The Relationship Between Financial Literacy and Financial Wellbeing Among Muslim Women in Indonesia and Malaysia

Aulia Arifatu Diniyya[a], Salina Kassim[b], Saidatolakma Mohd Yunus[c]

[a,b] IIUM Institute of Islamic Banking and Finance, International Islamic University Malaysia, Kuala Lumpur, Malaysia
[c] Abdul Hamid AbusulaymanKulliyyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, Kuala Lumpur, Malaysia

*Corresponding author: auliaariefa@gmail.com

Abstract

Women's participation in economic activity could contribute to the high annual global output. Good financial planning, as well as good financial knowledge, attitude, and behaviour, can improve women's wellbeing. The purpose of this study is to examine the relationship between financial literacy dimensions (knowledge, attitude, and behaviour) and financial wellbeing among women in Indonesia and Malaysia. A quantitative method of study is employed by distributing 411 questionnaires that consist of financial knowledge, financial attitude, financial behaviour, and financial wellbeing questions. Indonesian and Malaysian women were found to have a moderate level of financial knowledge. Financial knowledge was found to have a positive and significant relationship with financial attitude, but it has no significant relationship with financial behaviour. The financial attitude was found to have a positive and significant relationship with financial behaviour and mediates the relationship between financial knowledge and financial behaviour. Financial attitude and financial behaviour were found to have a positive and significant relationship with financial wellbeing. This study contributes to the literature by showing that financial knowledge alone does not directly lead to positive financial behaviour; instead, it shapes financial attitudes, which in turn influence behaviour. When women develop positive financial attitudes, they are more likely to practice responsible financial behaviours and make sound financial decisions. Thus, achieving financial wellbeing requires not only improving knowledge but also fostering the right financial attitudes that can translate knowledge into right financial behaviour.

Keywords: Women's financial literacy, financial wellbeing, financial knowledge, financial attitude, financial behaviour.

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1. Introduction

The development of women's empowerment is well recognized as an effective way to narrow the current gender gaps in the labor market as well as to promote inclusive growth. Women empowerment has been proven to have multiplier effects on decent employment, poverty eradication, and economic growth. The Economist (2006) made an assessment and argued that an increase in women's employment in the advanced world had been the main driving force of growth in the past couple of decades. Some of the official institutions, like the Organization for Economic Cooperation and Development (OECD), International Labour Organization (ILO), International Monetary Fund (IMF), World Bank, and United Nations (UN), as well as some private institutions and economists, have been working on piecing together substantial parts of the gender growth puzzle over decades. The goal is to quantify the increased impact the number of women in the paid workforce has had on past economic growth.

According to OECD (2012), the closing gender gap in the labor force will increase the Gross Domestic Product (GDP) by 12% over the next 15 years, and some emerging countries could see an increase of 20% or more in their GDP. Women's participation in economic activity could result in an additional US $12 trillion to

annual global output by 2025 (UN, 2018). Typically, women will spend more of their income to invest in their families (health, education, and welfare) than men do. In fact, women in the paid labor force can provide a double boost to human capital as well as the economy. In addition, according to a Global Entrepreneurship Monitor (GEM) Women's Special Report (2015), men used 30 to 40 cents of every dollar they earned for their family's education, health, and nutrition, while women devoted 90 cents. Therefore, enhancing women's economic participation is critical for sustainable development goals, especially in achieving the specific goals of women's empowerment, zero poverty, gender equality, and quality education.

The International Labour Organization (2018) reported that the current global labor force participation rate for women is close to 49%. In comparison, men's participation is 75%. The figure shows a difference of 26% points. Along with the effort of closing the gender gap in labor participation, both men and women need to sufficiently understand financial literacy to participate in economic activities effectively and to make sound decision on financial decisions for themselves and their families. However, the need to improve financial literacy is even more pressing among women compared to men. Some studies showed that women tend to have a lower level of financial knowledge than men, suggesting that it may be difficult for them to face the challenges in achieving their financial wellbeing.

In today's modern era, the traditional view of women who should be at home has begun to shift. Good financial planning, as well as good financial knowledge, attitude, and behaviour, can improve women's welfare. What determines the gender gap in financial literacy still requires attention. Therefore, to improve financial literacy, it is necessary to survey what the important dimensions of financial literacy are to improve financial wellbeing.

Based on the previous study conducted by the author, Muslim women in Indonesia and Malaysia were found to have a moderate Islamic and general financial knowledge level (Diniyya et al, 2022). Several areas of weakness were found, including the understanding of the role of parties in the mudharabah contract, knowledge of zakat, and the simple time value of money calculation. Furthermore, this research is an extension of the previous study to address the gap in financial knowledge, attitude, behavior, and wellbeing among women in Indonesia in Malaysia, so that the result of this study will provide insights into the approach to improving women's financial literacy and financial wellbeing.

2. Financial literacy and financial wellbeing definition

Financial literacy is defined by the President's Advisory Council on Financial Literacy (PACFL, 2008) as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial wellbeing. To accommodate the financial problem, women need financial literacy to manage their cash flow and money wisely to ensure the sustainability of their finances and support their families. Another definition of financial literacy for adults was stated by the OECD (Atkinson & Messy, 2012) as "a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make a sound financial decision and achieve financial wellbeing." Financial literacy in the context of small and medium enterprises is defined as "the combination of awareness, knowledge, skill, attitude, and behaviour that an entrepreneur or an owner of the micro, small, medium businesses should have to for an effective financial decision making to start, run, and ensure the sustainability and growth of the business" (OECD, 2018). While Islamic literacy is defined as the ability of a person to use financial knowledge, skill, and attitude in managing financial resources according to the Islamic teachings (Rahim et al, 2016).

Financial wellbeing is defined as a state of mind that measures satisfaction with financial matters (Muleke & Murithi, 2013). Consumer Financial Protection Bureau (2015) defines financial wellbeing as a state of being wherein a person meets their current and ongoing financial obligations, feels secure in their financial future, and can make choices for a joyful life. An individual's financial wellbeing can be influenced by their financial decision, which are also affected by their financial literacy level. Addin et al. (2013) noted that individuals with higher financial literacy make better decisions and enjoy higher financial security and wellbeing.

3. Empirical Studies and Hypotheses Development

Studies reveal that financial literacy equips individuals with skills to navigate financial challenges, which fosters increased financial wellbeing (Lusardi & Messy, 2023; Estrada-Mejia et al., 2023). Mahendru et al. (2020) and Estrada-Mejia et al. (2023) found a direct positive correlation between financial literacy and financial wellbeing. They suggested that individuals with greater financial knowledge are better positioned to meet their financial obligations and feel secure in their financial future. Individuals who have strong financial

knowledge tend to have a greater financial attitude. Atmaningrum et al. (2021) argued that better financial knowledge can support the development of positive financial attitudes because people can understand when they can apply their financial knowledge and can relate their knowledge of their knowledge to their financial behaviours. The empirical evidence suggests that financial knowledge creates a sense of responsibility and a proactive role in planning their finances. According to Selvia et al. (2021), financially knowledgeable individuals are likely to demonstrate better financial behaviours such as planning and managing, which influences their attitudes positively toward their finances.

Above all, people can make informed decisions when they understand that their financial decisions will have certain consequences and thus develop discipline to budget and save and positively influence their overall financial attitude (Atmaningrum et al., 2021). Additionally, financial attitudes may also reflect an individual's financial knowledge. Loppies (2023) notes that individuals who have a good grasp of financial concepts develop more disciplined financial habits and practice budgeting and savings. From the relationship between financial knowledge and financial attitude found in previous studies, the following hypotheses are developed:

H1: Financial Knowledge has a significant relationship with financial attitude.

Selvia et al. (2021) argued that financial knowledge allows individuals to make effective financial decisions and handle their resources, thereby leading to improved financial behaviour and financial planning. Lukesi et al. (2021) supported this argument and found that increased financial knowledge has a clear role relating to effective financial management behaviour among the millennial generation. This is consistent with the idea that those who understand financial concepts will demonstrate responsible actions towards their finances (Lukesi et al., 2021).

Financial behaviour is frequently indicated by how a person utilises their financial knowledge in real-life situations. Masdupi et al. (2020) argued that there is a strong positive correlation between financial knowledge and financial behaviour in a productive-age community and illustrated that individuals with a better understanding of the financial context tend to act in a much more proactive financial behaviour, such as budgeting and managing expenses. These behaviours are crucial for personal financial management and long-term financial wellbeing. Therefore, the following hypotheses are developed:

H2: Financial Knowledge has a significant relationship with financial behaviour.

An individual's financial attitudes, which refer to personal beliefs and feelings toward managing finances, significantly influence their financial behaviour. A positive financial attitude cultivates financially responsible behaviours. While a negative financial attitude may result in poor financial behaviours (Loppies, 2023; Anisah et al., 2023).

Research shows that individuals with positive financial attitudes are more likely to participate in positive financial practices, including budgeting, saving, and investing as opposed to impulsive spending and accumulating debt. For example, Tuffour et al. (2020) concluded that financial attitudes have a direct effect on how individuals manage their personal financial resources, emphasising that thinking of finances positively enhances financial performance. This idea is further supported by Loppies (2023), who argued that there is a statistically significant relationship between financial attitude and financial behaviour. Moreover, positive financial attitudes are associated with better self-control in spending. According to Anisah et al. (2023), a sound financial attitude reflects an individual's ability to budget and execute financial plans, which are important components of positive financial behaviour. This indicates that when individuals have a positive attitude towards financial management, they are more likely to translate that attitude into responsible financial behaviour. From the findings above, the following hypotheses are developed:

H3a: Financial attitude has a significant relationship with financial behaviour.

Furthermore, Yeolencia and Lestari (2024) suggest that financial attitude can mediate the relationship between financial knowledge and financial behaviour. Their study indicates that individuals with positive financial attitudes are more likely to implement the financial knowledge they have acquired into actionable financial behaviours. Additionally, Çoşkun & Dalziel (2020) pointed out that financial attitudes help bridge the gap between what individuals know about finance and how they behave in financial contexts. In their survey, they found that when financial attitude acts as a mediator, the relationship between financial knowledge and financial behaviour becomes stronger, according to the SEM analysis. Thus, we develop the following hypothesis:

H3b: Financial attitude mediates the relationship between financial knowledge and behaviour.

Several studies have shown a positive correlation between good financial behaviours and better financial wellbeing. Kumar et al (2023) showed that different kinds of financial behaviours, such as managing credit responsibly and savings, are amongst the strongest determinants of financial wellbeing. Arsalan et al (2022) support this notion, and they identified that better financial behaviours will lead to a greater acceptance of financial inclusion and access to products that will produce enhanced security, and ultimately greater overall financial wellbeing. Botha et al (2024) observed that good financial behaviours are essential as a strategy for financial wellbeing. They highlighted the importance of continued financial literacy as part of developing habitual behaviours such as saving and wise spending for achieving higher overall financial wellbeing. Additionally, Sehrawat et al. (2021) found a significant positive link between responsible financial behaviours and perceived financial wellbeing. They suggest that individuals who practice sound financial management perceive themselves as having a better financial situation and future (Sehrawat et al., 2021). Based on this literature, the following hypothesis is developed:

H4: Financial behaviour has a significant relationship with financial wellbeing.

In addition, Nuraini et al. (2019) stated in their study that attitude toward money has a positive relationship with financial wellbeing. This finding is also supported by a study by Setiyani and Solichatun (2019) on financial wellbeing among university students, which found that financial attitude has a positive relationship with financial wellbeing. They stated that financial attitude could make the students more concerned about their financial prosperity. A study by Owusu (2021) suggests that individuals with a positive financial attitude are more likely to experience higher levels of financial satisfaction, which positively influences overall financial wellbeing. Therefore, the following hypothesis is developed:

H5: Financial attitude has a significant relationship with financial wellbeing.

4. Review of conceptual and theoretical perspectives: knowledge-attitude-behaviour model

The knowledge, attitude, and behaviour (KAB) model, or in another study known as the Knowledge, Attitude, and Practice (KAP) model, is widely used in health education fields. This model is commonly used in a survey to study a specific population and collect information on what is known, believed, and done on a particular topic (WHO, 2008). The survey on knowledge, attitude, and behaviour can be used to describe the current population's knowledge, attitude, practice or behaviour, problem identification, and intervention planning. In a study by Bano et al. (2013), this model suggests that an increase in knowledge affects attitude and consequently changes the practice.
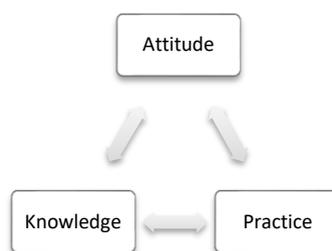

Figure 1. Knowledge- Attitude- Practice model. Source: Bano et al. (2013)

According to Scharader & Lawless (2004), Ajzen and Fishbein (1977) reported that although attitude is not the sole indicator of behaviour, it is one of the factors in determining behaviour. What an individual knows about a particular topic will inform his/her attitude about that topic, and then what he/she knows about that topic may influence his/her behaviour. Previously, Fishbein (1967) indicated that attitude could also be aligned with behaviour, and behaviour can inform attitudes; then attitude will influence the intention. Thus, attitude can impact individuals' perceptions and, therefore, impact the knowledge of that individual. Therefore, Scharader & Lawless (2004) concluded that the relationship between these three dimensions of knowledge, attitude, and behaviour is dynamic and sometimes reciprocal.

Financial knowledge is an important component of financial literacy that helps individuals compare financial products and services and make sound financial decisions. Sanderson (2015) defined financial literacy

as an individual's capability to use his/ her knowledge and skills to make an appropriate financial decision for effective financial management. In addition, Huston (2010) defined financial knowledge as an understanding of key financial terms and concepts for financial decisions.

Financial attitude is defined as a state of mind, opinion, and judgment about finances (Pankow, 2012). Some studies found that financial attitude is influenced by financial knowledge (Yahaya et al., 2019; Hussain et al., 2018; Coskun & Dalziel, 2020). Furthermore, financial behaviour is an essential element of financial literacy, and it is found to be a determinant of financial literacy (OECD, 2013). Financial knowledge and financial attitude were found to have a positive relationship with financial behaviour (Lukesi et al., 2021; Masdupi et al., 2020; Anisah et al., 2023; Loppies, 2023; Potrich et al., 2016; Serido et al., 2013; Yahaya, 2019). Basically, the KAB model states that as knowledge increases, attitude will change, and later, it leads a person to eventually change their behaviour towards a particular outcome.

5. Conceptual Framework

Based on the literature, financial literacy significantly affects financial wellbeing. In this conceptual framework, we draw down the dimensions of financial literacy into three aspects: financial knowledge, financial attitude, and financial behaviour. The dependent variable of this research is financial wellbeing, which is the variable of primary interest. This chapter attempts to explain the variance in this dependent variable by four independent variables (1) financial knowledge, (2) financial attitude, and (3) financial behaviour. Based on the literature review, it was found that financial knowledge influences financial attitude, which later influences financial behaviour. Therefore, financial attitude will be observed as the mediating variable in the relationship between financial knowledge and financial behaviour.

The proposed conceptual model consists of two dimensions, namely the knowledge and application dimensions. Perceiving financial literacy is a process that starts with input, throughput, and output. According to Huston (2010), the first path of financial literacy occurs from the change in attitude due to the improvement of financial knowledge. The second path is where financial knowledge has a direct impact on financial attitude and behaviour which resulting in financial wellbeing. The proposed research framework is shown in Figure 2.
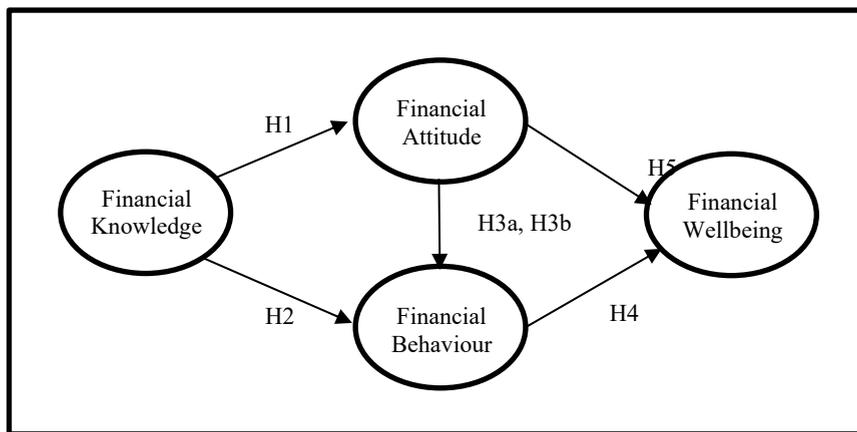

Figure 2: Research Framework

6. Methodology

This study employs a purposive sampling method, targeting educated Muslim women in urban areas of Indonesia and Malaysia, as they are more likely to engage with both conventional and Islamic financial products. The questionnaires were distributed to 206 Indonesian women and 205 Malaysian women, with a total of 411 respondents. The sample size of each country is considered adequate to ensure sufficient statistical power and representativeness (Sathyanarayana et al, 2024). The data collection was completed in 2022, with the questionnaire consisting of two types. The first is the questionnaire of financial knowledge, which uses true or false questions about basic knowledge of Islamic and general financial literacy. Second, the questionnaire is divided into three categories based on the variables of the study, namely, financial attitude, financial behaviour, and Islamic financial wellbeing. The closed question in the questionnaire will employ a five-point Likert scale to measure the tendency of the respondent on each variable.

7. Findings and Discussion

The total data collected for this study is 411. 50.1% (n = 206) are Indonesian respondents, and 49.9% (n = 205) are Malaysian respondents. 64.5% of the respondents are 23-29 years old. The majority of women in this study are single at 54.5%, followed by married women at 42.3%. In terms of education, 56.0% of the respondents hold a bachelor's degree, while 34.8% hold a Master's degree. Women with private employee occupations are dominant, with a 30.2% contribution.

Table 1: Demographic profile of respondents

Indonesian Respondents		Malaysian Respondents		Total percentage
Age	**Total**	**Age**	**Total**	
18-21	1	18-22	27	6.8%
23-29	135	23- 29	130	64.5%
30-45	65	30-45	42	26.0%
46 Above	5	46 Above	6	2.7%
Marital Status		**Marital Status**		
Single	81	Single	143	54.5%
Married	119	Married	55	42.3%
Widowed	6	Widowed	4	2.4%
Divorced		Divorced	3	0.7%
Education		**Education**		
Senior High School	0	Senior High School	7	1.7%
Junior High School	0	Junior High School	3	0.7%
Diploma	9	Diploma	12	5.1%
Bachelor	118	Bachelor	112	56.0%
Master	74	Master	69	34.8%
PhD	5	PhD	2	1.7%
Occupation		**Occupation**		
Undergraduate Student	3	Undergraduate Student	60	15.3%
Postgraduate Student	30	Postgraduate Student	42	17.5%
Self-employed (Entrepreneur)	20	Self-employed (Entrepreneur)	8	6.8%
Civil Servant / government employee	22	Civil Servant / government employee	30	12.7%
Private employee	69	Private employee	55	30.2%
Housewife	40	Housewife	8	11.7%
Other	22	Other	2	5.8%
Monthly Income		**Monthly Income**		
Rp1.000.000-3.000.000	73	Less than RM 1000	90	39.7%
Rp3.000.000-5.000.000	67	RM 1,000- RM 3,000	63	31.6%
Rp5.000.000-10.000.000	36	RM 3,000- RM 5,000	41	18.7%
Rp 10.000.000-20.000.000	26	RM 5,000 & above	11	9.0%
Rp 20.000.000 & above	4			1.0%
Total	**206**	**Total**	**205**	**100.0%**

8. Data Analysis

The data obtained from the respondents through the questionnaire were analyzed using a quantitative technique. The quantitative analysis used to test the hypotheses of this study is the Structural Equation Model (SEM)

analysis using AMOS version 24. The Structural Equation Model is used to examine the relationship among the constructs. According to Hair et al. (2006), SEM is the best analytical method to test multiple effects between independent and dependent variables simultaneously. Furthermore, to test the mediation analysis of the hypothesis, the Sobel Test was taken to test the significance of a mediation effect.

Table 2: Questionnaire statements

Construct	No	Items/ statements
Financial Knowledge	1	Islamic method of finance is interest-free (True)
	2	Gharar refers to any transaction in which its existence or description of the object is not certain due to a lack of information and knowledge on the ultimate result of the contract (True)
	3	An Islamic financial institution may invest with you according to the profit-sharing method (Mudarabah) (True)
	4	In Mudarabah, the capital provider is the only party that born the losses (True)
	5	Zakat is a determined amount of wealth that is paid annually from a person's wealth according to the methods and rulings of Islam to those who have the right to receive it. How much is the amount of *nisab* for Zakat Mal? (85 gram of gold)
	6	Takaful can provide coverage and benefits similar to conventional insurance (True)
	7	Suppose you put $100 into a (no fee, tax-free) savings account with a profit rate of 2.78% per year. You don't make any further payments into this account, and you don't withdraw any money. Once the profit is paid, your money in the account at the end of the first year would be $102.8 (true)
	8	Buying shares on a short-term price fluctuation is not speculation (False)
	9	An investment with a high return is likely to be high risk/ or If someone offers you the chance to make a lot of money, it is likely that there is also a chance that you will lose a lot of money (True)
	10	Inflation doesn't affect the living cost (False)
Financial Behaviour	1	I tend to worry about paying my normal living expenses.
	2	My finances control my life.
	3	Before I buy something, I carefully consider whether I can afford it
	4	I have money left over at the end of the month, and I am willing to save it
	5	I pay my bills on time
	6	I am happy to discuss my financial situation with people I know well
	7	I set long term financial goals and strive to achieve them
	8	I keep a close personal watch on my financial affairs
	9	If I borrow money, I have a responsibility to pay it back
	10	Even on a low income, I save a little regularly
	11	I contribute to an investment account.
Financial Attitude	1	I am concerned that my money won't last
	2	My financial situation limits my ability to do the things that are important to me
	3	When I have savings, I will not spend them soon to realize my wishes
	4	I have the feeling that money and finances are not too complicated for me
	5	When I have money, I should not flaunt it
	6	If today I will withhold some expenses and save, I will be better off in the future
	7	I rarely spend more money than I intended too
	8	I rarely buy things without thinking whether I can afford them or not
	9	I think I am capable of managing my money
	10	I am not troubled by financial worries
	11	Having debt is never a good thing
	12	I know how to determine how much money need to live comfortably throughout retirement

	13	I feel putting away money each month for savings or investments is important
Financial Wellbeing	1	I could handle a major unexpected expense
	2	I am securing my financial future
	3	Because of my money situation, I feel like I will never have the things I want in life
	4	I can enjoy life because of the way I'm managing my money
	5	I am just getting by financially
	6	I am concerned that the money I have would not last
	7	Giving a gift for a wedding, birthday, or other occasions would put a strain on my finances for the month
	8	I have money left over at the end of the month
	9	I am behind with my finances
	10	My finances control my life

8.1. Goodness-of-Fit Test

The measurement model test is to test the relationship between indicators and latent variables. The combination of structural model testing and measurement allows researchers to test measurement error as an integral part of SEM and perform factor analysis along with hypothesis testing (Bollen, 1989). According to Ghozali (2004), two steps must be taken. First is a path diagram, which arranges the structural model by relating the latent constructs, including endogenous and exogenous. The second is the structural equation, which is arranged in the measurement model. Path diagrams and structural equations show the causal relationship between financial knowledge, financial attitude, and financial behaviour towards financial behaviour. The path diagram and structural equation using AMOS software are shown in Figure 3.
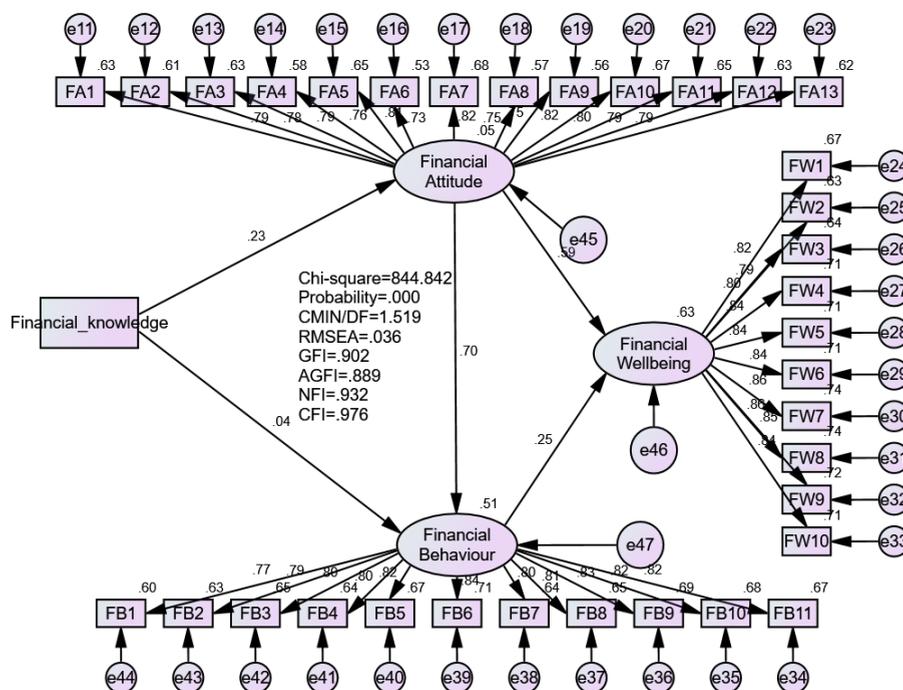

Figure 3: Path diagram and Structural Equation Model (AMOS)

The goodness-of-fit test is used to determine whether the model can be statistically accepted or not. Nevertheless, the goodness-of-fit test is not used to evaluate whether the paths in the model are statistically significant or not. If the model is statistically accepted, the paths in the model can be interpreted. Fit index and cut off the value that is used to test whether the model can be accepted or not are as follows Chi-Square, Root

Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI).

Table 3: Goodness of Fit Index

Fit Measure	Good Fit	Acceptable	Result	Criteria
χ^2	$0 \leq \chi^2 \leq 2df$	$2df < \chi^2 \leq 3df$	844.842	Good Fit
p value	$.05 < p \leq 1.00$	$.01 \leq p \leq .05$	.000	Acceptable
χ^2/df (CMIN/DF)	$0 \leq \chi^2/df \leq 2$	$2 < \chi^2/df \leq 3$	1.519	Good Fit
RMSEA	$0 \leq RMSEA \leq .05$	$.05 < RMSEA \leq .08$	.036	Good Fit
NFI	$.95 \leq NFI \leq 1.00$	$.90 \leq NFI < .95$	.932	Acceptable
CFI	$.97 \leq CFI \leq 1.00$	$.95 \leq CFI < .97$	.976	Good Fit
GFI	$.95 \leq GFI \leq 1.00$	$.90 \leq GFI < .95$	.902	Acceptable
AGFI	$.90 \leq AGFI \leq 1.00$, close to GFI	$.85 \leq AGFI < .90$, close to GFI	.889	Acceptable

The Absolute Fit Measures measured by Likelihood Chi-square, probability, CMIN/DF, GFI, and RMSEA, have all reached the cut-off value. The Incremental Fit Measured, which is measured by AGFI, CFI, and NFI, has all reached the cut-off value. Overall, Table 3 shows that Likelihood Chi-square, probability, CMIN/DF, GFI, RMSEA, AGFI, CFI, and NFI have reached the cut-off value. It can be concluded that the parameter has met the expected requirement, and the model meets the assumption of the Goodness of Fit model.

8.2. Validity and Reliability of Measurement Model

Indicators are said to be valid if they have a loading factor value with the latent variable to be measured more or equal to 0.5 (≥ 0.5); if one of the indicators has a loading value less than 0.5, then the indicator must be dropped because it will indicate that the indicator is not good enough to measure the variable latent appropriately. The Confirmatory Factor Analysis is established to find the loading factor of each indicator. The results of the CFA validity test show that the value of the loading factor on all variable items is more than 0.5; thus, the indicators are considered valid.

The alpha scale is used to test the reliability of the data. Reliabilities less than 0.600 are considered poor, while those in the 0.700 range are considered acceptable, and those in the range over 0.800 are considered good (Sekaran & Bougie, 2013). If Cronbach's alpha is more than 0.600, it can be considered acceptable and good for other measures. The result of the reliability test of this study shows that all variables are reliable.

Table 4: Loading Factors and Cronbach's Alpha

Items	Loading factor	Reliability
Financial knowledge	-	0.611
FA1	.794	
FA2	.780	
FA3	.792	
FA4	.763	
FA5	.809	
FA6	.729	
FA7	.822	0.952
FA8	.753	
FA9	.749	
FA10	.818	
FA11	.804	
FA12	.792	
FA13	.788	
FW1	.817	0.958

FW2	.795	
FW3	.802	
FW4	.844	
FW5	.840	
FW6	.842	
FW7	.858	
FW8	.861	
FW9	.846	
FW10	.842	
FB11	.817	
FB10	.822	
FB9	.832	
FB8	.806	
FB7	.798	
FB6	.844	0.954
FB5	.817	
FB4	.802	
FB3	.803	
FB2	.792	
FB1	.773	

8.3. Normality Test and Outlier Evaluation

Data assessment for normality is an essential step in almost all multivariate analyses. In applying the method of maximum likelihood estimation, the normal distribution of each variable is required (Kline, 2010). One way to examine the normality assumption is by looking into the skewness and kurtosis values of univariate variables. McDonald and Ho (2002) suggested that the normality assumption is achieved if skewness and kurtosis values are no more than 3.0 and 10.0, respectively. The result shows that a normal assumption is achieved since all skewness values are less than 3.0 and the kurtosis value is less than 10.0.

Outlier evaluation is carried out to see the condition of observations from data that have unique characteristics that look very different from other observations and appear in extreme forms, either for a single variable or for combination variables (Hair et al., 2010). Evaluation of the Multivariate Outliers can be observed from the value of Mahalonobis Distance. Suppose the Mahalonobis d-Squared on AMOS computation is greater than the Chi-Square value in the degree of freedom of the number of item variables, and at the level of significance is 0.001. In that case, the data indicates the existence of Multivariate Outliers (Waluyo, 2016). The CHIINV function in Excel was calculated to find the critical value of the Outlier test. Based on the calculation in Microsoft Excel, the critical value for the outlier test is 67.985. The obtained highest value on Mahalonobis d-Squared is 65.984. There were no outliers found in the Mahalonobis distance since the Mahalonobis d-Squared value is less than 67.985.

8.4. Structural Equation Model (SEM) Evaluation on Hypotheses Testing.

The objective of this study is to find the relationship between financial knowledge, financial attitude, and financial behaviour. For this purpose, six hypotheses have been developed based on the literature and the theory of knowledge, attitude, and behaviour model (KAB model). Based on the result, five of these hypotheses are found to be statistically significant, and only one of the hypotheses is rejected. Table 5 shows the statistical result based on the maximum likelihood estimation and the parameter estimates that support the adequacy-modified model.

Table 5: Statistical Result

H	Hypothesized Path	Estimates	S.E.	Remark	Decision
H1	FK → FA	.080	.018	***	Financial Knowledge and Financial Attitude are significant and positively related (**Supported**)
H2	FK → FB	.017	.014	.252	Financial Knowledge and Financial Behaviour are not significant and not positively related (**Not supported**)
H3a	FA → FB	.766	.056	***	Financial Attitude and Financial Behaviour are significant and positively related (**Supported**)
H3b	FK → FA → FB	The Sobel Test result shows a value of 4.01, which is higher than 1.96 (critical value for the Sobel Test) and a significant value of 0.000 (<0.05).			According to the Sobel Test, there is an indirect effect of Financial Knowledge on Financial Behaviour through Financial Attitude (**Supported**)
H4	FB → FW	.240	.049	***	Financial Behaviour and Financial wellbeing are significant and positively related (**Supported**)
H5	FA → FW	.617	.060	***	Financial Attitude and Financial wellbeing are significant and positively related (**Supported**)

8.5. Sobel Test for Mediating Effect Evaluation

Mediation testing was done by using the Sobel Test. The results of the Sobel Test can be shown in Figure 4. Before conducting the Sobel Test, the path analysis through regression using SPSS 26.0 was conducted to find the regression coefficients. Afterwards, the regression coefficient value was used to calculate the result of the Sobel Test. According to Preacher K & Hayes (2004), the rough critical value for the two-tailed version of the Sobel Test, assuming that the sampling distribution is normal, is 1.96.

Figure 4: Path analysis of the mediation effect
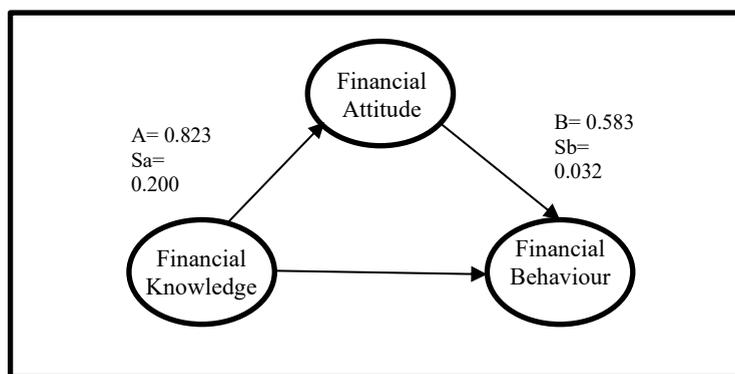
The Sobel Test result shows a value of 4.01, which is higher than 1.96 (critical value for the Sobel Test) and a significant value of 0.000 <0.05; thus, there is an indirect effect of Financial Knowledge on Financial Behaviour through Financial Attitude. The result implies that Financial Attitude mediates the relationship between Financial Knowledge and Financial Behaviour.

Figure 5: The Sobel Test result

The statistical analysis of this study found that among six hypotheses, only five of them are supported, and one is not supported. Financial knowledge was found to have a positive and significant relationship with financial attitude, but it has no significant relationship with financial behaviour. Financial attitude was found to have a positive and significant relationship with financial behaviour. The result shows that financial attitude mediates the relationship between financial knowledge and financial behaviour when testing the mediation effect of financial attitude on financial knowledge and financial behaviour. Lastly, financial attitude and financial wellbeing were found to have a positive and significant relationship with financial wellbeing.

9. Discussion of Results

The Structural Equation Model (SEM) was used to analyse the relationship between the dimensions. To achieve this objective, four hypotheses were developed to examine the relationship between the variables (H1, H2, H3a, and H3b).

The statistical result shows that in hypothesis H1, financial knowledge was found to have a positive and significant relationship with financial attitude. If financial knowledge among women is increased, their financial attitude will also be improved. This finding supports the previous studies (Yahaya et al., 2019; Salia & Karim, 2018; Coskun & Dalziel, 2020; Selvia et al., 2021; Loppies, 2023), which found that financial knowledge positively affects financial attitude.

In the second hypothesis (H2), financial knowledge was found to have a positive relationship with financial behaviour. Meaning that if financial knowledge is increased, financial behaviour will also increase. However, the statistical result shows a low confidence level of 74.8 % (or a significant level of 0.252 (>0.05)). Even though some previous studies support that financial knowledge has a positive relationship with financial behaviour, this hypothesis is not supported by this study due to the low confidence level. This result failed to support the previous findings on the significant relationship between financial knowledge and financial behaviour (Selvia et al., 2021; Lukesi et al., 2021; Masdupi et al., 2020).

The relationship between financial attitude and financial behaviour was examined in the third hypothesis (H3a). The increase in financial attitude will be followed by an increase in financial behaviour. When women have a positive financial attitude, they will likely have positive financial behaviour as well. Although financial knowledge was found not to have a significant relationship, the financial attitude was found to mediate this relationship. Hypothesis H3b found that financial knowledge has an indirect relationship with financial behaviour through financial attitude. This result supports the previous studies by Serido et al. (2013), Coskun and Dalziel (2020), and Yeolencia and Lestari (2024).

Financial wellbeing is the dependent variable of this study. Two financial literacy dimensions, namely financial attitude and behaviours were examined to find a relationship with financial wellbeing. The study found that financial attitude and financial behaviour (H4 & H5) positively influenced financial wellbeing at a significant level. It indicates that any increase in financial attitude and financial behaviour will affect women's financial wellbeing.

An important practical implication provided by the result of this study arises from the rejection of H2, which stated that financial knowledge does not significantly influence financial behaviour. This indicates that simply assisting women to increase their financial knowledge is not enough to change their financial behaviour. Financial attitudes are found to be an important mediating factor in translating financial knowledge into financial behaviours. For policymakers, this study suggests that initiatives to improve women's financial literacy should not only focus on women's technical knowledge but also address the attitudes, perceptions, and values relating to money management. Integrating modules that build confidence, financial self-efficacy, and alignment with Islamic financial principles, such as responsible spending, zakat obligation, and avoidance of

riba, may help women internalize knowledge and transform it into positive financial behaviours. Such a holistic approach would enable policymakers to design more effective financial literacy and empowerment programs, thereby supporting the achievement of financial wellbeing as a key component of the Sustainable Development Goals (SDGs).

10. Conclusion

What determines the gender gap in financial literacy still requires attention. This study evaluates the dimensions of financial literacy, namely financial knowledge, financial attitude, and financial behaviour among women in Indonesia and Malaysia. Financial knowledge was found to have a direct and positive relationship with financial attitude, but not a direct relationship with financial behaviour. However, financial attitude was found to mediate the relationship between financial knowledge and financial behaviour. It implies that in order to have positive financial behaviour, women must have a positive attitude, which is influenced by their level of financial knowledge. Lastly, the two financial literacy dimensions, namely financial attitude and financial behaviour, were found to have a positive and significant relationship with financial wellbeing. To achieve positive financial wellbeing, someone must have a positive financial attitude and financial behaviour as well. A positive mindset and perception of finance, followed by good and positive financial practice, will help Muslim women achieve their financial wellbeing and make sound financial decisions.

Besides the significant efforts made to achieve the research objectives, there have been inevitable limitations due to time constraints. The sample size of 411 respondents with a proportion of 50:50 for each country is enough for the validity and reliability of the data, and a generalisation result may require the involvement of more respondents. In addition, data from the two countries are then combined to find a relationship between the dimensions of financial literacy and financial wellbeing. However, different results might occur if the data from the two countries were analysed separately. This can be a suggestion for further research to analyse the relationship between the dimensions of financial literacy and financial wellbeing in a specific country.

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