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EXPLORATORY FACTOR AND RELIABILITY ANALYSIS OF FINANCIAL LITERACY INSTRUMENT TO ASSESS LOW-INCOME GROUPS IN MALAYSIA

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ABSTRACT

Financial literacy (FL) helps individuals make more assertive and efficient financial decisions. However, there is limited knowledge regarding the dimensions of FL as pertaining to low-income or Bottom 40% (B40) households in Malaysia. Therefore, the present study examined the reliability and validity of the B40 financial literacy measurement scale. A self-administered survey questionnaire was employed. The sample consisted of 100 respondents randomly selected from B40 households in Johor, Malaysia. The analysis was carried out through Exploratory Factor Analysis (EFA) via IBM-SPSS version 22.0 software. To measure the FL constructs, the study initially developed 59 items; however, six items were deleted as the factor loading was below the 0.50 cut-off point, while 53 items were retained as their factor loading was more than 0.50. Because the study validates the dimension that leads to improved FL, the findings are particularly beneficial to Malaysian B40 households who have been identified as the most vulnerable group; the findings will help action to be taken to improve the FL levels of B40 households.

Contribution/Originality: There is limited prior research on the measurement of financial literacy (FL) among lower-income households (B40) in Malaysia. Therefore, this study has established a valid and reliable instrument to measure FL constructs involving B40 households in Malaysia.

1. INTRODUCTION

Financial literacy (FL) is important, and governments worldwide are trying to increase their citizens' FL levels by developing or improving national financial education strategies (Atkinson & Messy, 2012). Financial education, according to the Organisation for Economic Co-operation and Development (OECD, 2019), can enhance citizens' knowledge of financial products along with their underlying concepts and associated risk factors. Consequently, individuals learn the skills and gain the confidence they need to make sound financial decisions and ensure their well-being. FL incorporates not only awareness but also the financial knowledge, attitudes, and behaviours that are required to make financial decisions that lead to financial empowerment (Potrich, Vieira, & Mendes-Da-Silva, 2016).

Governments' capacity to accomplish society's anticipated tasks is dependent on a good level of financial literacy among households (Siwar, Ismail, Alias, & Zahari, 2019). According to the Economic Planning Unit (2015), citizens must improve their perceived FL to maintain a country's stable financial growth. Solid FL not only improves the commitment level of households but also drives them to make effective financial decisions (Idris, Krishnan, & Azmi, 2013; Krishnakumare & Singh, 2019; Németh & Zsótér, 2019; Sawandi, Abu Bakar, Shaari, Saad, & Amran, 2018). As

mentioned, FL comprises the three spheres of financial knowledge, financial behaviour, and financial attitude (Ali, Rahman, & Bakar, 2015; Ali, Anderson, McRae, & Ramsey, 2016; Arshat, Ismail, Mansor, Madon, & Omar, 2018; Atiqah, Rusliza, & Abdullah, 2017; Hoe Kock, 2015; Maki, 2019; Mansor, Chor, Abu, & Shaari, 2015; Mayan, Nor, & Samat, 2017; Potrich et al., 2016; Sang, 2020; Yusof, Rokis, & Jusoh, 2015; Zaimah & Sarmila, 2016). Because FL significantly influences the financial well-being of households, the factors that influence the level of FL among households must be investigated. Improvements to FL are critical to helping vulnerable households understand their finances and improve their financial management skills (Anderloni & Vandone, 2011). The potential of FL to improve the financial decision-making process has captured the interest of householders of all income levels (bottom 40% [B40] households, middle 40% [M40] households, and top 20% [T20] households) in Malaysia. Various scholars have delved into the FL concept and the factors that influence FL. Previous studies have noted that the dimensions of FL must be investigated, as there are direct correlations between financial knowledge, financial literacy, financial attitude, and financial behaviour (Mbarire & Ali, 2014; Mokhtar, Thinagaran, Sabri, & Ho, 2018). Scholars have also researched the constructs of FL among different types of people in Malaysia (Hassan Sabri & Alavi, 2019; Kusairi, Sanusi, Muhamad, Shukri, & Zamri, 2019; Mayan et al., 2017). However, only limited research has been conducted on FL in vulnerable households, especially B40 households. According to Yusof et al. (2015), the burden of a high cost of living leads to increasing debt levels among B40 households. The low FL levels in B40 households induced by financial insecurity have also led to financial stress and impacted their socio-economic status (SES) (Kimiyaghalam & Yap, 2017). As a systematic effort toward an increase in information and positive attitudes and behaviours, financial education functions as a preventive tool for reducing debts and assists in the financial decision-making process (Anderloni & Vandone, 2011). Consequently, individuals can benefit from financial education through the access it gives them to information on financial transitions, enabling them to make sound and responsible decisions. Due to the absence of consensus on the appropriate instruments for modelling FL in Malaysian B40 households, the present study conducts a detailed validation of the three FL dimensions (financial knowledge, financial behaviour, and financial attitude) using Exploratory Factor Analysis (EFA) to further elucidate the relevant dimensions for measuring FL constructs among vulnerable B40 households in Malaysia.

2. LITERATURE REVIEW

2.1. Financial Literacy

Recently, FL has piqued the interest of big financial institutions, government agencies, consumers, and community interest groups alike. These stakeholders are concerned about the public's lack of financial knowledge and fear that consumers lack the required skills to make sound financial decisions that benefit their financial well-being. Furthermore, a lack of FL can have an impact on the daily money management of an individual or a family, as well as on their capacity to save for long-term objectives like pursuing further education, purchasing a home, or even financing retirement. In addition, poor money management is also likely to lead to poor financial actions, making consumers more exposed to major financial crises (Braunstein & Welch, 2002).

FL is critical to maintaining the financial growth and stability of a country. Countries with citizens who are committed to FL can develop and utilise these citizens (Nicolini & Haupt, 2019). FL is a complex, dynamic, and complicated construct, and there is no consensus on the specific definition of FL since it is ever-evolving. Similarly, there are no agreements on the type of instruments that would need to be applied to model the FL of Malaysian B40 households. Over the years, numerous studies around the world have examined FL levels in many contexts, such as among retirees in the Netherlands (Van Rooij, Lusardi, & Alessie, 2011), university students in Ghana (Ansong & Gyensare, 2012), as well as families in the United Kingdom (Richard & John, 2011) and Japan (Sekita, 2011).

The current FL level in Malaysia can be determined from financial knowledge, budgeting and savings, readiness to deal with unexpected circumstances, retirement planning, and awareness of investment risks and returns. As such, heads of households must have adequate financial knowledge and practise FL to enhance their socio-economic status

(SES) and financial well-being (Mokhtar et al., 2018). For instance, poverty in East Java, Indonesia, was alleviated by the increase in people's income and the declining price of rice (Wulandari et al., 2020). B40 households are the 40% of Malaysian households earning the lowest incomes. Generally, the average household income in Malaysia is no more than RM3,860 (2019), but in 2020 the Malaysian Department of Statistics updated this income range to RM4,850. The FL level of a household is crucial to a family's financial well-being and contributes to an increase in the community's SES (Kusairi et al., 2019; Mayan et al., 2017). Therefore, every household should be financially literate to ensure its financial well-being and improve the SES of B40 households, as outlined in the 11th Malaysia Plan (Economic Planning Unit, 2015). According to Mahdzan, Zainudin, Sukor, Zainir, and Wan Ahmad (2019), the level of financial well-being in B40 households is strongly linked to FL factors. However, according to Hassan Sabri and Alavi (2019), there are differences in the implementation of financial management planning among youths depending on their literacy level. Financial vulnerability has also been found to be influenced by economic, social, and environmental factors (Zuriati, Ghazali, Siwar, Isa, & Khairi, 2019). Economic factors include high living costs, reliance on a single income source, access to assets, inability to purchase a property, and excessive debt, whereas social factors such as low levels of education, employment, and skills are further contributors to B40 households' vulnerability.

2.2. Dimensions of Financial Literacy

FL is a multidimensional construct that comprises the interrelated elements of financial knowledge, financial behaviour, and financial attitude. Individuals can actualise their full potential and utilise good financial knowledge in the process of financial decision-making by effectively managing all three financial components. The connection between economic education and the domains of financial management has led to FL (OECD, 2019; Potrich et al., 2016). Various studies are currently being conducted to assist in providing solutions to financial issues among households by applying the theories and practices of financial management. In this study, FL refers to a set of financial management strategies comprising three key constructs, namely financial knowledge, financial attitude, and financial behaviour, among B40 households in Malaysia.

2.3. Financial Knowledge

Financial knowledge is a type of human capital that may be acquired at any point in a person's life by learning about topics that impact the capacity to efficiently manage income, spending, and savings. Topics such as compounds, risk and return, interest, and inflation are all part of financial knowledge (Delavande, Giné, & McKenzie, 2011). A person's ability to apply the knowledge and skills needed for suitable financial decision-making toward efficient financial resource management is influenced by financial knowledge, which is a fundamental component of the FL model (Abel, Mutandwa, & Roux, 2018). As research has shown, the financial knowledge that most financial experts have is likely to outweigh the public's knowledge and ability to take risks (Diacon, 2004).

2.4. Financial Behaviour

Financial behaviour includes positive financial actions like awareness of financial stability and expenditure planning, as well as negative behaviours such as excessive loans and debts that affect financial well-being (OECD, 2013). Individuals with a lower financial risk tolerance tend to face difficulties in the financial decision-making process and are less satisfied with their financial management. This shows that individuals' financial attitudes and financial behaviour are closely related (Sekar & Gowri, 2015; Sharma, 2015). Therefore, to increase citizens' FL levels, governments should emphasise positive financial attitudes and behaviours through financial education (Bhushan & Medury, 2014; Chavali, Raj, & Ahmed, 2021; Zahra & Anoraga, 2021). Consequently, the present study highlights financial behaviour in B40 households. Financial behaviours are used to determine FL levels and help improve SES in B40 households.

2.5. Financial Attitude

Financial attitudes are influenced by economic and non-economic views about the consequences of different behaviours, and they are crucial in the process of personal decision making (Ajzen, 1991). A financial attitude may denote one's inclination toward financial difficulties and one's capacity to plan and maintain essential savings accounts. Individuals with the tendency to have a negative attitude toward future savings are less likely to have emergency savings, as financial attitudes and behaviours influence well-being. Based on past studies, intergenerational FL can be improved by good financial behaviours throughout society, developed and empowered by positive financial attitudes (Ajzen, 1991; Bhushan & Medury, 2014). For instance, personal financial attitudes can be improved through education, which consequently reduces the tendency to rely on credit cards (Ibrahim & Alqaydi, 2013). In the context of the present study, financial attitudes are characterised as the readiness of B40 households in Malaysia to learn a combination of financial concepts, information, and emotions.

3. RESEARCH METHODOLOGY

This study employed a survey designed to determine reliable measures for an FL construct among Malaysian B40 households. The quantitative data were acquired through a self-administered survey questionnaire, and the study also involved an in-depth literature review to identify the items used to measure the utilised FL constructs. A total of 100 B40 households from the state of Johor in Malaysia were selected at random before the distribution of the self-administered questionnaire. The data were subsequently analysed using EFA in IBM-SPSS version 22.0 software.

3.1. Research Instrument

To determine suitable FL measures among Malaysian B40 households, the researchers developed a structured questionnaire that comprised 59 items, which were measured using a 7-point interval scale ranging from 1 "strongly disagree" to 7 "strongly agree." Financial knowledge was measured using 19 items that were adapted from Magesvari, Kenayathulla, and Ghani (2018) and Potrich et al. (2016). Financial behaviour was measured using 20 items that were established by Magesvari et al. (2018) and Potrich et al. (2016). Finally, financial attitude was measured using 20 items that were also adapted from Magesvari et al. (2018) and Potrich et al. (2016).

3.2. Expert Content Validation

This study adapted the FL measuring instruments from previous studies, and pre-tests were carried out to validate the instruments modified for this study, especially because the original instruments might have been developed to be used in different populations, cultures, or industries (Bahkia, Awang, Afthanorhan, Ghazali, & Foziah, 2019; Ehido, Awang, Halim, & Ibeabuchi, 2020; Hoque, Siddiqui, Awang, & Baharu, 2018; Nor, Awang, Afthanorhan, & Aimran, 2019). Next, the designed questionnaire was assessed by two expert statisticians – a professor and a senior lecturer – to check for content validity and ensure the suitability of the measures for the present study. Moreover, the experts checked for criterion validity to confirm the suitability of the scales applied to measure the data in the statistical analysis. Relevant feedback was also supplied by the experts on some questions that could be shortened, and several questions were rephrased to avoid two-tier questions. The questionnaire was revised accordingly and further tested by five research university academics. These academics were also asked to review the questionnaire in terms of its clarity and relevance before the uniformity of their responses was evaluated.

3.3. Exploratory Factor Analysis

The study obtained a minimum of 100 responses for the EFA procedure. EFA outlines the fundamental relationship among the studied variables and cannot be measured directly but is represented as a group of items (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014). EFA is used when the number of factors included in a set of variables is unclear (Nayak & Sahoo, 2015). In this study, EFA was undertaken to quantify the substantial data obtained into new

factors in smaller sets, ensuring minimum loss of information (Hair et al., 2014; Hoque et al., 2018; Joseph, Hair, William, & Black, 2010; Nor et al., 2019).

4. RESULTS

4.1. The Exploratory Factor Analysis for Financial Literacy Constructs

The questionnaire comprised 59 items measuring the FL constructs (coded as Q1 to Q59), and the descriptive statistics for each item are shown in Table 1. The range of mean values for every item is between 4.06 and 5.78, while the standard deviation ranges from 1.209 to 2.028.

Table 1. Descriptive statistics for the items measuring FL constructs.

Descriptive Statistics			
Item	**Statement**	**Mean**	**Std. Deviation**
Financial Knowledge			
Q1	A budget is part of financial planning that I need to do	4.97	1.702
Q2	A budget guides me to shop according to my ability	5.20	1.608
Q3	My salary or wages earned are also known as income	5.25	1.591
Q4	Interest rates are determined by the bank	4.68	1.490
Q5	Setting aside 10% of income to save is a good idea	5.13	1.625
Q6	Interest or profit rate is a loan condition when we borrow money from banks	4.75	1.459
Q7	The money I have spent is also known as expenses	5.36	1.446
Q8	A budget should contain both income and expenses	5.22	1.481
Q9	When borrowing money from the bank, I will try to get the lowest interest rate	5.14	1.633
Q10	In my opinion, borrowing money from banks can increase the cost of refunds compared to using existing money	5.08	1.515
Q11	Purchase using a credit card is the same as being in debt with the bank	5.10	1.667
Q12	When I buy something using a debit card, I spend my savings in the bank.	5.18	1.672
Q13	When I save money in a bank savings account, the bank will pay me interest	5.21	1.445
Q14	The return of dividends against my savings is lower than the interest rates imposed on bank loans.	4.81	1.594
Q15	An increase in the price of goods reduces the capacity to buy goods	5.33	1.602
Q16	Buying goods regularly through debt will reduce the ability to buy goods (purchasing power) the next time	5.01	1.691
Q17	My family needs to have at least 3 months of savings	5.19	1.581
Q18	I should not borrow money to invest	5.03	1.823
Q19	Purchase of credit or debit increases my purchasing power	4.08	2.028
	Total Score Mean for Construct (Financial Knowledge)	95.72	
Financial Behaviour			
Q20	My purchases are according to life necessities	5.64	1.404
Q21	I compare prices before buying products that involve goods and services	5.78	1.382
Q22	I pay the water and electricity bills before the due date	5.36	1.508
Q23	I compare currency exchange rates before purchasing imported goods such as books and magazines	5.12	1.629
Q24	I plan financially for the long-term	5.31	1.468
Q25	I avoid financial help from friends when desperate	5.04	1.601
Q26	I always make a budget or balance sheet before making a purchase	5.52	1.410
Q27	I save a fixed amount of money every month	4.80	1.639
Q28	I get information from experienced people before buying something	5.31	1.253
Q29	I often ask about the advantages and disadvantages of the item I want to buy	5.45	1.209
Q30	I make sure my financial position allows for the purchase of an item	5.38	1.324
Q31	I do not borrow money from friends to cover daily needs	5.31	1.650
Q32	I do not prioritise the brand of item purchased because it is expensive	5.14	1.633
Q33	I care about the warranty period of an item	5.48	1.467
Q34	I save a certain amount of money daily	4.87	1.515
Q35	I plan my expenses	5.52	1.306
Q36	I will make a list of items to buy before shopping	5.45	1.546
Q37	I will spend money according to the list of items to be purchased	5.43	1.423

Descriptive Statistics			
Item	**Statement**	**Mean**	**Std. Deviation**
Q38	I always list the expenses made and check back to improve my financial management level	5.39	1.385
Q39	I do not buy something all of a sudden without planning ahead	5.24	1.558
	Total Score Mean for Construct (Financial Behaviour)	106.54	
Financial Attitude			
Q40	I assume that money is to be spent	4.18	1.806
Q41	I am more concerned with the needs of the present than the future	4.06	1.774
Q42	I am more satisfied when money is spent	4.06	1.948
Q43	I do not like to be in debt	5.59	1.615
Q44	I value frugality when buying things	5.60	1.421
Q45	I am more interested in buying used items than new items because used items are cheaper	4.14	1.798
Q46	I prefer to borrow money from banks and not from individuals	4.33	1.944
Q47	I wait until a bargain/sale/promotion before buying something	5.04	1.608
Q48	I already have financial goals for the long-term when I grow up	4.96	1.569
Q49	I would not expect pocket money from my husband/wife if the husband/wife faces financial constraints	4.72	1.564
Q50	I do not want to burden my husband/wife completely in the future	5.15	1.755
Q51	I think money is very important to meet the needs of daily life	5.50	1.521
Q52	I will defer a purchase if I am unable to save during the month	5.06	1.601
Q53	I am willing to reduce my expenses if my spouse has financial problems	5.40	1.557
Q54	I will talk to my husband/wife when facing financial problems	5.29	1.616
Q55	I will make sure all my expenses are within my budget	5.60	1.279
Q56	I think getting into debt is not a good way to solve problems in finances	5.48	1.579
Q57	I am confident that the way I manage my finances will affect my future	5.56	1.328
Q58	The practice of saving is hard to do in my family	4.82	1.696
Q59	I always regret it after making inaccurate financial decisions	4.94	1.65
	Total Score Mean for Construct (Financial Attitude)	99.48	

The EFA process was analysed based on three absolute components of the FL construct from the literature review, and each subcomponent of FL (financial knowledge, financial behaviour, and financial attitude) was analysed separately. The scree plots in Figure 1, Figure 2, and Figure 3 indicate that the three components emerged from the EFA in this construct. Using EFA, 53 items were grouped into three different components after dropping the five items that had a low loading factor (Q11, Q12, Q13, Q43, Q45, and Q59). Correspondingly, the rotated component matrix depicts the items grouped under each component.

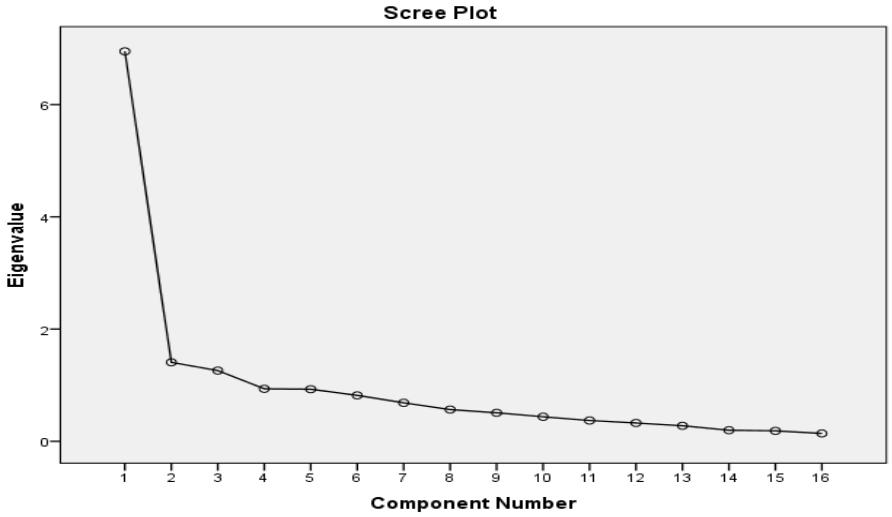

Figure 1. The scree plot for the financial knowledge sub-construct.

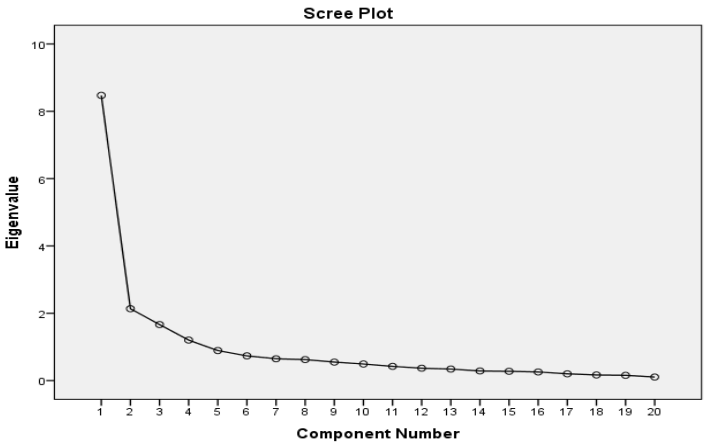

Figure 2. The scree plot for the financial behaviour sub-construct.

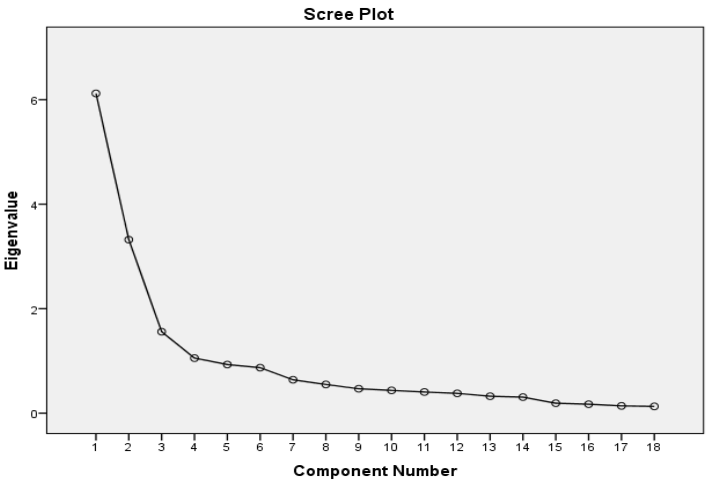

Figure 3. The scree plot for the financial attitude sub-construct.

The EFA procedure used Principal Component Analysis (PCA) with Varimax Rotation on 54 items. The results shown in Table 2 postulate the significance of Bartletts' Test of Sphericity (P-Value < 0.05).

Table 2. The KMO and Bartlett's test.

KMO and Bartlett's Test (Financial Knowledge)	
KMO Measure of Sampling Adequacy.	0.869
Bartlett's Test of Sphericity (Approx. Chi-Square)	828.780
Df.	120
Sig.	0.000
KMO and Bartlett's Test (Financial Behaviour)	
KMO Measure of Sampling Adequacy.	0.864
Bartlett's Test of Sphericity (Approx. Chi-Square)	1222.577
Df	190
Sig.	0.000
KMO and Bartlett's Test (Financial Attitude)	
KMO Measure of Sampling Adequacy.	0.803
Bartlett's Test of Sphericity (Approx. Chi-Square)	1007.432
Df.	153
Sig.	0.000

Additionally, the results of Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy, which were 0.869, 0.0864, and 0.803, were adequate because they exceed the minimum value of 0.60 (Bahkia et al., 2019; Nor et al., 2019;

Zainudin, 2012). These two results suggest the adequacy of the data for proceeding with the data reduction method (Hoque et al., 2018; Shkeer & Awang, 2019; Zainudin & Mahadzirah, 2015).

4.2. The Components and Total Variance Explained

Table 3 shows the three components of EFA based on the Eigenvalues that exceed 1.0. The total variance explained for financial knowledge (60.109%), financial behaviour (61.365%), and financial attitude (61.106) exceeded the 60% minimum requirement (Mohd Noor, Abd Aziz, Mostapa, & Awang, 2015; Yahaya, Idris, Suandi, & Ismail, 2018).

Table 3. Components and total variance explained for FL constructs.

Initial eigenvalues extraction sums of squared loadings						
Financial Knowledge						
Component	**Total**	**Variance (%)**	**Cumulative (%)**	**Total**	**Variance (%)**	**Cumulative (%)**
1	6.949	43.429	43.429	6.949	43.429	43.429
2	1.408	8.800	52.229	1.408	8.800	52.229
3	1.261	7.880	60.109	1.261	7.880	60.109
Financial Behaviour						
Component	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	8.472	42.361	42.361	8.472	42.361	42.361
2	2.136	10.678	53.039	2.136	10.678	53.039
3	1.665	8.326	61.365	1.665	8.326	61.365
Financial Attitude						
Component	Total	Variance (%)	Cumulative (%)	Total	Variance (%)	Cumulative (%)
1	6.119	33.995	33.995	6.119	33.995	33.995
2	3.321	18.449	52.443	3.321	18.449	52.443
3	1.559	8.662	61.106	1.559	8.662	61.106

Table 4 shows the three components with the respective items used in this study. As can be seen in the table, the factor loading for each item except Q11, Q12, Q13, Q43, Q45, and Q59 is higher than 0.50. Consequently, the researchers deleted 12 items with factor loading below 0.50 (Yahaya et al., 2018; Zainudin, 2012; Zainudin & Mahadzirah, 2015). Therefore, 47 items were used to assess the FL construct.

Table 4. The three components and the items used in this study.

Rotated Component Matrix			
	Component		
Item	**1**	**2**	**3**
Q1	0.827		
Q3	0.810		
Q2	0.785		
Q7	0.691		
Q8	0.690		
Q9	0.613		
Q4	0.565		
Q15		0.714	
Q5		0.712	
Q6		0.636	
Q16		0.633	
Q17		0.564	
Q19			0.772
Q18			0.628
Q14			0.554
Q10			0.507
Q21	0.777		
Q20	0.730		
Q24	0.713		
Q26	0.713		

Rotated Component Matrix			
Q29	0.699		
Q33	0.687		
Q35	0.667		
Q28	0.652		
Q38		0.821	
Q37		0.734	
Q36		0.731	
Q30		0.691	
Q39		0.593	
Q32		0.538	
Q25			0.731
Q31			0.692
Q27			0.685
Q34			0.635
Q23			0.602
Q22			0.597
Q55	0.844		
Q54	0.837		
Q57	0.806		
Q44	0.716		
Q53	0.713		
Q51	0.712		
Q56	0.706		
Q47	0.574		
Q49		0.877	
Q48		0.744	
Q46		0.640	
Q50		0.593	
Q52		0.540	
Q42			0.850
Q40			0.789
Q41			0.766
Q58			0.640

4.3. The Internal Reliability for the Instrument Measuring FL Construct

Cronbach's alpha value was evaluated to determine the internal reliability of each component that measures FL constructs to assess the consistency of results across the items for the same construct. A Cronbach's alpha value that exceeds 0.70 indicates high internal reliability (Wagner, 2015).

Table 5. The reliability analysis for the components used to measure the FL construct.

No.	Name of component	Number of items	Cronbach's Alpha
1	Component 1	19	0.890
2	Component 2	18	0.872
3	Component 3	10	0.809

As the results in Table 5 show, the Cronbach's Alpha values for the three components used to measure FL constructs range from 0.809 to 0.890; as this is more than 0.70, it indicates acceptable internal reliability. However, the internal reliability of item Q45 could not be determined, as it did not match any of the three components. Additionally, item Q25 was assigned to component 1 because it matched both component one and component two, item Q17 was assigned to component 2 because it matched components 2 and 3, and item Q22 was assigned to component 3 as it matched components 2 and 3.

5. DISCUSSION

This study has aimed to assess the three FL constructs among Malaysian B40 households using the EFA procedure. The use of a 7-point interval scale was employed as it offers more precision for the measurement model compared to a 5-point scale due to the more extensive choice and independence. Based on the EFA results, the three

components measuring FL constructs explained 60.0% of the variance in the relationships among the items. The three components also had high reliability (Cronbach's α from 0.809 to 0.890). Furthermore, six items (Q11, Q12, Q13, Q43, Q45, and Q59) that scored higher than the acceptable cut-off were not assigned to these three components due to low factor loading. The researchers deleted 12 items (two items in Component 2 and ten items in Component 3) upon cross-loadings on multiple components where the factor loading was below 0.50, retaining 47 items in the final questionnaire. Finally, the three components measuring FL constructs were established in this study. Furthermore, the study also established that the sample size of 100 Malaysian B40 households was sufficient for EFA (Bahkia et al., 2019; Joseph et al., 2010; Nor et al., 2019; Shkeer & Awang, 2019). Drawing on the EFA results, a moderate milestone with three dimensions was achieved in this study. Specifically, the validity of the instrument was carefully examined during the initial instrument development phase through the feedback of five experts. Therefore, the FL instrument is suitable for use not only by scholars and academics but also by human resource administrators or higher education management to determine the factors that contribute to high FL. Moreover, this study can help individuals to recognise which factor improves their ability to engage in certain financial behaviours and increase their interest in executing financial obligations. Nonetheless, as Yu and Richardson (2015) advised, further studies are still required to determine the existing relationships among latent variables through the confirmatory factor analysis (CFA) procedure.

6. LIMITATIONS AND RECOMMENDATIONS

The first limitation beyond the researchers' control during the data collection process was respondents' bias, which could be attributed to the respondents' busy schedules or unwillingness to answer the questionnaire. Next, the focus of this study mainly encompasses vulnerable Malaysian households and utilised data from 100 randomly selected Malaysian B40 households. Further research can address this limitation by including other Malaysian B40 households in rural and urban areas since larger samples can help determine whether the FL measures validated in this study can be applied similarly to other states. Furthermore, as this study employed a cross-sectional research design involving one-time data collection within a short time frame, future researchers can conduct a long-term study of the identified FL measures to understand how FL improves over time and how it influences the households' financial management based on government support to this vulnerable group.

7. CONCLUSION

The dimensions of FL identified in the present study are financial knowledge, financial behaviour, and financial attitude. Based on the results of EFA, the items used to measure the three dimensions, which were adapted from the literature, include a total of 53 adequate items that explain more than 60% of the total variance. In addition, the data are adequate for this study as the KMO value is 0.80. Furthermore, the items have excellent internal reliability for measuring the constructs as the Cronbach's alpha values are greater than 0.70. The measurement and validation conducted in this study have, therefore, confirmed the internal consistency and reliability of the new FL instrument that can contribute to increasing FL among B40 households in Malaysia. Moreover, a reliable instrument for measuring FL constructs has also been established and corroborated in the present study.

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