The Antecedents of Financial Health in Malaysia with the Mediating Effect of Financial Vulnerability

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Abstract

Though financial experts have examined financial health antecedents to understand the concept properly, inconsistencies are still existing in this critical concept due to the individual differences among the people. Hence, the major objective of the current study is to examine the drivers of financial health for the Malaysian context to encourage their financial plans for achieving their future life goals. A questionnaire survey was conducted among Malaysian households who were selected using the multi-stage random sampling method. Based on the PLS-SEM analyses, all the direct and indirect relationships tested were revealed significant. Psychological construct; self-efficacy, financial factors; money attitudes, financial behavior, and financial vulnerability were identified as significant drivers of financial health, and except, financial vulnerability, all the other variables were found to positively influence the financial health of Malaysians. Altogether, they clarified 56.3% of the variance in financial health. Further, self-efficacy, money attitudes, financial behavior affected negatively financial vulnerability and explained 48.8% of the variance effectively. Moreover, self-efficacy, money attitudes, and financial behavior were assumed to have significant effects on financial health through financial vulnerability, and all the mediating effects were found significant. The current study widens the understanding of both the determinants of financial vulnerability, and financial health which guide financial experts, academicians, and policymakers to design policy guidelines to enhance the financial health of the general public. Furthermore, the findings of this study will assist the government and non-governmental organizations (NGOs) in developing a holistic approach aimed at improving the living standards and financial health of Malaysia's lower-income households.

Keywords: family resource management model, financial behavior, financial health, financial vulnerability, money attitude, pls-sem, self-efficacy theory

1.0 Introduction

In a time of crisis such as COVID-19 having satisfactory financial health of households is a necessity for meeting any country's overall well-being and knowledge of appropriate diagnostic tools for household financial health has become not only a topic issue but a necessity. Furthermore, improvements in household financial health have been a major component of recent gains in economic welfare and reductions in global inequality. Due to the multidimensional nature of financial health, it must be evaluated using several indications that are linked to several different elements that appear to be distinct at first glance. When attempting to establish a cumulative value of all aspects of financial health the presence of links between indicators to measure independent components leads to significant biases (Zafra Gomez et al, 2009a), because the household index integrates certain financial characteristics in a duplicate manner the availability of indicators that show the same variable behavior tends to skew it. Because household financial health is not easily observable it brings up the question of what instruments are most appropriate for measuring it.

Even though the available literature describes a range of dimensions to evaluate and indicators to utilize for financial health, there is no broad consensus on how to categorize the concept or which specific indicators to use as definitively representative of it (Cabaleiro et al., 2013). Although the concept of financial health has been discussed in several prior studies most literature on the subject was given definitions that varied from source to source and did not identify exact financial and psychological determinants which influence financial health. For example, Sabri et al.'s (2020) identified financial practices, emotion coping, money attitude, and self-efficacy as financial, and psychological determinants of financial health while in a later study financial literacy, financial behavior, self-efficacy were examined as financial and psychological antecedents of financial health. Moreover, the fact that research on financial health used various mediating variables in between financial/psychological factors and financial health and revealed inconsistent results. Therefore, to address the inconsistencies available in the financial and psychological determinants of financial health and mediating variables between them the major aim of current research is to find indicators that can influence an individual's overall financial health while avoiding the difficulties that have plagued prior research. Accordingly, the authors designed the theoretical framework to identify these antecedents of financial health which were created inconsistencies in prior studies utilizing the direct effects of money attitudes, financial behavior, self-efficacy, and the mediation effect of financial vulnerability.

Sabri et al. (2020) examined the determinants of financial health in Malaysian households and revealed that financial practices, emotion coping, money attitude, and self-efficacy as determinants of financial health. Base on the results money attitude, financial practices, self-efficacy were detected to have positive effects on financial health, but emotion coping had a negative effect. In another study on Malaysian households Sabri et al. (2021a) examined financial literacy, financial behavior, self-efficacy as antecedents of financial health and financial literacy and self-efficacy were not influenced the financial health. Further, they studied the influence of money attitude as mediating variable between the exogenous and endogenous variables. Magli et al. (2020) also studied the financial health of Malaysian households and found financial behavior, financial attitude, and self-belief as determinants of financial health.

Further, the theoretical framework is based on the integrated concepts of Self-Efficacy Theory and Family Resource Management Model which was not previously found in investigating the concept of financial health. Magli et al. (2020) applied Self-Efficacy Theory as a theoretical base of their framework when studying Malaysian public employees' financial vulnerability. Family Resource Management Model was also successfully used by Husniyah and Fazilah (2011) in another study on the financial stability of Malaysian urban and rural families. But, the use of an integrated model of Self-Efficacy Theory and Family Resource Management Model to examine financial health was not found in the literature. Therefore, it is a new contribution to the literature in the field of financial health as well as family economics and management. Furthermore, financial vulnerability was not used as a mediating variable between money attitudes, financial behavior, self-efficacy, and financial health. Hence, the theoretical framework which was developed in the current study was addressed some gaps previously found in the literature and it was a good contribution for future studies to test different variables which influenced financial health. Further, there has been insufficient research on the topic of financial health among Malaysians. As a result, it has become critical to explore the factors that influence financial health the researchers attempted to investigate the antecedents that influence financial health among Malaysians by providing comprehensive recommendations for financial health.

The rest of the paper provides a literature review on Self-Efficacy Theory, Family Resource Management Model, as well as an explanation of the constructs; financial health, financial behavior, money attitudes, self-efficacy, financial vulnerability, and methods utilized. The hypotheses are then tested and the PLS-SEM direct and in-direct model findings are discussed. Finally, the article concluded with recommendations for future research and implications.

2.0 Literature Review

2.1 Theoretical Foundation

This study's theoretical framework is based on Bandura's (1977) Self-efficacy Theory and Deacon and Firebaugh's (1988) Family Resource Management Model.

2.1.1 Self-efficacy Theory

Albert Bandura (1977) a psychologist was the first to coin the term "self-efficacy" in his Self-Efficacy Theory which explains "how well one can execute courses of action required to deal with prospective situations" (p. 193). According to the Self-Efficacy Theory, self-efficacy beliefs are formed by evaluating information from four major sources of influence; "(i) mastery experiences (ii) vicarious experiences (iii) social persuasion, and (iv) emotional states" (Bandura, 1977, p. 195). The most influential source is the interpreted result of one's previous performance or mastery experience refers to "the experiences one gain when they take on a new challenge and are successful at doing so" (Bandura, 1977, p. 194). One of the most effective ways to learn a new skill or improve one's proficiency in a particular activity is to practice. The vicarious experiences provided by social models are the second significant source of self-efficacy. Bandura (1977) suggested that "seeing people similar to oneself succeed by sustained effort raises observers' beliefs that they too possess the capabilities to master comparable activities to succeed" (p. 194). Social persuasion is the process of persuading someone to believe that they have the skills and capacities to succeed while performing a difficult task. Verbal persuasion can be employed at any age but the earlier it is utilized the more likely it is to promote self-efficacy growth. The emotional, physical, and psychological well-being of a person may influence how they perceive their abilities in a specific situation. Therefore, it is important to integrate the Self-Efficacy Theory when discussing an individual's financial health with the term self-efficacy. Moreover, it was successfully used by Sabri et al. (2020) in their study to examine Malaysian's financial well-being.

2.1.2 Family Resource Management Model

Family Resource Management Model was introduced by Deacon and Firebaugh (1988) which explains how a family manages its resources to fulfill its goals. It is a systems-oriented management method in which management is defined as "the process of using resources to achieve goals" (Goldsmith, 2005, p. 24). Inputs, throughputs, outputs, and the feedback loop are the four stages of the model that describe how families make financial decisions and develop financial behaviors (Fig. 1). According to the model the inputs go through throughput resulting in observable output. Prior studies have evidenced that the Family Resource Management Model was successfully applied to explain the financial related issues associated with individuals. For example, Mimura (2014) investigated married women's life happiness and its relationship with household financial preparation in Japan. In a different study the association between family income and overall perceived resource well-being was studied by Mimura et al. (2019). As a result, the Family Resource Management Model was chosen as the base of the current theoretical framework and the money attitudes, financial behavior and self-efficacy are the external inputs of the current study which are going through the throughput which is the financial vulnerability. Throughput; financial vulnerability goes through both the personal and managerial subsystems of an individual to gain the output; financial health.

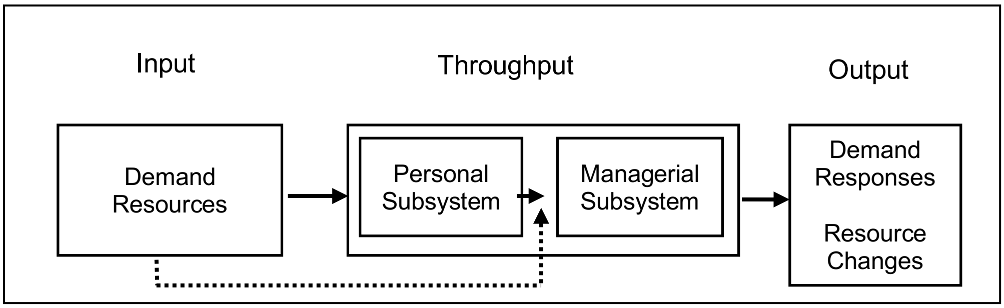

Figure 1 : Family Resource Management Model
(Deacon & Firebaugh, 1988)

2.2 Financial Health

After reviewing the literature, it became clear that there is great ambiguity in terminology when it comes to the concept of financial health and that many of the terms used in the literature are interchangeable for example, fiscal health (Carmeli, 2007), financial health (Zafra Gómez et al., 2009b), fiscal condition (Carmeli, 2007) and financial condition (Zafra Gómez et al., 2009b). However, financial health refers to the state and stability of an individual's money and financial affairs. A constant stream of income little variation in expenditure, solid investment returns, and a cumulative cash balance are all signs of good financial health. A person's financial health can be improved by assessing his or her existing net worth, creating a budget that can be adhered to, building an emergency fund, and paying off debts (Kagan, 2021). Financial health is not a static figure and fluctuates depending on an individual's liquidity and assets, as well as the changeability of the price of products and services. An alternative way to examine financial health is the sensation of having financial security and financial freedom of choice both now and in the future (Garman & Forgue, 2018). Hence, being aware of the personal financial situation developing and managing the money with a budget, and making a financial plan that includes frequent investing are three critical elements towards good financial health.

2.3 Money Attitudes

Money attitude describes as a "personal inclination towards financial matters" (Rai et al., 2019, p. 54). As well as an individual can be able to plan ahead and maintain a savings account that matters. Further, they are the "outcome of certain behaviors of a decision-maker and the attitude could be embedded through their economic and non-economic beliefs" (Ajzen, 1991). Financial attitudes via financial behavior influence financial well-being as well as economic well-being (Rai et al., 2019). Sabri et al. (2020) concluded that money attitude is a significant determinant of Malaysian employees' financial well-being. Furthermore, individuals' money attitudes influence their shopping and saving behaviors which influences the achievement of certain life goals (Nga & Yeoh, 2015), and those with productive life goals have a greater level of financial health. Therefore, the following hypothesis has been framed and evaluated to state the relationship between money attitude and financial health.

H_1: Money attitude positively influences financial health.

Both Magli et al. (2020) and Poh et al. (2021) reported a negative correlation between money attitudes and financial vulnerability. Hence, the formulated hypothesis is;

H_2: Money attitude negatively influences financial vulnerability.

2.4 Financial Behavior

Financial behavior is “the acquisition, allocation, and use of financial resources oriented toward some goals” (Topa et al., 2018, p. 3). An individual’s financial behavior could be examined by investigating how efficiently he/she handles cash, savings, debt and other expenses (Hasibuan et al., 2018). Healthy financial behaviors, for example, proper budgeting and financial stability, improve an individual’s well-being, but poor financial behaviors, such as heavily depending on credit and loans, decline the well-being (Atkinson & Messy, 2012). Empirical evidence suggests that when households master proper financial management both their economic well-being and financial health are enhanced in the long term (Consumer Financial Protection Bureau, 2015). Moreover, positive financial behaviors such as financial management, savings behavior, investment behavior are significant drivers of good financial well-being (Husniyah & Fazilah, 2011). Yet, financial behavior is multifaceted and supervision of money and expenditure which comprises prudent and cautious spending of money is worthwhile security against risky financial behaviors (Topa et al., 2018). By considering this evidence, it is assumed that a positive correlation exists between financial behavior and financial health.

H_3: Financial behavior positively influences financial health.

Chong et al. (2021) observed a negative correlation between financial behavior and financial vulnerability which is negatively affected financial health. Therefore, the authors hypothesized that;

H_4: Financial behavior negatively influences financial vulnerability.

2.5 Self-Efficacy

Self-efficacy is “the belief we have in our abilities specifically our ability to meet the challenges ahead of us and complete a task successfully" (Akhtar, 2008, p. 4). According to Lapp (2010) financial pleasure, reduced financial stress, fewer financial problems, lower debt and more savings are all associated with a high level of financial self-efficacy. Furthermore, high levels of self-efficacy are projected to improve individual well-being particularly physical and mental health by influencing people's behavioral changes (Bandura, 1977). In addition, enhancing people's financial self-efficacy and trust may be an effective method to improve their financial well-being and satisfaction (Simanjuntak et al., 2020) because it encourages them to seek financial help (Lim et al., 2014). Moreover, those with strong self-efficacy are more likely to plan ahead to avoid financial hardship (Kuhnen & Melzer, 2018). Worker with great self-efficacy can improve their financial well-being (Sabri et al., 2020; Sabri et al., 2021c). Further, Farrell et al. (2015) found that women with higher financial self-efficacy are more likely to have an investment, mortgage or savings account, whereas having a credit card or loan is less likely. In this manner the framed hypothesis is;

H_5: Self-efficacy positively influences financial health.

For the context of Malaysia, Chong et al. (2021) found a negative relationship between self-efficacy and financial vulnerability among young employees. Therefore, the authors hypothesized that;

H_6: Self-efficacy negatively influences financial vulnerability.

2.6 Financial Vulnerability

Financial vulnerability is indicated by "an inability to maintain expenses, an inability to confront unexpected expenses and an indebtedness or a declining real household net wealth to disposable income ratio" (De Clercq et. al., 2015, p.115). Unsteady and insufficient income was the widely recognized trigger of the household financial vulnerability across different life transitions and the resulted substitution is non-performing loans (Abdul Ghani, 2010). Moreover, individual characteristics such as thrift and attitude towards credit influence and unplanned financial decisions are also important to the financial vulnerability (Arashiro, 2011). Hence, financial vulnerability alludes to exposure to stresses and contingencies and unable to cope with them (Chambers, 1989). Treanor (2016) revealed a negative link between financial vulnerability and well-being in his study. Muench et al. (2020) studied the financial vulnerability of low-skill and high-skill health care workers while providing insight into their well-being and revealed that irrespective of skill status, workers with lower wages experienced high vulnerability and low well-being compared to the others. Thus, financial vulnerability is proved to be associated with lower financial health and the developed hypothesis is;

H_7: Financial vulnerability negatively influences financial health.

Poh et al. (2021) observed a negative association between Malaysian households' money attitudes and financial vulnerability while financial vulnerability was detected as one of the significant factors that reduce workers' well-being (Muench et al., 2021). Further, money attitudes influence financial well-being positively (Sabri et al., 2020). Therefore, the mediating role of financial vulnerability is assumed between money attitudes and financial health.

H_8: Financial vulnerability acts as a mediating variable between money attitudes and financial health.

It has been revealed that financial vulnerability is frequently experienced due to unwise borrowing choices which causes families incapable to cope with debts given their current and future level of earning capacity (Anderloni et al., 2012). Further, non-optimal and loosely planned expenditure put families into challenging financial situations particularly during unexpected adverse occasions (Anderloni et al., 2012). Hence, a negative relationship was revealed between financial behavior and financial vulnerability. Meanwhile, financial behavior influenced individuals towards financial satisfaction (Arifin, 2018) by increasing their financial health. Moreover, child well-being is negatively affected by the financial vulnerability of the mothers (Treanor, 2016) and hence, financial behavior could be assumed to have a relationship with financial health via financial vulnerability.

H_9: Financial vulnerability acts as a mediating variable between financial behavior and financial health.

In the study by Chong et al. (2021) self-efficacy was detected to have a negative correlation with financial vulnerability and financial vulnerability negatively affects life satisfaction of Malaysian female-headed households (Sabri et al., 2021b). Further, self-efficacy influences financial well-being positively (Sabri et al., 2020). Hence, this study assumed the mediation effect of financial vulnerability on the association between self-efficacy and financial health. The related hypothesis is;

H_{10}: Financial vulnerability acts as a mediating variable between self-efficacy and financial health.

Therefore, the following research framework (Fig. 2) was developed based on the above-discussed literature and suggested hypotheses.

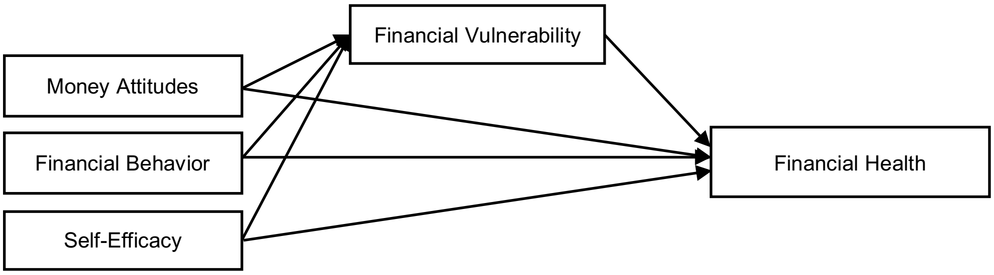

Figure 2 : Research Framework for Financial Health

3.0 Methodology

3.1 Participants and Design

A cross-sectional and questionnaire-based research design was utilized with a multi-stage random sampling technique in selecting the sample from the households in Malaysia. The procedure of sampling was illustrated in Figure 3. First, Malaysia was divided into five regions namely North (Perlis, Kedah, Penang), South (Johor, Melaka, Negeri Sembilan), East (Terengganu, Pahang, Kelantan), West (Perak, Selangor, Wilayah Persekutuan) and East Malaysia (Sabah and Sarawak). Secondly, one state was randomly selected from each zone through a ballot. As a result, Penang (North), Johor (South), Terengganu (East), Perak (West) and Sabah (East Malaysia) were selected. Hence, the final sample size was 600. Thus, a total of 120 respondents were obtained from each state respectively. Then, four government agencies were randomly selected from each state through a ballot. Lastly, 30 respondents were randomly selected from each agency.

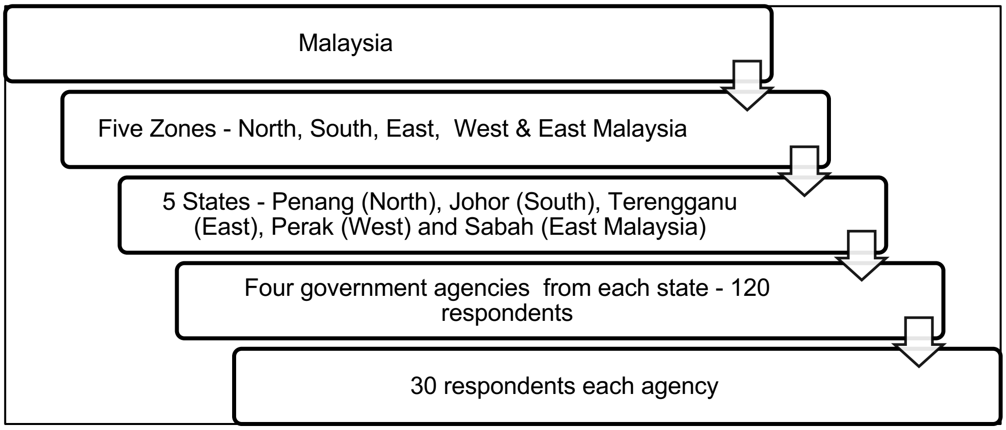

Figure 3 : Sampling Process

To assess the hypotheses in the suggested theoretical framework a questionnaire was primarily established based on the literature review and then its contents were reviewed by three financial experts to increase the validity of the questionnaire and this type of data collection was extensively utilized by previous scholars, for example Friedline & West (2016). The questionnaire consisted of two key sections; demographic and socioeconomic information about the respondents and indicators for the five variables of the suggested framework.

Financial behavior items were measured with 28 items (adopted-21 and adapted 7) from the study by Rajna (2011). The construct money attitudes were measured with 24 items that were adopted from Furnham (1996). Self-efficacy consisted of 15 items (9 adopted and 6 adapted) from the previous questionnaire which was developed by Chen et al. (2001). All the financial behavior, money attitudes and self-efficacy were measured with a five-point Likert Scale which was ranged from 1 (strongly disagree) to 5 (strongly agree). A ten-point Likert Scale ranging from 1 (not vulnerable) to 10 (vulnerable) was used to measure the 20 items of the financial vulnerability and out of 20, 15 items were adopted (Anderloni et al., 2012). The final construct, the financial health items were adopted from Parker et al. (2016) which consists of 14 items and measured with a three-point scale. The summary of the questionnaire items was given in Table 1.

Table 1 : Variables and Scales

Variables	No. of items	Scale	References
Financial behavior	28	"Five-point Likert Scale 1 (strongly disagree) to 5 (strongly agree)"	Rajna (2011)
Money attitudes	24		Furnham (1996)
Self-efficacy	15		Chen et al. (2001)
Financial vulnerability	20	"Ten-point Likert Scale 1 (not vulnerable) to 10 (vulnerable)"	Anderloni et al. (2012)
Financial health	14	"Three-point scale"	Parker et al. (2016)

To confirm the consistency a pre-test was conducted with 40 households. Due to the multi-stage random sampling method the sample was planned based on the population distribution considering age groups, gender and region. Duly completed 590 questionnaires were remained after disposing of incomplete responses and the responses with outliers.

According to the demographic profile of the respondents, females made up the majority of the responses (58%). In terms of ethnicity most of them were Malay (92.6%), followed by Chinese (2.7%) and Indians (2.2%). Marital status wise 71.6% were married. Most of the households were in the age group of 30-39 (52.9%) followed by the age groups 20-29 (23.7%) and 40-49 (15.9%) respectively.

4.0 Findings and Discussion

4.1 Partial Least Squares Structural Equation Modelling (PLS-SEM)

To test the connections proposed in the theoretical model PLS-SEM was employed because it can be used for both the samples either normally distributed or non-normally distributed (Hair et al., 2017). Further, mediation effects also can be analyzed precisely and simultaneously using PLS-SEM (Henseler et al., 2009). Smart-PLS 3.3 was used to run PLS-SEM which used the bootstrap approach with 5000 resampling iterations.

4.2 Reflective Measurement Model Assessment

Checking the indicator loadings, reliability, convergent validity and discriminant validity are integral parts of the reflective measurement model evaluation. To begin, the data showed that all loadings were more than the cut-off value of 0.7. (Hair et al., 2019). Second, as presented in Table 2, all items had composite reliability (CR) and Cronbach's alpha (CA) values more than 0.7 which indicates excellent internal consistency and construct reliability respectively (Hair et al., 2006). The average variance extracted (AVE) was greater than 0.4 (Fraering & Minor, 2006) indicated that the convergent validity was achieved. The Fornell-Larcker and heterotrait-monotrait ratio (HTMT) were the measurements used to assess discriminant validity (Fornell & Larcker, 1981). As shown in Table 3, the Fornell and Larcker's Test indicated values that are greater than the correlations among variables (Gold et al., 2001). Meanwhile, the HTMT results in Table 4 are lower than the 0.85 threshold (Kline, 2011). These values point to the conclusion that the discriminant validity of the reflective measurement model was achieved. Further, it was observed that there is no collinearity issue present in the model as all the VIF values ranged from 3.582 to 5.090 which are below the threshold of <10 as suggested by Aiken et al. (1991).

Table 2 : Measurement Model Results

Items	OL
Financial Health (CA = 0.859, CR = 0.885, AVE = 0.458)	
"On average over the past 12 months, how would you describe your spending patterns?"	0.722
"Which of the following statements best describes how well you are keeping up with your bills and credit commitments?"	0.736
"How many months of living expenses do you have in liquid account balances?"	0.805
"Which comes closest to describing your savings habits?"	0.931
"How much do you have in long-term savings, assets and investments?"	0.851
"When you think about saving money for the future, which of these timeframes is most important to you?"	0.761
"How would you describe how much debt you have right now?"	0.762
"How would you describe your payment experience with credit cards?"	0.849
"How would you rate your credit score?"	0.910
"Does the main earner(s) in your household have life insurance?"	0.797
"Do you have insurance to cover your assets and any potential shocks?"	0.780
"Do you have a budget, spending plan, or financial plan that you use to guide how your money gets spent each month?"	0.863
"Do you have a plan to achieve your longer-term financial goals?"	0.745
"Do you plan ahead to pay for large, irregular expenses?"	0.794

Items	OL
Financial Behavior (CA = 0.895, CR = 0.868, AVE = 0.429)	
“I spend accordingly to a weekly or monthly budget.”	0.746
“I use a bank account that has a profit interest rate.”	0.767
“I estimate household income and expenses.”	0.754
“I record how and where my money is spent.”	0.873
“I always set aside money for big expenses in the future.”	0.764
“I always set aside money for unexpected expenses in the future.”	0.850
“I started and maintained an emergency savings fund.”	0.870
“I save for long-term goals like car, education, and house.”	0.804
I contribute money to retirement accounts.	0.813
“I compare credit receipts with monthly statements.”	0.797
“I usually do not pay in full the loan balance, but only make a minimum or partial payment.”	0.820
“I accumulate debt every year to pay off my previous debt.”	0.807
“I took a cash advance from a credit card to pay off my loan balance.”	0.814
“I sometimes receive overdue notices for late or overdue payment.”	0.777
“I contribute to a private retirement savings plan.”	0.745
“I use licensed financial planner or advisor to plan for retirement.”	0.842
“I use the interest earned from savings to start retirement savings.”	0.936
“I set a specific goal for the amount to save for retirement.”	0.773
“I discuss retirement plans with the spouse, friend or others.”	0.849
“I have the will for the distribution of property in the event of death.”	0.898
I check the will periodically.	0.851
I have updated the nominees for life insurance.	0.887
I signed up with a trust body for inheritance. (i.e: Amanah Raya Berhad (ARB)	0.824
“I am fully involved in the decision-making process related to the distribution of inheritance.”	0.719
I reduce my insurance costs.	0.792
I provide financial security to the dependents in case of death.	0.851
I ensure an adequate income in case of disability.	0.745
I increase the amount of insurance / takaful coverage.	0.710
Money Attitudes (CA = 0.721, CR = 0.704, AVE = 0.466)	
“I believe money can solve all my problems.”	0.745
“I feel that money is the only thing that I can rely on.”	0.716
“I feel better than those who lack money regardless of their capabilities and achievements.”	0.743
“I am proud of my financial achievements and want my friends to know about them.”	0.862

Items	**OL**
"Although I have enough money, I often feel guilty when I spend it for necessities."	0.976
"I often have difficulty making decisions about spending money."	0.909
"I often worry about my finances."	0.924
"I often wonder about money and what I can do with it."	0.734
"I often get anxious when asked about my personal finances."	0.962
"I am proud of my ability to save."	0.801
"I think most of my friends have more money than I do."	0.744
I will allocate money for the fun things.	0.783
"I would often spend money on myself when I am depressed."	0.710
I would often buy something that was not necessary just to attract the others.	0.843
"I prefer to save because I am not sure what will happen in the future."	0.900
I will be very generous just to attract people to like me.	0.991
I believe my current income is worth for me and in line with my career.	0.769
"I believe that the amount of money a person earns is closely related to his ability and effort."	0.717
"I am proud of my ability to save money."	0.712
"I think I always know how much money I have in the bank, or my credit / loan."	0.845
"I will not lend my money."	0.731
I do not like giving money to beggars.	0.785
I will always pay the utility bill immediately.	0.757
I prefer to use cash instead of credit.	0.805
Self-efficacy (CA = 0.929, CR = 0.943, AVE = 0.554)	
"I will be able to achieve most of the goals that I have set for myself."	0.797
"When facing difficult tasks, I am certain that I will accomplish them."	0.990
"In general, I think that I can obtain outcomes that ate important for me."	0.950
"I believe I can succeed at most any endeavor to which I set my mind."	0.779
"I will be able to successfully overcome many challenges."	0.975
"I am confident that I can perform effectively on many different tasks."	0.767
"Compared to other people, I can do most tasks very well."	0.902
"Even when things are tough, I can perform quite well."	0.998
I will keep trying to succeed even though I failed for the first time.	0.902
"When I make a plan, I am confident that I will succeed in that plan."	0.949
If an unexpected problem arises, I will resolve the problem properly.	0.930
"I avoid learning new things when it is too difficult for me."	0.959
"If something seems too complicated, I will try my best to solve it."	0.712
I am encouraged to do the work when required.	0.941
Failure only caused me to put more effort.	0.924

Items	OL
Financial Vulnerability (CA = 0.944, CR = 0.951, AVE = 0.517)	
Current income situation.	0.967
Current employment situation.	0.755
Current ability to access money from friends/family or others.	0.968
Ability to sell personal/household goods to meet financial inadequacy.	0.979
Financially accessible when dealing with hardship.	0.921
Opportunities to increase income.	0.714
Current ability to save.	0.964
Money is accessible for use when facing with the hardship.	0.957
Save money regularly.	0.981
Ability to get a loan/credit.	0.784
Always save for future use.	0.879
Allocate money for emergency needs.	0.781
Ability to meet daily needs.	0.760
Spend more than income.	0.766
Ability to meet an emergency.	0.770
Have enough money for monthly expenses before receiving next salary.	0.905
Debt installment ability as specified.	0.880
Able to cancel the insurance policy to pay off the debt.	0.981
Current credit status.	0.972
Loss of income due to injury/disability.	0.954

Note: OL-Outer Loadings, CA-Cronbach's Alpha, CR-Composite Reliability, AVE-Average Variance Extracted

Table 3 : Discriminant Validity Assessment- Fornell–Larcker

		FH	FB	MA	SE	FV
Fornell–Larcker criterion	FH	**0.677**				
	FB	0.622	**0.655**			
	MA	0.566	0.473	**0.682**		
	SE	0.298	0.281	0.475	**0.744**	
	FV	0.675	0.552	0.614	0.451	**0.719**

Notes: FH-Financial health; FB-Financial behavior; MA-Money attitudes; SE-Self-efficacy; FV-Financial vulnerability

Table 4 : Discriminant Validity Assessment-HTMT

		FH	FB	MA	SE	FV
Heterotrait-monotrait ratio of correlations (HTMT)	FH					
	FB	0.579				
	MA	0.519	0.610			
	SE	0.319	0.311	0.516		
	FV	0.717	0.479	0.518	0.448	

Notes: FH-Financial health; FB-Financial behavior; MA-Money attitudes; SE-Self-efficacy; FV-Financial vulnerability

Table 5 : Variance Inflation Factors (VIF) for All Constructs

Construct	VIF
Financial health	5.090
Financial behavior	4.739
Money attitudes	4.470
Self-efficacy	3.582
Financial vulnerability	3.854

4.3 Structural Model Assessment

Next, the structural model and the suggested hypotheses were tested. The total effect model assessment results as shown in Table 6 reveals the existence of significant positive relationships between money attitudes and financial health (β=0.186, t-value=2.783), financial behavior and financial health (β=0.326, t-value=8.865), self-efficacy and financial health (β=0.067, t-value=1.990), thus supporting the hypotheses H_1, H_3, and H_5. The financial health was strongly and positively influenced by the households' financial behavior followed by money attitudes, self-efficacy, and the total effect model explained 49.1% of financial health. Moreover, in assessing the direct effects, the results showed significant negative relationships between money attitudes and financial vulnerability (β=-0.363, t-value=-3.17), financial behavior and financial vulnerability (β=-0.322, t-value=-9.206), self-efficacy and financial vulnerability (β=-0.181, t-value=-5.11), financial vulnerability and financial health (β=-0.405, t-value=-10.048), thus supporting the hypotheses H_2, H_4, H_6, and H_7. Money attitudes were the strongest influencing factor on financial vulnerability trailed by financial behavior and self-efficacy. With regards to assessing the indirect effect the results in Table 6 support the hypotheses H_8, H_9, and H_{10}, clearly indicating evidences of the mediation role of financial vulnerability in the relationships between money attitudes and financial health (β=0.147, t-value=3.03), financial behavior and financial health (β=0.130, t-value=6.995), self-efficacy and financial health (β=0.074, t-value=4.400). Therefore, all ten tested hypotheses were accepted. Also, the R^2 values; 48.8% and 56.3% of the variance of financial vulnerability and financial health was explained by the mediation model indicating that the model has a very good predictive power. Because, the Q^2 of financial health is 0.648 which signifies that the research model has a good predictive relevance with Q^2 values larger than zero. Figure 4 depicts the results of the direct and mediation measurement model and the summarized results of the hypotheses testing were given in the Table 6.

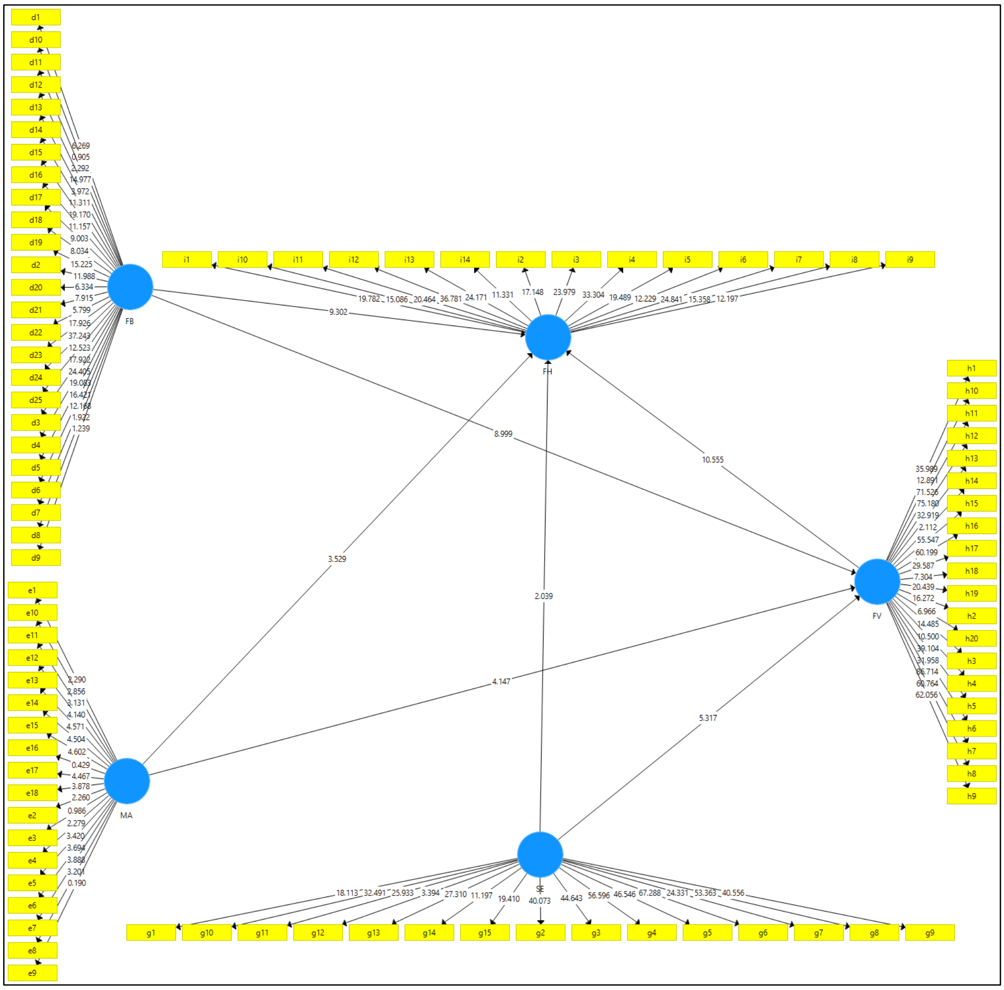

Figure 4 : The Results of the Direct and Mediation Measurement Model

Table 6 : Summary of Hypothesis Testing

Hypothesis	Paths	t-value	95% CI	Result
Total effects				
H_1	MA=>FH	2.783**	(0.058, 0.336)	Supported
H_3	FB=>FH	8.865***	(0.252, 0.396)	Supported
H_5	SE=>FH	1.990*	(-0.142, -0.003)	Supported
Direct effects				
H_2	MA=>FV	-3.170**	(0.142, 0.607)	Supported
H_4	FB=>FV	-9.206***	(0.255, 0.393)	Supported
H_6	SE=>FV	-5.110***	(0.112, 0.252)	Supported
H_7	FV=>FH	-10.048***	(0.327, 0.486)	Supported
Mediation effects				
H_8	MA=>FV=>FH	3.030**	(0.059, 0.256)	Supported
H_9	FB=>FV=>FH	6.995***	(0.096, 0.170)	Supported
H_{10}	SE=>FV=>FH	4.400***	(0.041, 0.107)	Supported

Notes: ***p < 0.001; **p < 0.01; *p < 0.05; CI-Confidence Interval; MA-Money Attitudes; FB-Financial Behavior; SE-Self-efficacy; FV-Financial Vulnerability; FH-Financial Health

The findings from this research demonstrate that money attitudes, financial behavior, and self-efficacy are positively linked to financial health among Malaysian households which are consistent with earlier empirical studies. For example, with the Malaysian employees, Sabri et al. (2020) revealed a positive association between money attitudes and their financial well-being which can be described as overall satisfaction with individual's financial state that has direct effect on individuals' financial health (van Praag et al., 2003). Further, studies have confirmed that there is a solid and constructive association between money attitudes and overall well-being of a person (Rai et al., 2019). Hence, money attitudes positively lead to financial health (H_1) which indicates that households with positive money attitudes direct them towards the enhanced financial health because one's money attitudes influence their spending and saving habits as well as their ability to achieve particular life goals (Nga & Yeoh, 2015).

The current study's positive association between financial behavior and financial health (H_3) is consistent with prior research such as Drever et al. (2015) who claimed that people who reported healthier financial behavior also reported greater levels of subjective financial well-being. Similarly, Lim et al. (2014) discovered that college students who engaged in healthy financial activities had reduced levels of financial stress. Furthermore, students who spent time talking about money with others had lower anxiety, less depressed moods and higher life satisfaction (Stein et al., 2013). Financial behavior is the collection of each individual behaviors of a person which might be pertinent in personal finances (Xiao et al., 2014), which play an important role in shaping the good financial health. As a result, having a healthy financial behavior is crucial for households because it influences proper financial health and makes them more willing to engage in day-to-day financial practices with confidence.

The findings of this study also revealed that households with a high level of self-efficacy are less likely to avoid financial information, which allows an individual to critically analyze financial knowledge perhaps leading to more prudent financial actions and improved financial well-being (Sabri et al., 2020). The results revealed that self-efficacy may be essential in determining high level of financial health among households because people with high self-efficacy can expend sufficient effort that when properly executed, produces good results whereas persons with low self-efficacy will almost certainly give up early and unsuccessful (Stajkovic & Luthans, 1998). Therefore, the people with high self-efficacy is financially less vulnerable (Chong et al., 2021) and have maintained good financial health (H_5).

The results also supported the fact that money attitudes negatively influence the financial vulnerability (H_2) among Malaysian households. Working persons with a positive financial attitude are more responsible in managing their own finances, as financial attitude is a substantial contributor to financial success (Utkarsh et al., 2020), and they are less vulnerable financially. The findings of Abdullah et al.'s (2019) study supported that working persons with a good financial attitude were better able to manage their funds, which improved their financial well-being. People who have a positive attitude about money are also less financially vulnerable because they have the cognitive ability to manage their resources and make better personal financial decisions, especially in a complex and uncertain environment (Serido et al., 2013). Moreover, Poh et al. (2021) also found the importance of positive money attitudes of Malaysian working adults to reduce their financial vulnerability.

In terms of financial behavior this study found that is has a negative impact on financial vulnerability (H_4) among Malaysian households supporting the findings of Chong et al. (2021) and Poh et al. (2021) who discovered that individuals with positive financial behaviors less vulnerable to the financial matters. This would change people's motivation to take steps to improve their situation, emphasizing that positive financial behaviors are a critical component of personal finance in order to avoid financial vulnerability. As a result of high borrowing costs, income unpredictability and growing expenditure as a result of a lack of healthy financial practices, Malaysian working households face a variety of financial issues and financial stress (Sabri et al., 2021c). Hence, the negative correlation between financial behavior and financial vulnerability was further confirmed by the results of this study.

The results also confirmed that those with a higher level of self-efficacy tend to be more responsible to decrease the financial vulnerability of adults (H_6). Thus, having an enhanced self-efficacy may motivate households to work diligently toward their financial goals in order to increase their financial health by reducing financial vulnerabilities. Working adults with higher self-efficacy may believe they have a greater capacity to handle their finances which may inspire them to participate in responsible financial behavior which leads to increased financial well-being (Sabri et al., 2020). Low self-efficacy affects both achievements, ambitions and motivation (Dinther et al., 2011) results in lower well-being and financially vulnerable. Moreover, Chong et al. (2021) also found a negative association between self-efficacy and financial vulnerability of young employees in Malaysia. Thus, having a high level of financial self-efficacy was linked to financial happiness, reduced financial stress, fewer financial issues, lower debt and higher savings all of which are important factors in reducing financial vulnerability (Lapp, 2010).

The hypothesis; H_7 that suggests a negative association between financial vulnerability and financial health was also confirmed, and the results are consistent with previous findings (Sabri et al., 2021b). Further, financial vulnerability has a positive association with depression, and negative association with life satisfaction among the young mothers, and it is the strongest predictor of life satisfaction (Melhuish et al., 2008). Therefore, financial vulnerability was identified as negative determinant of financial health and individual life satisfaction.

The findings of this study also confirmed the mediating role of financial vulnerability in the influence of money attitude (H_8), financial behavior (H_9) and self-efficacy (H_{10}) on financial health among Malaysian households. The findings explain the mechanism by which money attitude, financial behavior, and self-efficacy are related to financial health, which suggests that financial vulnerability explains how these variables are associated. Moreover, reduced financial vulnerability was reported to enhance workers' well-being (Muench et al., 2021), money attitudes, financial behavior and self-efficacy (Poh et al., 2021). Moreover, to the best of the authors' knowledge this is the first study in which mediation effect of financial vulnerability have been investigated on the relationships between money attitudes, financial behavior, self-efficacy, and financial health. Therefore, direct evidence was not reported to prove the three mediation effects but above mentioned indirect evidences can be effectively used to validate the current findings. Further, the mediation effects demonstrated the critical importance of financial vulnerability in influencing the financial health of Malaysian households. This indicates that less financial vulnerability enables households to effectively translate their positive money attitudes, financial behaviors and high self-efficacy into enhanced financial health. Moreover, 7.2% of the additional variance in financial health was clarified by the mediating effects of the financial vulnerability in the model.

5.0 Conclusion and Recommendations

All ten evaluated hypotheses as suggested in the study framework were empirically supported. Hence, the current study provides empirical evidence that the money attitudes, financial behavior and self-efficacy have a noteworthy effect on the Malaysian households' financial health. Further, 49.1% of the variance of financial health was also explained by the total effect model. Among all the determinants directly linked with financial health in the proposed model, financial behavior ($\beta = 0.326$, $t = 8.865$, $p < 0.001$) has the greatest influence trailed by money attitude ($\beta = 0.186$, $t = 2.783$, $p < 0.01$) and self-efficacy ($\beta = 0.067$, $t = 1.990$, $p < 0.05$). Further, money attitude, financial behavior and self-efficacy were revealed negatively influenced the financial vulnerability and 48.8% of variance was also clarified by the three variables. The associations between money attitudes, financial behavior, self-efficacy and financial health were hypothesized to mediate by financial vulnerability and all the mediating paths were supported, and 7.2% of additional variance was also explained by the mediating effects. Furthermore, the results revealed that the Family Resource Management Model fitted well to the study because the resources, for example money attitudes, financial behavior, self-efficacy of individuals of a family is important for them to reduce household financial vulnerability (throughput) and gives the output (financial health) which is significant for the overall well-being of the family. Moreover, the concept and the variable from Self-Efficacy Theory significantly contributed to the theoretical framework to clarify more than half (56.3%) of the variance in financial health.

Current study was restricted to the financial factors, and psychological factors of financial health and therefore, to generate metrics of other specific aspects of financial health, more scale development is required. Then it might be possible to recognize elements accompanying with specific dimensions of financial health other than financial, and psychological components as well as with the global measure of this concept. Additionally, the outcomes of this study are restricted to Malaysian households in this sample. Due to potential inequalities in people's financial and psychological activities a sample covering diverse populations could produce different results. As a result, further investigations on the associations between financial health drivers and individual financial health should be undertaken with different contexts and nations. Further, authors cannot make any casual claims or evaluate the links between the investigated antecedents and financial health over the time due to the cross-sectional nature of this study. Research designs that allow for causal inference are required to conduct a true causal examination of the impact of individual financial health. Hence, future studies should use a longitudinal design to investigate the relationships between financial health drivers and individual financial health over time. Moreover, future research should build on this work by developing and testing integrated comprehensive models with the goal of capturing a more holistic knowledge of the underlying causes of financial health.

Moreover, conducting gender specific awareness programs (Mokhtar et al., 2020) to improve their financial related factors is another specific area that would be considered by the pedagogists in order to enhance the financial health of the households. Also, due to the significant effect of financial related factors, and financial health on poverty (Wijekoon et al., 2021) the outcomes of this research will make it easier for policy makers to plan and evaluate programs and policies which are related to poverty alleviation especially for low- and middle-income households in order to improve their overall well-being. Also, due to the significant effect of financial related factors and financial health on poverty (Wijekoon et al., 2021) the outcomes of this research will make it easier for policy makers to plan and evaluate programs and policies which are related to poverty alleviation especially for low- and middle-income households in order to improve their overall well-being. Moreover, pedagogists can integrate these financial health determinants in to the school syllabus in order to familiarize students on them and guide students to achieve better financial health in future. Self-efficacy Theory and Family Resource Management Model integrated theoretical framework with financial and psychological determinants of financial health is important for researchers to use them in their future studies by integrating new theories, and new variables.

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