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Lecturers' financial wellness: The role of religiosity, financial literacy, behavior, and stress with gender as the moderating variable

Susnaningsih Muat[1]* and Khairil Henry[2]

Abstract

Research aims: The study's objective is to propose and empirically test a model encompassing financial literacy, financial behavior, financial stress, religiosity, and the role of gender as moderating variable on financial wellness.

Design/Methodology/Approach: Using a convenience sampling technique, an online survey was conducted to collect data from lecturers in Pekanbaru, yielding 116 usable responses that were analyzed using partial least squares structural equation modeling (PLS-SEM).

Research findings: The study findings highlighted that financial behavior and religiosity positively impacted financial wellness, while financial stress significantly negatively influenced financial wellness. The study also confirmed the moderation role of gender in the relationship between financial literacy and financial wellness.

Theoretical contribution/Originality: This study's findings contribute to the literature by examining the role of religiosity as the determinant of financial wellness among lecturers. Specifically, this study provides new insight into lecturers' financial wellness because most previous studies focus on employees

Research limitation/Implication: This cross-sectional study was conducted at a specific time, so the causal relationships could not be established. Hence, researchers in the future may employ a longitudinal strategy to analyze changes in financial behavior and their effects across time

Keywords: Financial Wellness; Financial Literacy; Financial Behaviour; Financial Stress; Religiosity

AFFILIATION:

[1] Department of Management, Faculty of Economics and Social Sciences, Universitas Islam Negeri Sultan Syarif Kasim, Riau, Indonesia

[2] Department of Tax Administration, Faculty of Economics and Social Sciences, Universitas Islam Negeri Sultan Syarif Kasim, Riau, Indonesia

***CORRESPONDENCE:**

susnaningsih@uin-suska.ac.id

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Introduction

Financial wellness, which refers to an individual's financial health, is a comprehensive multidimensional concept that incorporates many aspects of personal finance (Joo, 2008, p. 21). According to Joo (2008), it cannot be assessed through one measure since it involves financial satisfaction, the objective status of the financial situation, financial attitude, and financial behavior. The term financial wellness is sometimes used interchangeably with financial well-being. According to the literature, well-being has five elements: career, social, financial, physical, and community – and wellness is an important part of overall well-being (Gallup, 2021). Another literature noted that if well-being is the

destination, wellness is a way of getting there; therefore, wellness is action-oriented (Brandt, 2020). The general consensus among researchers is that financial wellness is a sub-construct of overall well-being (Joo, 2008)

Evidence suggests that the employees' health and well-being within the organization are among the most critical factors affecting its performance and success (Bakker et al., 2019; Turban & Yan, 2016). Numerous studies have shown that improving employees' well-being resulted in various positive effects on both individuals and organizations, including improved performance and productivity (Hewett et al., 2018). When employees are performing at their best, institutions are at their best. However, when employees struggle financially, they are much less likely to be engaged and productive at work, directly impacting the institution's success (Manulife, n.d.). A survey also revealed that financially unwell employees spent more time worrying about their finances at work (Manulife, 2015), and nearly half of the respondents admitted that their financial worries kept them from focusing on their jobs (Manulife, 2016). The authors can therefore assume that bad performances are caused by reduced financial wellness and vice versa.

In higher education institutions (HEIs), academic staff performance is shown in the Webometrics world scientist ranking. In particular, Indonesian academics' performance is relatively lower than other developing countries because no academics from Indonesian HEIs reach this ranking (Webometrics, 2022). Indonesian HEIs are also suffering with their position in the QS World University Ranking compared to universities in neighboring countries, such as Singapore and Malaysia. No Indonesian HEIs broke into the top 100 global university rankings until 2021. Meanwhile, two universities from Singapore and one from Malaysia are included in this cluster (QS World University Ranking, 2022). Regarding scientific publications indexed in Scopus, the leading Indonesian universities, including UI, ITB, and UGM, also lagged compared to those of Malaysia (antaranews.com, 2017).

According to the QS Asia University Rankings for 2022, Indonesia's top ten universities, among the top 300 in Asia, are in Java (QS Top Universities, 2022). Meanwhile, the universities on Sumatera Island (Universitas Sumatera Utara, Universitas Andalas, and Universitas Syiah Kuala) only managed to be in the top 650. Specifically, it can be seen from the list that none of the universities in Riau are ranked in the QS Asia University Ranking. Statistics indicate that Riau's HEIs perform worse than some neighboring provinces. Low performance denotes low well-being; accordingly, examining the factors that shaped the lecturers' financial wellness is crucial, particularly in Riau Province.

Numerous researchers have attempted to explain and predict personal financial wellness. However, relatively little theoretically based empirical research on the relationship between personal financial problems and financial wellness concerns has appeared in the literature, suggesting a need for more empirical research. Furthermore, most of the studies on financial wellness have been focused on employees (Delafrooz & Paim, 2011; Garman et al., 1999; Joo, 1998; Joo & Garman, 1998a, 1998b), college students (Montalto et al., 2019), and young adults (Rutherford & Fox, 2010), but lack of study that focused on the financial wellness of lecturers or academicians.

Past studies have also documented the determinants of financial wellness, such as financial education in the workplace (Garman et al., 1999), financial behaviors, financial stress level, financial literacy, income, gender, marital status, homeownership, level of education (Delafrooz & Paim, 2011), financial self-efficacy, students' loans (Montalto et al., 2019), credit management, and attitude toward risk (Rutherford & Fox, 2010). Nevertheless, research has been surprisingly limited to the influence of religion in one of the most important consumer domains: financial wellness. Religious faith strongly influences and inspires many people (Sarofim et al., 2020). Religious belief also impacts peoples' attitudes, motivation, and behavior (Hood et al., 2009; Minton et al., 2015). A study has found relationships between financial satisfaction and religiosity measures (Kose & Cinar, 2020); thus, since financial satisfaction is involved in determining financial wellness, it may be assumed that religiosity will impact financial wellness.

This paper contributes to the literature in several ways. *First*, this study investigates the role of religiosity on the financial wellness of lecturers, which, to the best of researchers' knowledge, has been scarcely examined in such a context. *Next,* most previous empirical studies focused on workers' or employees' financial wellness, while this survey is among lecturers.

Literature Review and Hypotheses Development

Financial Wellness

Joo (1998) conceptualized financial wellness as 'the level of financial health,' which includes satisfaction with material and non-material aspects of one's financial situation, perception of financial stability including the adequacy of financial resources, and the objective amount of material and non-material financial resources that everyone possesses. Financial wellness can be measured subjectively, using financial behavior scales, perceptions of personal finance, and financial satisfaction, or objectively using financial ratios, income, wealth, and consumption (Joo, 2008). According to Joo (2008), to measure financial wellness, previous studies used a combination of constructs such as income, wealth, consumption, financial behaviors, financial attitudes, and financial ratios since financial wellness is a multidimensional concept that cannot be measured with a single item.

From previous studies, many factors are determinants of financial wellness. A study on workers in the US revealed that financial education in the workplace was effective because it resulted in better workers' financial wellness (Garman et al., 1999). Another study in Malaysia found that financial behaviors, financial stress level, financial literacy, income, gender, marital status, homeownership, and education level had direct or indirect impacts on the financial wellness of workers (Delafrooz & Paim, 2011). Additionally, financial behavior in using credit cards and student loans and financial self-efficacy are related to financial wellness (Montalto et al., 2019). In their study on young adults, Rutherford and Fox (2010) uncovered that credit management, healthcare

coverage, financial satisfaction, spending behavior, planning horizon, and attitude toward financial risk influenced financial wellness.

Moreover, financial wellness and financial well-being are often used interchangeably. Generally, financial well-being is defined as a state of being healthy, happy, and free from worry (Joo, 2008). In this study, the term financial wellness will be explored, and determinants of financial wellness will also be examined. Financial wellness has been measured using different kinds of proxies in previous studies. In his book chapter, Joo (2008) proposed a financial wellness diagram, depicting that financial wellness is one of the components of overall well-being. It has four sub-constructs: objective status, financial satisfaction, financial behavior, and subjective perceptions (Refer to Figure 1). Financial wellness diagram has been used to collect data from randomly chosen financial counseling and planning professionals in the US (Joo, 2008). The survey's findings revealed that having a fair amount of debt, an active saving and/or retirement plan, and adhering to a spending plan are examples of a condition of active financial health. A high level of financial satisfaction and low financial stress are two subjective criteria for financial wellness. The study's findings also showed that the sub-constructs of wellness - financial satisfaction, financial behavior, financial attitudes, financial stress, and objective financial status – can be used to separate financial wellness from the general idea of financial well-being.

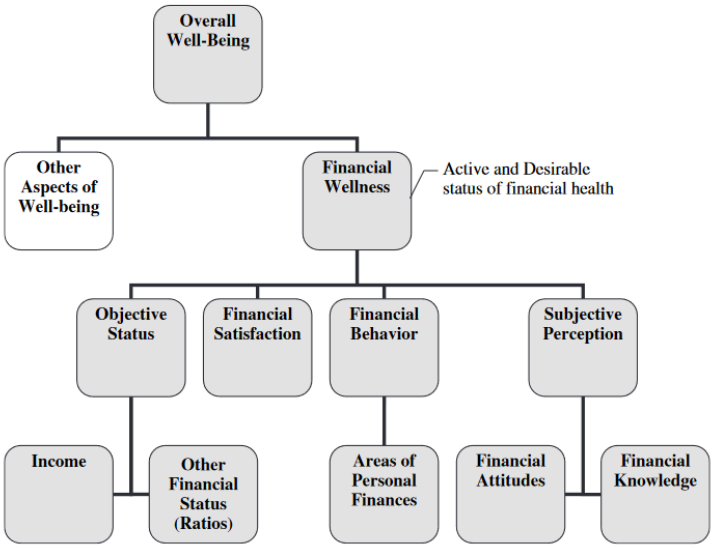

Figure 1 Financial Wellness Diagram (Joo, 2008)

The number of loans, sources of debt, financial attitude, financial behaviors, financial literacy, financial stress, and self-efficacy were also used to gauge financial wellness (Montalto et al., 2019). In another study, financial wellness was measured with the subjective perception of personal finance, cash management, income adequacy, personal financial management, and consumer shopping skill (Joo, 1998). In this study, financial wellness was measured with subjective perception, behavioral assessment, overall satisfaction with the financial situation index, solvency measure, amount of reserve funds,

monthly credit payments, monthly installment loan payments, monthly savings, and voluntary supplementary tax-sheltered employer-sponsored retirement contributions, which were adapted from a study by Joo and Garman (1998a).

Furthermore, this study adapted the 'Financial Wellness Diagram' proposed by Joo (2008) as the theoretical framework for explaining the financial wellness of lectures. To further elaborate on the financial wellness determinants, a new variable (religiosity) was added to the framework, which has not been studied in the previous literature. Other variables were also adapted from Joo's (2008) Financial Wellness Diagram: financial behavior, financial literacy (knowledge), and financial stress. Additionally, the moderating effect of gender on the relationship between financial literacy and financial wellness will also be examined.

Financial Literacy

Scholars defined financial literacy differently and considered it synonymous with financial knowledge (Bucher-Koenen et al., 2017; Hilgert et al., 2003; Lusardi & Mitchell, 2011). Financial literacy is conceptualized as the knowledge of basic financial concepts and the ability to do simple calculations (Lusardi, 2008a, 2008b; Lusardi & Mitchell, 2011). Huston (2010) also conceptualized financial literacy as the knowledge of personal finance and the application of that knowledge. In addition, financial literacy is the ability to use knowledge and skills to effectively manage one's financial resources for a lifetime of financial security (Jump$tart, 2017).

The prior research on financial literacy relied on multiple-choice or true-false-false test questions to objectively assess how well people understand basic and advanced financial concepts that they face daily (Atkinson & Messy, 2011; Cameron et al., 2014; Lucey, 2005; Lusardi & Mitchell, 2005, 2014; Lusardi & Tufano, 2009; Van Rooij et al., 2011). On the other hand, subjectively perceived financial literacy is a different technique to measure financial literacy. It comprises self-evaluation of financial knowledge or literacy (Deenanath et al., 2019; Lind et al., 2020; Riitsalu & Murakas, 2019; Robb & Woodyard, 2011). Financial literacy was assessed in this study using measurable, objective criteria.

The rationale for including financial literacy as a determinant of financial wellness is explained as follows. People with low financial literacy are more likely to have problems with debt (Lusardi & Tufano, 2009), less likely to participate in the stock market (Van Rooij et al., 2011), less likely to choose mutual funds with lower fees (Hastings & Tejeda-Ashton, 2008), less likely to accumulate wealth and manage wealth effectively (Hilgert et al., 2003), and less likely to plan for retirement (Lusardi & Mitchell, 2005, 2007, 2009). In a similar context, it is reasonable to assume that someone who has enough financial literacy is capable of recognizing a financial situation and using information about personal finance to make decisions that are both essential and suitable in their daily life (Huston, 2010).

Financial literacy also has a direct relationship with financial well-being. Empirical evidence has shown that financial literacy significantly impacts financial well-being. Chu

et al. (2017) looked at it from a household perspective and found that households with higher financial literacy had a better chance of receiving a positive investment return from their portfolio choice. Financial literacy, along with other variables such as retirement planning, self-control, wealth management, financial concern, academic ability, and demographic characteristic, also proved to be important factors in improving the financial well-being of retirees, the elderly, professionals, adults, and college students (Adam et al., 2017; Rajola et al., 2014; Sabri, 2011; Strömbäck et al., 2017; Taft et al., 2013). Hence, based on the arguments, this study posited that:

H_1: *Financial literacy is positively related to financial wellness.*

Financial Behavior

Financial behavior refers to human practices relevant to money management as ways to improve financial well-being (Xiao, 2008). Behaviors related to earning, spending, borrowing, and saving are considered common financial behaviors. Desirable financial behavior may enhance consumers' economic well-being and vice versa. According to Xiao (2016), performing desirable financial behavior implies financial capability, and engaging in desirable financial behavior means the possession of adequate financial literacy. According to prior research, individuals who display desired behaviors in the areas of money management, credit and debt management, planning for different life events (e.g., marriage, college planning, retirement, estate planning), and consumerism are more likely to be financially healthy (Joo, 2008). Evidence has also uncovered that positive financial behaviors contributed to financial satisfaction among a sample of consumers who used credit counseling (Xiao et al., 2009). Therefore, based on the above discussion, the following hypothesis was formulated.

H_2: *Good financial behavior is positively related to financial wellness.*

Financial Stress

Financial stress occurs when someone is subjected to certain undesirable circumstances, such as changes to their present financial situation and dealing with an emergency that costs more money than they have available (Kim et al., 2006; Voydanoff, 1990). Financial inadequacies in meeting essential financial needs to maintain a certain standard of living can also result in financial stress (Yates, 2007). According to some experts, there are three main causes of financial stress: personal (such as illnesses and accidents), familial (such as marriages and births), and shock to one's financial circumstances (e.g., foreclosure, large decrease in saving, and legal problems) (Joo & Grable, 2004; Prawitz et al., 2006). Financial distress or, conversely, a low level of financial wellness could reasonably result from the accumulation of financial stress.

Being financially stressed can lead to negative outcomes, such as lower work performance (Kim et al., 2006) and a decrease in overall well-being, including health conditions (Kim et

al., 2006; Kim & Garman, 2003). Financial stress also had a negative impact on financial well-being (Mahdzan et al., 2019; Mansor et al., 2022) and life satisfaction (Wang & Pullman, 2019). According to the research, people who are unhappy or under stress tend to be less driven, effective, and creative, which lowers the standard of their job (Verne, 2014), further influencing their financial wellness. Most research exposes that financial stress negatively impacts a person's financial situation, worsening their financial wellness. Hence, this study posited that:

H_3: *Financial stress is negatively related to financial wellness.*

Religiosity

Religiosity is defined as the intensity to which an individual participates, affiliates, and believes in any religion (Mathras et al., 2016). Another definition of religiosity states that religiosity refers to people's varying tendencies to commit themselves to religious beliefs, principles, and activities. Previous empirical evidence revealed that religious belief impacts peoples' attitudes, motivation, and behavior (Hood et al., 2009; Minton et al., 2015). Furthermore, the relationship between financial satisfaction and religiosity measures was also confirmed (Kose & Cinar, 2020). Additionally, religious belief significantly impacts all aspects of human civilization and negatively affects human consumption (He et al., 2021). Thus, this study formulated that:

H_4: *Religiosity is positively related to financial wellness.*

Moderating Effect of Gender

Gender differences in financial literacy have been examined in previous studies. A survey among college students found that women generally had less knowledge about personal finance topics (Chen & Volpe, 2002). Literature has also noted that women had significantly lower levels of financial literacy than men and chose the "do not know response" more often than men (Lusardi & Mitchell, 2014). Even among the sample of educated women who graduated from a prestigious college in the US, financial literacy among women was quite low (Mahdavi & Horton, 2014).

Although there is not much empirical evidence on the relationship between financial literacy and financial wellness, the relationship between financial literacy and financial well-being has been inconclusive. Financial literacy, along with other variables such as retirement planning, self-control, wealth management, financial concern, academic ability, and demographic characteristic, have been found to be important factors in improving financial well-being for retirees, the elderly, professionals, adults, and college students (Adam et al., 2017; Rajola et al., 2014; Sabri, 2011; Strömbäck et al., 2017; Taft et al., 2013). Conversely, other studies have disclosed contradicting results. For example, a study conducted on the elderly in Italy uncovered that financial literacy was not a factor that influenced financial well-being (Rajola et al., 2014), and a study conducted by

Mahdzan et al. (2019) surprisingly found that financial knowledge had a significant negative relationship with financial well-being.

Since financial well-being is a broader construct of financial wellness, inconsistent findings in past studies about the effect of the same antecedent (financial literacy) on the outcome (financial wellness) are a strong case for testing a moderator (Memon et al., 2019). In this study, it is therefore expected that gender will play an important role in influencing financial literacy and further affect the level of financial wellness. Accordingly, in this study, gender would moderate between financial literacy and financial wellness. Therefore, this study proposed that:

H_5: *The relationship between financial literacy and financial wellness will be stronger for males than females.*

The conceptual framework illustrated in Figure 2 was inferred from the literature review on the factors influencing financial wellness.

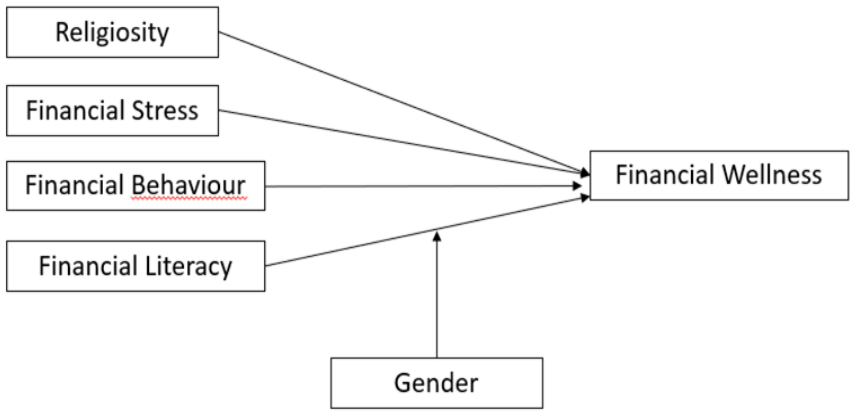

Figure 2 Conceptual Framework of the Study

Research Method

Research Type, Population, and Sample

This study aimed to examine the relationship between religiosity, financial literacy, financial behavior, and financial stress on the financial wellness of lecturers and assess the role of gender in the relationship between financial literacy and financial wellness. Related to that, it is not an interpretation study that needs a deeper understanding of the research problem; it needs empirical data that can be analyzed statistically to detect the underlying problems. Thus, the positivist approach fitted the intended objective of the study to employ the quantitative method. The research process involved identifying the population, examining the sample, and conducting a statistical analysis of the variables. Renowned scholars have widely used this research paradigm in social sciences as it allows

researchers to test the theory and hypotheses based on objective (data) measures to support the results.

This study adopted the survey research method to provide standardized information that could be used to examine the association between the constructs. The cost-effective survey method allows quick responses and higher control over the respondents (Malhotra, 2010). Over the years, surveys have been frequently employed by numerous market researchers to describe the population and explain behavior with a high level of validity (Lazar et al., 2017). Furthermore, survey research is the method of choice when measuring individuals' attitudes, activities, opinions, and beliefs (Christensen et al., 2015).

This study's population was lecturers teaching at the Pekanbaru, Riau Province university. Compared to other regions in Riau Province, Pekanbaru, the province's capital, has many universities; thus, Pekanbaru was chosen as the study context. The sampling method in this study used a "convenience sampling technique" at each university, which became the unit of analysis. The lecturers came from six universities: Universitas Islam Negeri Sultan Syarif Kasim Riau, Universitas Riau, Universitas Islam Riau, Universitas Lancang Kuning, Universitas Muhammadiyah Riau, and Universitas Abdurrab.

Operational Definition and Data Collection Technique

A self-administered questionnaire with six sections was the study's instrument. The respondent's sociodemographic information is covered in the first section, while the main variables are presented in sections 2 through 6. Table 1 provides a summary of the questionnaire's section details.

This study collected data online using an electronic questionnaire in the first half of 2020. Due to the social restriction caused by the COVID-19 pandemic, the questionnaires were distributed fully via social media, such as WhatsApp, Facebook, and Telegram. Questionnaires were shared through some enumerators working in the university that became the targeted institution of data collection.

Data Analysis Technique

Assigning data to the constructs and creating connections between the constructs are both parts of data analysis. Several techniques were used to analyze the information gathered from the completed questionnaires. The data were edited, coded, and categorized before being entered as input into the IBM SPSS statistical program. Second, the descriptive analysis was conducted using the same program. Third, using the SmartPLS 4.0.8.7 program, the structural model's capacity for prediction and the connections between constructs were investigated. SmartPLS was employed in data analysis due to its usefulness in developing the theoretical framework, and this software was also very useful for prediction (Urbach & Ahlemann, 2010).

Table 1 Summary of Sections in the Questionnaire

Section	No of Items	Definition/Types of Questions	Measurement	Adapted from
Demographics	14	University name, faculty, gender, age, religion, marital status, number of dependence, education, employment status, income, having debt/no	-	-
Financial wellness	8	Eight questions on financial wellness concern overall satisfaction with the financial situation, ability to meet living expenses, financial management, savings for retirement, financial adequacy, and current financial satisfaction.	10-point Likert scale	Joo and Garman (1998a)
Religiosity	13	Questions related to intrinsic and extrinsic religiousness include enjoying learning about religion, spending time on prayers, having a sense of God's presence, and attending religious services.	5-point Likert scale	Darvyri et al. (2014)
Financial literacy	15	Financial literacy items assessed respondents' knowledge of whether a statement regarding personal finance was true or false.	True/False (Score summed and computed as ratio)	Chen and Volpe (1998)
Financial behavior	9	Regularly conducting certain financial behaviors, such as tracking monthly expenses, spending within the budget, paying bills on time, saving, and setting money aside	3-point Likert scale	Xiao et al. (2009)
Financial stress	9	Nine questions on financial stress include items related to worry over delay in payment, bill payment, financial condition, medical cost, ability to provide food and care for sickness, stress and suffering depression over the financial condition	3-point Likert scale	Delafrooz and Paim (2013)

Results and Discussion

Descriptive Analysis of Respondents

The demographic details of the respondents are highlighted in Table 2. Regarding gender, there were 43 male respondents (37.1%) and 73 female respondents (62.9%). Most respondents were civil servant lecturers (50.0%), 47.4% were from private universities, and 2.6% were non-permanent lecturers. Concerning the monthly income category,

approximately 58.6% reported being in the upper middle-income range of IDR 3 million to IDR 7 million. In addition, the majority of respondents had master's degrees (84.5%), and the rest had already pursued a doctoral degree. Around 10% of the respondents earned less than IDR 3 million representing the low-income category, and around 30%, representing the high-income category, with a monthly income of more than IDR 7 million.

Table 2 Respondent Profile

Variables	Frequency	%
Gender		
Male	43	37.1
Female	73	62.9
Lecturers 'status		
Government's employee	58	50.0
Private employee	55	47.4
Non-permanent lecturer	3	2.6
Monthly individual income		
Between IDR 1 – 3 million	12	10.3
Between IDR 3 – 5 million	44	37.9
Between IDR 5 – 7 million	24	20.7
Between IDR 7 – 9 million	31	26.7
More than IDR 9 million	5	4.3
Highest education level		
Master	98	84.5
PhD	18	15.5
Marital status		
Single	10	8.6
Married	104	89.7
Divorced/widowed	2	1.7

Descriptive Analysis of Variables

The descriptive statistic for each of the model's tested variables is shown in Table 3. The standard deviation for financial well-being revealed that the variable was relatively volatile compared to other variables, with a mean score of 7.393 out of 10. Another highly volatile variable was financial literacy, with a mean score of 10.543 out of 15. Besides, financial stress had the lowest mean score (1.524) compared to other variables.

Table 3 Descriptive Statistic of Variables

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TFL	116	6	15	10.543	1.953	-.212	.225	-.390	.446
FB	116	1.44	3.00	2.389	0.354	-.391	.225	-.507	.446
FS	116	1.00	2.56	1.524	0.306	.694	.225	.498	.446
FW	116	2.50	10.00	7.393	1.560	-.298	.225	.138	.446
Religiosity	116	1.00	4.08	2.249	0.505	.119	.225	1.442	.446

Note: TFL = Total Financial Literacy (Total correct answer), FB = Financial behavior, FS = Financial stress, FW = Financial wellness

Common Method Variance

Partial least squares (PLS) using the SmartPLS 4.0.8.7 version (Ringle et al., 2022) was utilized as the statistical tool to examine the measurement and structural model because it does not require normality assumption, and survey research is not normally distributed (Chin et al., 2003). Since data were only obtained from one source, the potential of Common Method Bias was first examined by analyzing the full collinearity as recommended by Kock and Lynn (2012) and Kock (2015). With this approach, each variable was regressed against a common variable, and if the VIF value is less than 3.3, there is no bias resulting from using only a single source. Because the VIF result yielded a VIF value of less than 3.3, single-source bias was not a serious issue with this study's data. See Table 4.

Table 4.Full Collinearity Testing

Variable	VIF
Financial Behavior	1.138
Financial Literacy	1.023
Financial Stress	1.484
Financial Wellness	1.538
Religiosity	1.164

Measurement Model

The path for measurement model is shown in Figure 3. The authors followed and tested the model using a two-step approach recommended by Anderson & Gerbing (1988). Following the recommendation of Hair et al. (2019) and Ramayah et al. (2018), the authors first tested the measurement model to test the validity and reliability of the instruments used and proceeded to run the structural model to test the hypothesis developed. The loadings, average variance extracted (AVE), and composite reliability (CR) for the measurement model were assessed. The loadings values should be ≥0.5, the AVE should be ≥ 0.5, and the CR should be ≥ 0.7. As shown in Table 5, the AVEs were higher than 0.5, and the CRs were higher than 0.7. The loadings were also acceptable, with values of more than 0.5 (Hair et el., 2019). In addition, the items with loading below 0.5 were deleted.

The HTMT criterion proposed by Henseler et al. (2015) and modified by Franke & Sarstedt (2019) was then used in step 2 to evaluate the discriminant validity. The HTMT values should be ≤ 0.85 for the moderate criterion and ≤ 0.90 for the lenient criterion. It can be inferred that the respondent recognized that the five constructs were distinct because, as shown in Table 6, the values of HTMT were all lower than the stricter criterion of ≤ 0.85; as such, the authors could conclude that the respondents understood that the five constructs were distinct because the HTMT values were all lower than 0.85 (Refer to Table 6). Taken together both these validity tests has shown that the measurement items were both valid and reliable.

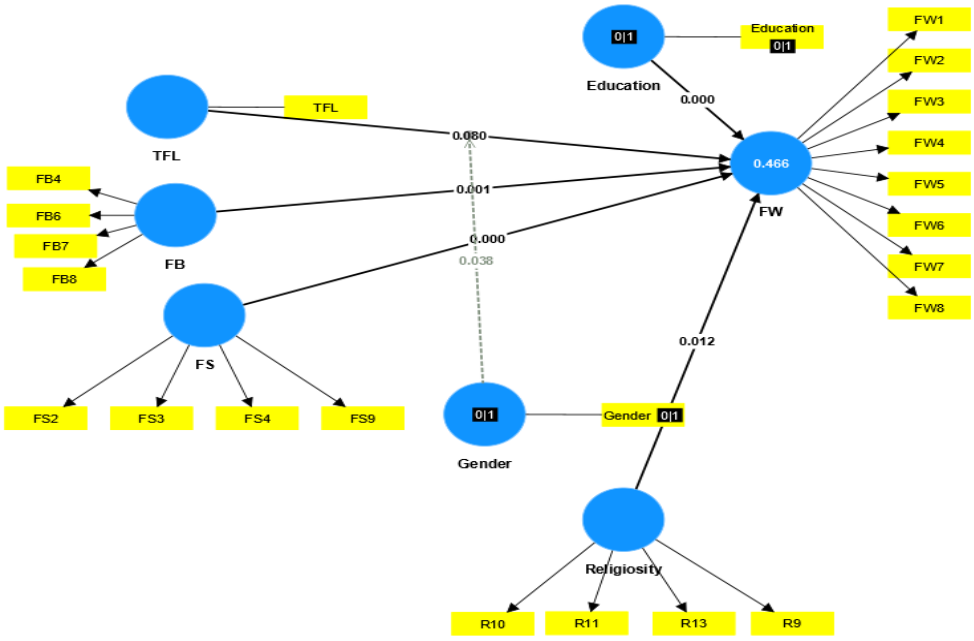

Figure 3 PLS-SEM Path Model
Note: TFL=Total Financial Literacy (Objective Measured), FB=Financial Behavior, FS= Financial Stress, FW= Financial Wellness.

Table 5 Results Summary for Reflective Measurement Models

Constructs	Items	Indicator Reliability	Convergent Validity	Internal Consistency Reliability	
		Outer Loadings	AVE	Composite Reliability	Cronbach's Alpha
		>0.50	>0.50	>0.7	>0.7
Financial Literacy	TFL	SIM	NA	NA	NA
Financial Behavior	FB2	0.527	0.524	0.810	0.713
	FB4	0.658			
	FB6	0.796			
	FB7	0.867			
Financial Stress	FS2	0.693	0.535	0.737	0.709
	FS3	0.812			
	FS4	0.800			
	FS7	0.612			
Religiosity	R9	0.884	0.714	0.882	0.797
	R10	0.887			
	R11	0.758			
	R12				
Financial Wellness	FW1	0.697	0.580	0.916	0.896
	FW2	0.843			
	FW3	0.864			
	FW4	0.694			
	FW5	0.683			
	FW6	0.721			
	FW7	0.701			
	FW8	0.858			

Note: SIM = Single Item Measure; NA = Not Applicable

Table 6 Discriminant Validity (HTMT)

	Financial Behavior	Financial Literacy	Financial Stress	Financial Wellness	Religiosity
Financial Behavior					
Financial Literacy	0.092				
Financial Stress	0.293	0.131			
Financial Wellness	0.294	0.057	0.651		
Religiosity	0.213	0.143	0.289	0.28	

Structural Model

As Hair et al. (2017) and Cain et al. (2016) suggested, the authors assessed the multivariate Skewness and Kurtosis. The cut-off value for Skewness is +/- 3, and Kurtosis is +/- 20. The results showed that the data the authors collected were not multivariate normal, with Mardia's multivariate Skewness (β = 4.037, p< 0.01) and Mardia's multivariate Kurtosis (β = 35.997, p< 0.01). These numbers were all greater than the cut-off value, so it can be concluded that the data were not multivariate normal. Since the data were not multivariate normal, when the authors ran the analysis later for the structural model, the bootstrapping procedure would be run to correct the standard errors, as Hair et al. (2019) recommended. Using a 5,000-sample re-sample bootstrapping approach, the authors presented the path coefficients, the standard errors, t-values, and p-values for the structural model (Ramayah et al., 2018). It is also based on Hahn and Ang's (2017) argument that p-values are a poor criterion for determining the significance of a hypothesis and that a combination of p-values, confidence intervals, and effect sizes should be used instead. The overview of the criteria the authors utilized to assess the developed hypotheses may be seen in Table 7.

The authors tested the effect of the three predictors on financial wellness, and the R^2 was 0.451, showing that all four predictors explained 45.1% of the variance in financial wellness. Financial behavior (β = 0.247, p< 0.01) and religiosity (β = 0.161, p< 0.05) were all positively related to financial wellness; thus, H_2 and H_4 were supported. On the contrary, financial stress (β = -0.461, p< 0.01) was negatively related to financial wellness, and H_3 was also supported. The relationship between financial literacy (β = -0.013, p> 0.05) was not statistically proven; hence, H_1 was not supported.

Table 7 Hypotheses Testing

Hypotheses	Std Beta	Std Error	t value	P values	BCI LL	BCI UL	f^2	VIF	Decision
H_1 : FL (+) ➔ FW	-0.124	0.088	1.406	0.080	-0.269	0.020	0.017	1.653	Not supported
H_2 : FB (+) ➔ FW	0.247	0.078	3.173	0.001	0.102	0.350	0.099	1.152	Supported
H_3 ; FS (-) ➔ FW	-0.461	0.076	6.063	0.000	-0.583	-0.333	0.336	1.186	Supported
H_4 : Religiosity (+) ➔ FW	0.161	0.071	2.264	0.011	0.038	0.263	0.043	1.137	Supported
H_5 : FL*Gender (+)➔ FW	0.250	0.1400	1.778	0.038	0.034	0.488	0.023	1.766	Supported

Note: FL = Financial Literacy; FB = Financial behavior; FS = Financial stress; FW = Financial wellness. The authors used a 95% confidence interval with a bootstrapping of 5,000.

Besides reporting the ρ-value, both the substantive significance (effect size) and statistical significance (ρ-value) are crucial to be reported (Sullivan & Feinn, 2012). A guideline by (Cohen, 1988) was followed to measure the effect size. Based on Cohen (1988), the values of 0.02, 0.15, and 0.35 represent the small, medium, and large effects, respectively. In this study (refer to Table 7), financial stress (f^2 = 0.336) had a medium effect on financial wellness, while financial behavior (f^2 = 0.099) and religiosity (f^2 = 0.043) had a small effect on financial wellness. For the moderating effect, financial literacy interaction with gender (f^2 = 0.023) also had a small effect on financial wellness. Preacher & Hayes (2008) suggest examining confidence interval [LL and UL] and suggest a zero should not straddle in between. As seen in Table 7, for the supported hypotheses there are no zero straddle in between the BCI LL and BCI UL.

The next step was testing the moderation hypothesis. A third construct, known as a moderator, can alter or influence the relationship between the independent and dependent variables. (Dawson, 2014; Hair et al., 2017). The categorical data type was used as the moderating variable in this study, and the analysis was conducted utilizing the SmartPLS 4.0.8.7 version.

Moreover, the orthogonalizing approach was used in the moderation assessment (Henseler & Chin, 2010). Using this approach, which expands on the indicator technique, all product indicators for the interaction terms must be created (Ramayah et al., 2018). The first step was establishing an interaction between gender as the moderating variable and financial literacy. As a result, the R^2 for the main model (without the interaction) was 0.451, and with the interaction effect mode, the R^2 was 0.466. The R^2 change of 0.028 indicates that with the addition of three interaction terms, the R^2 changed by about 2.8% (additional variance). Next, the effect size was calculated using the formula:

$$f2 = \frac{R2\ included\ moderator - R2\ excluded\ moderator}{1 - R2\ included\ moderator} \quad (1)$$

Based on the guideline, 0.005, 0.01, and 0.025 show the standards for small, medium, and large effect sizes (Kenny, 2016). Therefore, based on the value of 0.028, it can be concluded that the effect size was large. To obtain the significance of the relationship, the bootstrapping procedure was then conducted. The cut-off value for the t-test is 1.645 (α=0.05). As seen in Table 7, the interaction term yielded a t-value greater than 1.645 for the one-tailed test with a significant level of 5%. Therefore, it can be concluded that hypothesis H_5 was accepted.

Next, as suggested by Dawson (2014), to further elaborate on the moderating phenomenon of gender, the pattern of the interaction effect was plotted to see how the moderator changed the relationship between constructs in the following figure. As seen in Figure 4, the line labeled for males had a steeper gradient when compared to females, indicating that the positive relationship between financial literacy and financial wellness would be stronger for males. Therefore, the hypothesis (H_5), which stated that the positive relationship between financial literacy and financial wellness would be stronger for males than females, was supported.

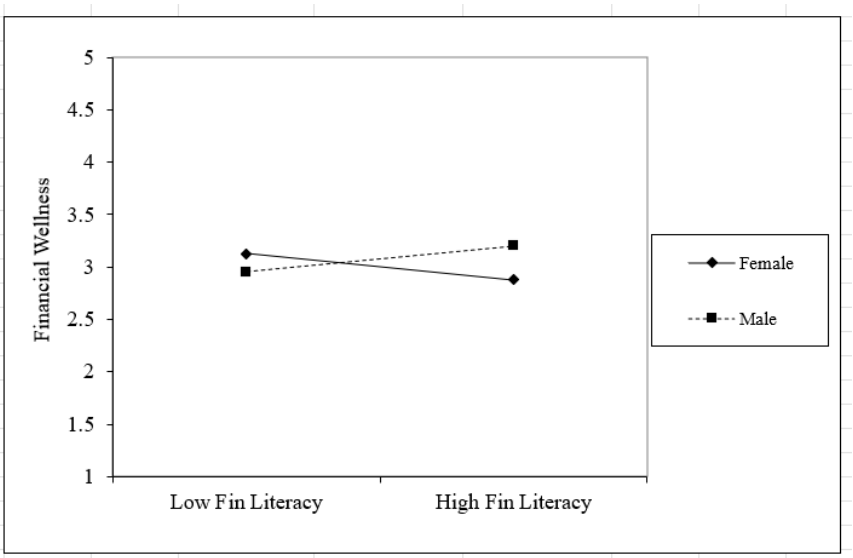

Figure 4 Interaction Plot (Financial Literacy*Gender)

Discussion

The study aims to analyze the factors influencing the financial wellness of lecturers in Pekanbaru and the role of gender as a moderating variable. This research on the financial wellness determinants in the context of lecturers is relevant to today's HEIs performance in Riau province, which judging from its performance, is far left behind compared to HEIs in some neighboring provinces in Sumatra and Java. In this regard, higher financial wellness will be correlated with higher performance. Thus, in HEIs where outstanding performance exists, it can be presumed that the academic staff in those particular HEIs are financially healthy.

From a total of 116 respondents, this study found evidence that lecturers' financial wellness was relatively high at an average of 7.393, which seems contrary to the initial estimation. However, the standard deviation of financial wellness was high, indicating that some respondents had very low financial wellness while others might have a higher level. The study also revealed that three out of four variables were significantly related to financial wellness (financial behavior, financial stress, and religiosity), thus supporting H_2, H_3, and H_4. These findings are consistent with Delafrooz and Paim (2011), who found that financial behaviors, financial stress level, and financial literacy, along with some demographic variables, significantly contribute to financial wellness, and Montalto et al. (2019), who uncovered that financial behavior in using a credit card is one variable that influences financial wellness. The findings are also in line with Mahdzan et al. (2019) and Mansor et al. (2022), who found that financial stress had a negative impact on financial well-being, and being financially stressed, according to Kim et al. (2006), could lead to negative outcomes, such as lower work performance, which may further impact financial wellness. The study's findings also supported the relationship between religiosity and financial wellness, which has been under-studied in previous research. Past studies, which confirmed this relationship, are Hood et al. (2009) and Minton et al. (2015), who reported

that religious belief impacted peoples' attitudes, motivation, and behavior and would further affect financial wellness, and Kose and Cinar (2020) who found that religiosity was related to financial satisfaction. Additionally, religious belief significantly affected all aspects of human civilization and negatively affected human consumption (He et al., 2021).

The moderating effect of gender on the relationship between financial literacy and financial wellness has also been confirmed in this study. This finding corroborates a previous study that found gender differences in financial literacy (Chen & Volpe, 2002; Lusardi & Mitchell, 2014). Even among the sample of educated women who graduated from a prestigious college in the US, financial literacy among women was quite low (Mahdavi & Horton, 2014).

The hypothesis that was not supported was the one predicting a positive relationship between financial literacy and financial wellness (H_1), showing an insignificant negative relationship. This result implies that the financial literacy level of lecturers did not relate to their financial wellness, which contradicts some previous findings (Adam et al., 2017; Delafrooz & Paim, 2011; Rajola et al., 2014; Sabri, 2011; Strömbäck et al., 2017; Taft et al., 2013). This unexpected relationship is because having good financial knowledge does not necessarily translate into positive financial attitudes and behaviors that lead to better financial wellness.

Conclusion

This study examined financial literacy, financial behavior, financial stress, and religiosity as the factors which influenced the financial wellness of lecturers and the role of gender as moderating variable in the relationship between financial literacy and financial wellness. The context of this study was lecturers in Pekanbaru, the capital city of Riau Province. The results confirmed a significant positive relationship between financial behavior and religiosity on financial wellness, while a significant negative relationship existed between financial stress and financial wellness. This study also verified the role of gender as moderating variable in the relationship between financial literacy and financial wellness. These findings contribute to the literature on the determinant factors of financial wellness by adding religiosity as a variable that has not been well examined in previous research.

These findings have implications for the HEIs management to consider having a capacity-building program targeted for lecturers to increase their performance. Furthermore, due to the significant effects of financial stress on lecturers' financial wellness, reducing financial stress will greatly impact financial wellness. Financial stress is common and detrimental to both employees and employers. For this reason, implementing initiatives that assist staff in avoiding debt and poverty, overcoming financial stress, and forming sound financial habits over the long term are in everyone's best interests. Since money is one of the greatest causes of stress today (Verne, 2014), in some cases, those with financial troubles may seek help from credit counseling or personal financial planners.

It is vital to recognize the present study's several limitations. First, causal connections could not be made because this cross-sectional study was done at a particular time. Thus, researchers in the future may employ a longitudinal strategy to analyze changes in financial behavior and their effects across time. Second, the model developed in this study did not consider the role of financial satisfaction and subjective perception in determining lecturers' financial wellness. Therefore, incorporating financial satisfaction and subjective perception, as suggested in the financial wellness framework proposed by Joo (2008), may provide a more in-depth understanding of the formation of financial wellness. Lastly, this study's sample consisted of main lecturers attached to the university, and the total respondent was relatively small; hence, the findings might not be generalized to other lecturers (e.g., from other kinds of HEIs).

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