relationship statuses, such as single, in a relationship, married, or divorced. Table 1 presents a detailed profile of the participants in this study.

Table 1

Profile of the participants (N = 201)

Demographic	Frequency	Percentage
Gender		
Male	50	24.8
Female	151	75.2
Age		
18 - 39 years old	124	61.7
40 years old and above	77	38.3
Relationship		
Single	88	43.8
In a relationship	22	10.9
Married	91	45.3
Educational Level		
Secondary/ High school	8	4.0
Diploma/ Degree	104	51.7
Master/ Doctoral	89	44.3

Instrument

The Secure Flourish Index (SFI) is an instrument developed by Węziak-Białowolska et al. (2017) to measure human flourishing across six distinct domains: happiness and life satisfaction, mental and physical health, meaning and purpose, character and virtue, close social relationships, and financial and material security. The SFI consists of 12 items, with two items dedicated to assessing each domain. Each item is rated on an 11-point Likert scale, ranging from 0 to 10, using response options such as Poor to Excellent, Not Satisfied At All to Completely Satisfied, and Strongly Disagree to Strongly Agree. Notably, the scale does not include any reverse-coded items. The validation study conducted by Węziak-Białowolska et al. (2017) confirmed that the SFI is a valid and reliable instrument for assessing human flourishing. A higher score indicates a greater level of human flourishing in an individual.

Procedure

The study received ethical approval from the Research Development and Management Committee (RDMC) at the university where the principal investigator is affiliated. Data collection was conducted online via Google Forms, ensuring convenience and feasibility during the Covid-19 endemic period. Participants were provided with a comprehensive informed consent form, highlighting voluntary participation, confidentiality, and their right to withdraw at any time.

Data Analysis

SmartPLS 4.0 was utilized to conduct factor analysis. Partial Least Squares (PLS) analysis, which employs a variance-based calculation method, is recognized for its robustness in testing theoretical models and has been increasingly applied in Social Sciences (Henseler et al., 2016). In SEM, the measurement model that comprised the indicators and latent variables was analysed to assess its psychometric properties. Consistent with previous literature, human flourishing was conceptualized as a higher-order construct encompassing six lower-order constructs: Happiness and Life Satisfaction, Mental and Physical Health,

Meaning and Purpose, Character and Virtue, Close Social Relationships, and Financial and Material Stability.

The construct validity of the measurement model was assessed through convergent validity and discriminant validity, while construct reliability was evaluated using composite reliability (Lo et al., 2016). Composite reliability was preferred over Cronbach's alpha, as Cronbach's alpha is sensitive to the number of items and tends to severely underestimate reliability when applied to PLS path models; thus, it is not suitable for PLS-SEM (Hair et al., 2017). The values, which included factor loading, average variance extracted (AVE), and composite reliability (CR), were utilized to examine the convergent validity and reliability of the measurement model (Hair et al., 2017). As recommended, factor loading should be at least 0.50, with an ideal threshold of 0.70 or higher (Hair et al., 2010). Minimally, AVE should exceed 0.50, ensuring that the indicators effectively measure the latent variable (Hair et al., 2017). The acceptable range for composite reliability is between 0.70 and 0.95 (Hair et al., 2017). To accurately assess the convergent validity of the second-order measurement model, both AVE and composite reliability of reflective higher-order constructs were computed manually. The path coefficient from the higher-order construct to the lower-order constructs served as the factor loading for the second-order construct, as SmartPLS is unable to differentiate between lower and higher-order constructs (Becker et al., 2012).

The discriminant validity of the measurement model was assessed after confirming convergent validity. The discriminant validity of the first-order measurement model was evaluated using the heterotrait-monotrait (HTMT) ratio of correlations. HTMT values should not exceed 0.90 to ensure sufficient distinctiveness between constructs (Henseler et al., 2015). Subsequently, confidence intervals bias corrected values, obtained through the bootstrapping method with a complete bootstrapping technique, should fall below 1, as a value of 1 indicates a lack of discriminant validity. The HTMT criterion has been increasingly referenced in recent studies over traditional methods such as cross-loading values and the Fornell-Larcker criterion, as it offers superior data representation (Avkiran & Ringle, 2018; Henseler et al., 2015). For the second-order measurement model, the discriminant validity of the reflective model cannot be assessed, as the higher-order construct does not operate within a nomological network (Sarstedt et al., 2019).

Results

The assessment of the first-order measurement model served as an initial stage in validating the SFI. Figure 1 presents the measurement model built to evaluate the psychometric properties of the SFI. Within this model, human flourishing is conceptualized as a higher order construct, encompassing six domains that function as lower order constructs.

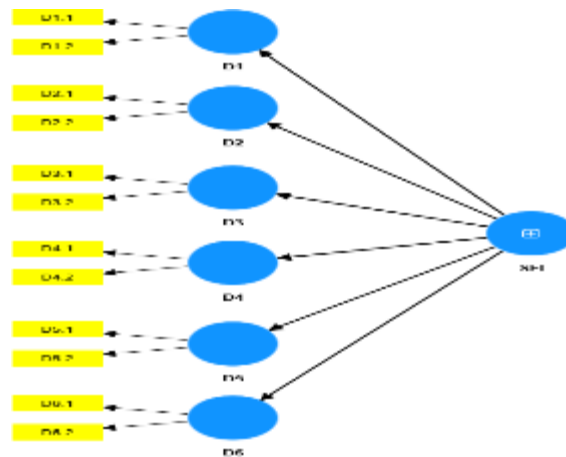


Figure 1: The measurement model of Secure Flourish Index

The factor loading, Average Variance Extracted (AVE), and Composite Reliability (CR) values were examined to assess the convergent validity and reliability of the first-order measurement model. Figure 2 presents the factor loading of the first-order measurement model.

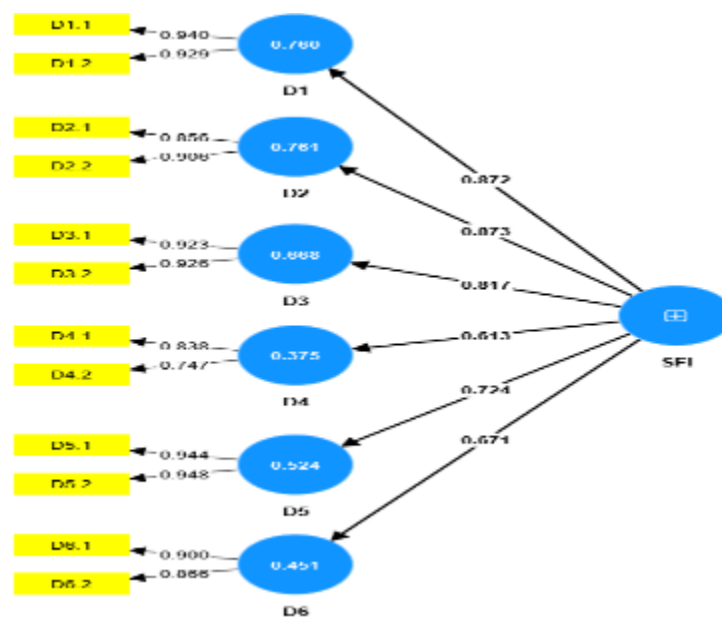


Figure 2: Factor loading of the first-order measurement model

Table 2 presents the factor loadings of the indicators, AVE, and composite reliability. As shown, no adjustments were necessary, as the factor loading values exceeded the threshold of 0.70, ranging from 0.747 to 0.948. To ensure statistical significance, the t-statistics of the first-order measurement model were examined. The results indicated that all manifest variables were significantly related to their respective latent constructs, with t-statistics greater than 1.96, ranging from 11.030 to 95.247. Subsequently, the AVE values, ranging from 0.630 to 0.895, were deemed satisfactory, as they exceeded the recommended threshold of 0.50 (Hair et al., 2017). The construct reliability was then inspected. The composite reliability values, ranging from 0.772 to 0.945, supported the internal consistency of the lower-order constructs, as they surpassed the minimum threshold of 0.70 (Hair et al., 2017). Overall, the

factor loadings, AVE values, and composite reliability values confirm that the first-order reflective model of the Secure Flourish Index exhibits adequate convergent validity.

Table 2

Factor loading, AVE, and composite reliability of indicators

Lower order construct	Factor loading	AVE	Composite reliability
D1. Happiness and life satisfaction			
D1.1 Overall, how satisfied are you with life as a whole these days?	0.940	0.873	0.932
D1.2 In general, how happy or unhappy do you usually feel?	0.929		
D2. Mental and physical health			
D2.1 In general, how would you rate your physical health?	0.856	0.777	0.874
D2.2 How would you rate your overall mental health?	0.906		
D3. Meaning and purpose			
D3.1 Overall, to what extent do you feel the things you do in your life are worthwhile?	0.923	0.855	0.922
D3.2 I understand my purpose in life.	0.926		
D4. Character and virtue			
D4.1 I always act to promote good in all circumstances, even in difficult and challenging situations.	0.838	0.630	0.772
D4.2 I am always able to give up some happiness now for greater happiness later.	0.747		
D5. Close social relationships			
D5.1 I am content with my friendships and relationships.	0.944	0.895	0.945
D5.2 My relationships are as satisfying as I would want them to be.	0.948		
D6. Financial and material stability			
D6.1 How often do you worry about being able to meet normal monthly living expenses?	0.900	0.779	0.876
D6.2 How often do you worry about safety, food, or housing, or health expenses?	0.866		

The discriminant validity was assessed using the Heterotrait–Monotrait Ratio (HTMT). Table 3 presents the HTMT values for the lower-order constructs along with confidence intervals bias corrected. Regarding the HTMT values among the lower-order constructs, all but two were below the threshold of 0.90, indicating acceptable distinctiveness (Henseler et al., 2015). Furthermore, the confidence intervals bias corrected were deemed acceptable, as most were below 1. Overall, the evaluation using the HTMT criterion confirmed that discriminant validity was established.

Table 3

Heterotrait–monotrait (HTMT) criterion

Construct	Happiness and life satisfaction	Mental and physical health	Meaning and purpose	Character and virtue	Close social relationships	Financial and material stability
Happiness and life satisfaction						
Mental and physical health	1.016 [0.938,1.101]					
Meaning and purpose	0.775 [0.675,0.859]	0.816 [0.706,0.920]				
Character and virtue	0.654 [0.432,0.858]	0.746 [0.488,0.998]	0.919 [0.708,1.159]			
Close social relationships	0.604 [0.453,0.724]	0.631 [0.469,0.774]	0.561 [0.377,0.726]	0.626 [0.369,0.874]		
Financial and material stability	0.617 [0.451,0.759]	0.770 [0.592,0.936]	0.507 [0.354,0.662]	0.555 [0.327,0.824]	0.516 [0.353,0.660]	

Note: The values outside the parentheses are the HTMT values

The values in the parentheses are the confidence intervals bias corrected

To evaluate the second-order measurement model, factor loadings, AVE, and composite reliability were assessed to ensure the validity of the reflective model. Figure 3 illustrates the factor loadings for the second-order measurement model. The average factor loading of the higher-order construct surpassed the ideal threshold value of 0.70 (Hair et al., 2017). Additionally, the t-statistics for the second-order measurement model, ranging from 9.242 to 55.376, were significant, as they exceeded the critical value of 1.96 (Hair et al., 2017).

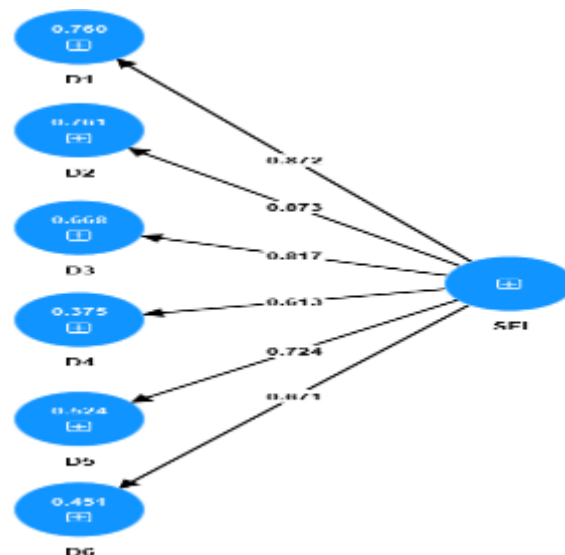


Figure 3: Factor loading of the second-order measurement model

The AVE of 0.578 (Calculation: $[\.872^2 + .873^2 + .817^2 + .613^2 + .724^2 + .671^2]/6$) met the threshold value of 0.50 (Hair et al., 2017). The composite reliability of 0.895 supported the reliability of the higher-order construct, as it exceeded the threshold of 0.70 (Hair et al., 2017). In the proposed reflective-reflective model, discriminant validity could not be evaluated because the higher-order construct does not constitute a nomological network (Sarstedt et al., 2019). These findings indicate that the second-order measurement model demonstrates adequate validity.

Discussion

The present study aims to validate the SFI using data collected from Malaysian adults. As previously mentioned, the SFI has been tested by its developers in adult populations across various countries, including the United States, Mexico, China, Cambodia, and Sri Lanka (Węziak-Białowolska et al., 2017; Weziak-Białowolska et al., 2019a; Weziak-Białowolska et al., 2019b). However, only one of these studies has been conducted in Southeast Asia. To date, the 12-item SFI has not been validated in Malaysia. Given its inclusion of key domains of flourishing, such as physical health and character virtues, based on philosophical perspectives, evaluating the psychometric properties of this scale in the Malaysian context is essential, as it could address the limitations of existing measures used to assess human flourishing among Malaysian adults.

The assessment of the first-order and second-order measurement models of the SFI yielded promising results. A comprehensive evaluation of its psychometric properties, including factor loadings, AVE, and composite reliability, provided strong evidence for the SFI's convergent validity in measuring human flourishing among Malaysian adults. Given that all indicators exceeded their respective threshold values, the SFI's items accurately capture the concept of flourishing. As a result, concerns such as measurement errors and poor item quality are not relevant to the SFI in the Malaysian adult population. Furthermore, the HTMT ratio and confidence intervals bias corrected demonstrated the discriminant validity of the SFI. Since the values for these indicators remained below the threshold, the domains within the SFI exhibit clear distinctions from one another, minimizing the risk of conceptual overlap. The findings of this study align with those of the instrument's developers, reaffirming that

the SFI is a valid and reliable tool for assessing human flourishing among adults (Węziak-Białowolska et al., 2017; Weziak-Białowolska et al., 2019a; Weziak-Białowolska et al., 2019b).

The higher-order model demonstrated that the six domains, namely (D1) happiness and life satisfaction, (D2) mental and physical health, (D3) meaning and purpose, (D4) character and virtue, (D5) close social relationships, and (D6) financial and material stability, are equally important in measuring human flourishing. This finding aligns with the results obtained by the instrument developers, confirming that these six domains constitute the SFI (Węziak-Białowolska et al., 2017; Weziak-Białowolska et al., 2019a; Weziak-Białowolska et al., 2019b).

Limitations and Recommendations

While the present study offers valuable insights, it is not without limitations. One notable constraint is the small sample size, which may limit the generalizability of its findings. A restricted number of participants may hinder the accurate representation of broader population trends. To address this limitation, future studies should aim to recruit a larger sample to enhance the generalizability of the results. Additionally, the study's adoption of convenience sampling presents another limitation. While this approach targets participants with specific characteristics, it may introduce sampling bias, potentially skewing the findings. Despite these constraints, the study provides meaningful insights into the psychometric evaluation of the SFI among Malaysian adults. Future research could consider adopting probability sampling methods to improve the representativeness of the sample. Further research and validation of the SFI across diverse populations and contexts would strengthen the generalizability and applicability of this instrument.

Conclusion

Overall, this research provides valuable insights into the assessment of human flourishing among Malaysian adults, focusing on six key domains: Meaning and Purpose, Character and Virtue, Close Social Relationships, Mental and Physical Health, Happiness and Life Satisfaction, and Financial and Material Stability. The findings of this study confirm that the SFI is a valid and reliable self-reported measure for assessing human flourishing among adults in Malaysia. These findings enhance researchers' and practitioners' confidence in adopting the scale as a measurement tool for evaluating human flourishing in adults. By using this scale, they can obtain accurate insights into human flourishing, which is crucial for psychologists and practitioners in developing targeted interventions that foster a more holistic and inclusive approach to flourishing in Malaysia. These intervention programs are expected to contribute to the long-term flourishing of the community.

In a nutshell, the SFI, which measures six domains of human flourishing, enhances the understanding of this concept while providing researchers and practitioners with a concise and cost-effective tool for assessing this multidimensional construct within the Malaysian context. With only 12 items, Malaysian researchers, practitioners, and policymakers can efficiently capture the complexity of flourishing among the adult population in just a few minutes. This time-efficient tool is particularly valuable for assessing human flourishing in Malaysia, as it is often examined alongside multiple variables in psychological studies. In such cases, a lengthy instrument can become burdensome for stakeholders and test takers.

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