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Article

Analysis of financial literacy and inclusion factors in Peruvian university women

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Abstract: Women's financial literacy and financial inclusion have gained prominence in recent years. Despite progress, knowledge and access to finance remain common barriers for women, especially in emerging economies. Globally, domestic and economic violence has been recognized as a relevant social concern from a gender perspective. In this context, financial literacy and financial inclusion are considered to play a key role in reducing violence against women by empowering them with the necessary knowledge to manage their financial resources and make informed decisions. This study aims to evaluate the determinants that influence Peruvian female university students' financial literacy and financial inclusion. To this end, a theoretical behavioral model is proposed, and a survey is applied to 427 female university students. The results are analyzed using a Partial Least Squares Structural Equation Model (PLS-SEM). The results validate all the proposed hypotheses and highlight significant relationships between financial literacy and women's financial inclusion. A relevant relationship between financial attitude and financial behavior is also observed, as well as the influence of financial behavior and financial self-efficacy on financial literacy. The results also reveal that women feel capable of making important financial decisions for themselves and consider that financial literacy could help reduce gender-based violence. Based on these findings, theoretical and practical implications are raised. It highlights the proposal of a theoretical model based on antecedents, statistically validated in a sample of women in Peru, which lays the foundation for understanding financial literacy and financial inclusion in the Latin American region.

Keywords: financial literacy; financial inclusion; gender-based violence; financial education; economic violence; financial independence

1. Introduction

Financial literacy and women's inclusion have gained great relevance in recent years. Despite progress, knowledge and access to finance remain common barriers for women in both developed and emerging economies (Hasan et al., 2023). Financial literacy is not only crucial for empowering women, but can also contribute to reducing poverty, reducing income disparities, and accelerating a country's economic growth (Mishra et al., 2021). In this context, improving levels of financial inclusion has positive implications both at the individual level and for the economy, by aligning with the United Nations Sustainable Development Goals and reducing gender gaps (Koomson et al., 2020).

Women represent more than half of the world's population, making it unfair that financial decisions are made exclusively by the rest of the population. In this context, researchers such as Mishra et al. (2021) argue that it is essential for women to acquire financial knowledge to make appropriate decisions. This not only contributes to the economic development of countries but also to their self-reliance and improved status in society. Moreover, financial literacy and the inclusion of women can protect society and individuals against exploitative financial schemes, as well as strengthen family well-being.

It is relevant to note that financial literacy levels tend to be lower in emerging economies, and men tend to have a higher level of financial literacy than women (Fanta and Mutsonziwa, 2021). This disparity raises concern, as women with lower financial literacy could be trapped in economic inequalities, becoming victims of economic violence (Antonijević et al., 2022). Hus, a financially independent woman would be able to make intellectual judgments and effective decisions regarding the use and management of money (Singh and Kumar, 2017).

Intimate partner violence, often referred to as domestic violence, can manifest itself in various forms, including non-physical violence: emotional, psychological, social, and economic. The latter is considered part of the realm of emotional or psychological violence and has recently been recognized as a unique form of violence that involves controlling a woman's ability to access, use, and maintain economic resources, thereby threatening her financial security and potential for self-sufficiency (Alkan et al., 2021).

Globally, domestic violence has been recognized as a relevant social concern from a gender perspective. It is related to economic insecurity, where factors such as the traditional division of gender roles in caregiving, the undervaluation of women's paid and unpaid work, as well as job discrimination, contribute to women consistently experiencing unfavorable social and economic outcomes throughout their lives (Postmus et al., 2020).

As mentioned by Alkan et al. (2021), it is estimated that, globally, one in three women have been subjected to intimate partner violence at some point in their lives. Thus, in the context of economic violence, it manifests as a unique and compulsory form of controlling behavior that the abuser uses in an intimate relationship, in addition to physical, sexual, and psychological abuse, controlling a woman's ability to obtain, use and maintain economic resources, thus threatening her economic security and potential for self-sufficiency. This form of gender-based violence is often perceived as "invisible" or hidden, generating economic insecurity in women and economic abuse (Postmus et al., 2020). In this sense, abusers control the household finances and isolate the partner (in this case, the woman) from participating in any financial decisions, as well as the evaluation of household income, causing the victim to depend on the abuser for economic resources (Yau et al., 2021).

Therefore, the 2030 agenda included in its Sustainable Development Goals (SDGs) the global economic empowerment of women, to counteract the serious economic and health consequences for women. As explained by Eggers del Campo and Steinert (2022) this empowerment can be achieved by strengthening: first, the knowledge, individual capabilities and self-esteem necessary to enable participation in economic life. Second, women's ability to assert economic decision-making power within their household and community. Third, women's access to and control over financial and other resources. Fourth, women's ability to organize collectively and actively promote their economic rights. Thus, highlighting the role of financial literacy and inclusion for women's global economic empowerment (Andriamahery and Qamruzzaman, 2022).

In this sense, financial literacy is considered to play a key role in reducing violence against women by empowering them with the knowledge necessary to manage their financial resources and make informed decisions (Warren et al., 2019). This approach not only involves understanding financial concepts but also providing tools to break cycles of economic dependency, enabling women to take control of their lives (Postmus et al., 2013). Improving financial literacy, especially in emerging economies such as the Peruvian case, is presented as an essential strategy to promote gender equality, prevent economic vulnerability, and, ultimately, contribute to sustainable development and collective prosperity (Ghosh and Vinod, 2017).

In the literature, greater importance has recently been given to women's economic empowerment, considering resource-based theory and pecking order theory to illustrate the relationship between access to financial services, technical knowledge, and financial literacy with women's economic empowerment (Andriamahery and Qamruzzaman, 2022). In addition, the literature has also highlighted that female empowerment is highly dependent on financial inclusion, because as highlighted by Asongu et al. (2020) with financial access, women have income-generating opportunities that generate positive externalities for development in terms of investment, employment, and economic prosperity, in line with SDG 5 and SDG 8.

Thus, recent studies have shown that female economic empowerment interventions such as financial inclusion and financial literacy can reduce the risk of intimate partner violence, more specifically, economic violence against women (Eggers del Campo and Steinert, 2022). specially, in the context of emerging economies with low and middle incomes where access to financial services such as credit, savings, insurance, and money transfers influences economic, social, gender, and behavioral aspects of individuals (Duvendack and Mader, 2020). Thus, empirical evidence argues that improving women's economic conditions seems to have a protective effect against physical and sexual intimate partner violence in the context of an emerging economy, highlighting that financial access is a necessary, but not sufficient moderator to increase women's participation in the economic sector and contribute to their economic empowerment, which, could be complemented by other factors such as financial literacy (Asongu et al., 2020; Ranganathan et al., 2021).

This research topic arises in response to the growing need to address the relationship between financial literacy and the reduction of violence against women, focusing specifically on the context of university women. Recognizing the crucial importance of financial independence in women's decision-making and autonomy (El Saadi, 2023). Through the identification of gaps and the implementation of educational interventions, it seeks to strengthen the financial skills of university women, empowering them to make informed decisions about their economic resources (Hetling et al., 2016). Strengthening women's financial literacy will significantly contribute to preventing situations of economic vulnerability that can lead to gender-based violence, thus establishing a vital connection between financial empowerment and the reduction of violence against women (McDougal et al., 2019).

Considering the context of economic violence and the role that financial literacy and inclusion can play in reducing gender-based violence, a study is proposed with the aim of assessing the determinants that influence the financial literacy and inclusion of Peruvian female university students given that they face greater economic and social vulnerability that may increase their exposure to gender-based violence (Postmus et al., 2020; Singh and Kumar, 2017). Thus, university women have the possibility of making decisions about their financial life from the basis of a higher education, as well as identifying economic violence with their intimate partners and taking preventive measures at an earlier stage. In this sense, it is argued that financial literacy and inclusion have the potential to empower them, strengthening their independence and ability to make safe decisions (Ngo and Puente Moncayo, 2021). In addition, universities are key environments for promoting cultural and educational changes in this area (Postmus et al., 2013).

Next, a theoretical framework section is presented in which the theoretical background is reviewed, and the factors associated with financial literacy and inclusion are explored, to establish a theoretical model. Subsequently, the methodology is detailed, describing the construction of the questionnaire, ethical considerations, and the study population. Next, the results are presented, which are analyzed using a Structural Equation Model, and the findings are discussed in comparison with other studies. In addition, the implications of the study are presented, as well as its limitations and recommendations for future research. Finally, the conclusions section of the study is included.

2. Theoretical framework

Previous research has evidenced that higher levels of financial inclusion in women correlate with lower rates of recent intimate partner violence (McDougal et al., 2019). This phenomenon is attributed to the increasingly clear recognition of financial abuse as a separate form of violence perpetrated by men against women. Consequently, it highlights the relevance of financial education programs to mitigate these impacts, thereby improving women’s long-term financial well-being (Warren et al., 2019). Given this premise, previous research has turned its attention towards exploring financial solvency in the context of violence against women as a means to reduce the risk of experiencing intimate partner violence globally, thus contributing to the overall empowerment and improvement of women’s status (Gilroy et al., 2015).

About women’s financial literacy and inclusion, it has been identified that those with a higher degree of digital financial literacy are more likely to participate in formal banking channels, so Hasan et al. (2023) analyzed the impact of digital financial literacy on women’s financial inclusion. Other studies, such as Koomson et al. (2020), have examined the impact of financial literacy training from a gender perspective. Their results highlight the need to strengthen financial literacy training to close the gender financial inclusion gap.

Several studies have addressed the analysis of the multiple factors linked to financial literacy in women. For example, the study by Mishra et al. (2021) focused on investigating this phenomenon. Their findings highlighted that the determinants of financial inclusion include knowledge of financial products, the level of risk associated with these products, insurance security schemes and accessibility to bank branches. They also identified barriers such as gender disparity, access to education, ethnicity, personal finance, lack of trust in financial institutions, distance and lack of adequate guidance.

2.1. Financial literacy

The concept of financial literacy has gained considerable prominence among researchers, government entities, and various organizations, often being considered synonymous with financial knowledge (Garg and Singh, 2018). The literature has presented multiple definitions of financial literacy, ranging from a basic understanding of personal finance to the effective application of economic and financial concepts (Stolper and Walter, 2017).

The Organisation for Economic Cooperation and Development (OECD) (2009) defines financial literacy as "a combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being" (p. 3). A more updated definition is oriented towards financial capability, indicating that a financially capable person possesses comprehensive knowledge of credit, debt, budgeting, insurance, and other financial dimensions (Goyal and Kumar, 2021).

Hasan et al. (2021) state that financial education enables people to evaluate financial products and services, contributing to socioeconomic empowerment, especially for women. They emphasize that financial literacy enables effective and efficient use of money, with sound financial knowledge that facilitates decision-making. This is reflected in greater participation in financial markets, an increase in the use of formal sources of indebtedness, higher voluntary savings, and better financial diversification (Morgan and Long, 2020).

2.2. Financial attitude

As Thomas and Subhashree (2020) indicate, a financial attitude refers to an individual's mental or psychological judgment in financial matters. Thus, women's attitude toward money will affect their financial literacy. Thus, financial attitude measures women's perspective toward financial matters so research on financial literacy agrees that it is a key element of financial literacy (Kadoya and Khan, 2020). Thus, this study measures the implicit assumption that greater financial knowledge contributes to more favorable financial attitudes and behaviors (Fessler et al., 2020).

Recent studies have identified a positive correlation between financial attitudes and savings behavior. It is argued that people with negative attitudes towards saving or those who seek immediate satisfaction of their needs are less likely to save (Aydin and Akben Selcuk, 2019). It has been widely discussed that financial literacy is composed of financial knowledge, attitudes, and financial behaviors, which supports the evidence that financial attitudes impact young people's economic behavior (Yahaya et al., 2019). Therefore, the following research hypotheses are proposed.

H1. Financial attitude has a positive influence on the financial literacy of female university students.

H2. Financial attitude has a positive influence on the financial behavior of female university students.

2.3. Financial behavior

As explained by Jian Xiao and Kumar (2023) financial behavior includes any behavior related to managing, borrowing, saving/investing, insuring or any behavior related to money to improve consumer welfare. The literature has evidenced the close relationship between behavior and financial literacy, as demonstrated by Mandell and Klein (2009). According to Henager and Cude (2016), financial behavior can be interpreted from two perspectives: short-term, involving spending and saving for emergencies, and long-term, related to investing and saving for retirement. In fact, research has pointed out that young people tend to exhibit more short-term financial behaviors. These behaviors encompass the daily management of finances, as well as long-term planning, which includes the use of debt methods, the creation of savings reserves and planning for retirement (de Bassa Scheresberg, 2013). Meanwhile, the following research hypothesis is proposed:

H3. Financial behavior has a positive influence on the financial literacy of female university students.

2.4. Financial self-efficacy

Just as behavior and attitude impact financial literacy, financial self-efficacy, defined as confidence and belief in one's ability to achieve financial goals, plays a determinant role in the credit behavior risk of university students (Liu and Zhang, 2021). According to Amagir et al. (2020), financial self-efficacy refers to the belief in the ability to manage money encompasses individual perceptions of financial capabilities and has a relationship with financial literacy. Previous studies have pointed out the prevalent presence of financial self-efficacy in sociodemographic variables such as gender (Noor et al., 2020). Thus, the following research hypotheses are proposed:

H4. Financial self-efficacy has a positive influence on the credit risk behavior of female university students.

H5. Financial self-efficacy has a positive influence on university female students' financial literacy.

2.5. Financial stress

According to Rahman et al. (2021), financial stress is defined as the unpleasant feeling experienced when an individual is unable to meet basic financial needs, manage daily expenses, and maintain adequate finances to meet monthly financial responsibilities. Studies such as the one conducted by Liu and Zhang (2021) have argued the existence of a direct relationship between financial stress and university students' consumer credit behavior. This is because most students in higher education do not have regular income, facing expenses such as university tuition, housing, food, and other living costs, which can lead to financial stress. Research has shown that this stress is correlated with specific financial behavior patterns.

Researchers on the subject have argued that financial stress is an indicator of subjective financial well-being, i.e., a state of mental health, in which finances play a fundamental role. In that sense, financial stress can be considered a negative aspect in the domain of finance (Xiao and Kim, 2022). Therefore, evidence has identified that financial behavior is directly negatively associated with financial stress (Xiao and Meng, 2024). In addition, financial stress has also been negatively related to credit risk behavior (Liu and Zhang, 2021). In this regard, the following research hypotheses are proposed:

H6. Financial stress has a negative influence on the credit risk behavior of female university students.

H7. Financial stress has a negative influence on the financial behavior of female university students.

2.6. Credit risk behavior

A lack of financial literacy among university students could compromise their ability to make sound decisions, hinder their perception of risk, and increase the likelihood that they will engage in risky financial behaviors (Liu and Zhang, 2021). This means that those students with a lower level of financial literacy might not only have misconceptions and inadequate assessments of the rights and responsibilities linked to online credit services but also be prone to engage in credit misuse and other high-risk financial practices. The widespread availability of financial products, such as credit cards, has raised concerns about how university students might manage their use, considering the negative consequences, both in the short and long term, related to inappropriate and abusive credit management (Robb, 2011).

In the words of Xiaoet al. (2011) risky credit behavior is defined as consumer credit practices that have the potential to harm future financial well-being. In young adults aged 18 to 25, risky credit behavior may be more dangerous, as they are just beginning to manage credit and accumulate debt in their own name. Risky credit behaviors include risky payment behavior and risky borrowing behavior, which would lead students to borrow money from credit cards maximizing the credit card limit, so this factor is negatively related to financial literacy (Xiao, Tang et al., 2011). Therefore, the following research hypothesis is proposed:

H8. Credit risk behavior has a negative influence on the financial literacy of female university students.

2.7. Financial inclusion

A crucial element in empowering women's economic autonomy, financial inclusion is integrated into the Sustainable Development Goals (SDGs) to achieve gender equality and strengthen women's empowerment (McDougal et al., 2019). Studies such as Grohmann et al. (2018) have evidenced that a higher level of financial education exerts a positive and discernible impact on financial inclusion. This concept refers to the integration of individuals into the formal financial system, providing them with the possibility of opening bank accounts, thus encouraging saving, obtaining credit and transferring funds in an official manner (Noor et al., 2020). The literature supports the notion that an increase in financial literacy leads to greater financial inclusion for women (Bire et al., 2019). Thus, the following research hypothesis is proposed:

H9. Financial literacy has a positive influence on the financial inclusion of female university students.

Thus, a digital literacy model of university women is proposed based on the work done by Alomari and Abdullah (2023); Aydin and Akben Selcuk (2019); Banthia and Dey (2022); Liu and Zhang (2021); Noor et al. (2020); Potrich et al. (2018). This model is composed of the following factors: financial stress, financial self-efficacy, credit risk behavior, financial behavior, financial attitude, financial literacy, and financial inclusion. This can be visualized in **Figure 1**.

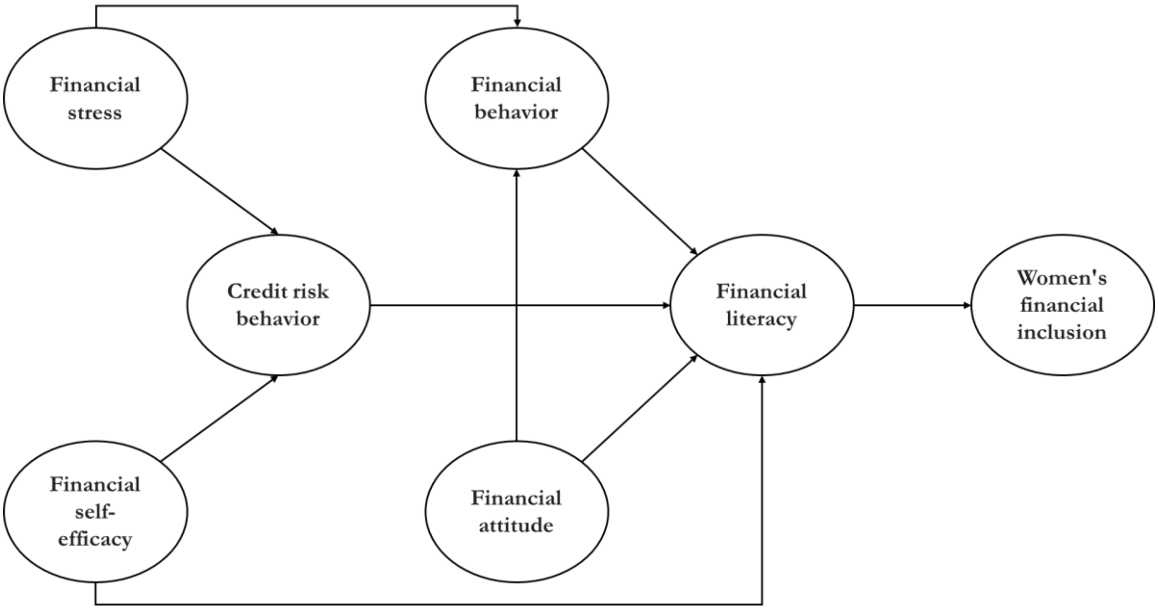

Figure 1. Theoretical model proposed for the financial literacy of women university students in Peru.

Note: Prepared by the authors based on Alomari and Abdullah (2023); Aydin and Akben Selcuk (2019); Banthia and Dey (2022); Liu and Zhang (2021); Nandru et al. (2021); Noor et al. (2020); Potrich et al. (2018).

3. Methodology

This study is developed with the aim of evaluating the determinants that influence the financial literacy and inclusion of university women. Therefore, a quantitative method of correlational approach is proposed to identify the most relevant relationships proposed. The population is female university students in Peru. The research was carried out considering 17,162,819 women in the country as the target population (Instituto Nacional de Estadística e Informática, 2024). To calculate the sample size, the statistical formula was used:

$$n = \frac{Z^2 \times p \times (1-p)}{e^2} \times \frac{N}{N + Z^2 \times p \times (1-p)/e^2}$$

where Z is the critical value associated with the confidence level (1.96 for 95%), p is the expected proportion (0.5), e is the expected proportion (0.05), and N is the total population. By applying this formula, a representative sample size of 385 participants was determined, considering a confidence level of 95% and a margin of error of 5%.

3.1. Variables and measures

A data collection instrument (survey) consisting of six study variables, each with their respective measures, was designed based on the literature findings of Alomari and Abdullah (2023); Aydin and Akben Selcuk (2019); Banthia and Dey (2022); Liu and Zhang (2021); Nandru et al. (2021); Noor et al. (2020); Potrich et al. (2018), as shown in **Table 1**. A five-point Likert scale was used to measure the variables. Statements were formulated for each measure, where 1 corresponded to 'strongly disagree', 2 to 'disagree', 3 to 'neither agree nor disagree', 4 to 'agree', and 5 to 'strongly agree'.

Table 1. Factors and items of the proposed model.

Factor	Measure	Description	Source
Financial stress	FS1	I feel a lot of stress about my finances	Liu and Zhang (2021)
	FS2	I worry about paying my monthly expenses	
	FS3	I worry about having enough money to pay for college.	
	FS4	Having debt causes me great stress	
	FS5	I don't have enough money to participate in most of the same activities that my peers do.	
Financial self-efficacy	FSE1	I am confident that I can manage my finances.	Liu and Zhang (2021); Noor et al. (2020)
	FSE2	I can adjust my budget when unforeseen expenses arise.	
	FSE3	I am fully capable of personal financial planning	
	FSE4	I set financial goals regarding my future well-being	
	FSE5	I can develop a strategy to achieve my financial goals	
Credit risk behavior	CRB1	I always pay my bills on time every month	Liu and Zhang (2021)
	CRB2	I always pay my credit card and/or credit card bills in full each month.	
	CRB3	I often use credit cards	
	CRB4	I tend to be more impulsive when making online credit purchases	
	CRB5	I am more concerned about the price of a product when I buy it on credit	
Financial behavior	FB1	I am concerned about how best to manage my money	Aydin and Akben Selcuk (2019); Potrich et al. (2018)
	FB2	I take notes and track my spending	
	FB3	I follow a weekly or monthly spending plan	
	FB4	I have been actively saving for the past year	
	FB5	I have a financial reserve that I can draw on at unexpected times	
Financial attitude	FA1	I am aware that the way I manage my money today will affect my future.	Banthia and Dey (2022); Potrich et al. (2018)
	FA2	It is important to me to stay within a budget.	
	FA3	It is important to me to invest periodically to achieve long-term goals.	

	FA4	I am knowledgeable about different financial products and services	
	FA5	I keep myself informed about different forms of investing.	
Financial literacy	FL1	I know that high inflation leads to an increase in the cost of living.	Alomari and Abdullah (2023); Banthia and Dey (2022)
	FL2	I know that the value of money changes over time.	
	FL3	I am knowledgeable about the use of electronic transactions	
	FL4	I have financial experience	
	FL5	I have sufficient knowledge to manage my finances	
Women's financial inclusion	FI1	I have access to banking services with a financial institution.	Nandru et al. (2021)
	FI2	I can access credit from a financial institution	
	FI3	I can take advantage of credit to improve my finances/business if I have a bank account.	
	FI4	I can access financial benefits from government plans, insurance, pensions, etc.	

Note: adaptation of the studies of Alomari and Abdullah (2023); Aydin and Akben Selcuk (2019); Banthia and Dey (2022); Liu and Zhang (2021); Nandru et al. (2021); Noor et al. (2020); Potrich et al. (2018).

Primary data were collected from students at Universidad Ricardo Palma through an online survey, as part of a pilot test. The results of this test revealed that Cronbach's α values for all constructs exceeded 0.60. In addition, student recommendations will be considered to improve the understanding of the instrument and ensure satisfactory reliability. After the understanding of the instrument was assured, the survey link was shared with teachers in the area of administrative and financial sciences from various universities in Peru. These teachers sent the link to their students through the mailing lists of their universities and applied it in their classes. The collection of information was carried out during approximately three months in the year 2024.

3.2. Population

A survey was conducted among 427 university women in Peru, whose sociodemographic information is presented in **Table 2**. The instrument was administered at various universities in the country, most notably the Universidad Ricardo Palma and the Universidad Nacional Mayor de San Marcos in Lima. Most of the respondents were young women under 18 years of age or between 18 and 20 years of age. In terms of educational level, most had completed secondary school and were pursuing undergraduate studies. In addition, most of the participants belonged to the middle class, with low and middle socioeconomic levels. Finally, most respondents reported living in urban areas.

Respondents were also asked questions to learn more about their knowledge of financial literacy and financial inclusion, as well as their perception of economic violence. In this regard, they were asked if they had received any type of financial education in the past, to which the vast majority responded that they had not. In addition, they were asked if they used financial services such as bank accounts, credit cards, or loans, and the majority answered in the affirmative. Likewise, they were asked if they felt capable of making important financial decisions on their own, finding that the majority perceived that they were. Regarding their familiarity with basic financial concepts such as saving, investing, and budgeting, 70% felt they had little knowledge, while 22% felt they had a lot.

They were also asked if they believed that financial independence can contribute to reducing economic and sexual violence, and 59% answered yes, while 29% thought maybe and 12% thought no. In addition, they were asked if they had been victims of sexual violence at some point in their lives, to which 72% said no, 18% said yes, and 10% preferred not to answer. In addition, they were asked if they had been victims of sexual violence at some point in their lives, to which 72% said no, 18% said yes, and 10% preferred not to answer. Finally, they were asked if they considered that financial education can be a tool for empowering women and preventing economic and sexual violence, to which the vast majority (76%) answered yes, 18% said maybe and only 6% said no.

Table 2. Sample information.

Variable	Items	Percentage
University	Universidad Ricardo Palma	80.1%
	Universidad Nacional Mayor de San Marcos	12.6%
	Universidad Científica del Sur	2.1%
	Universidad San Ignacio de Loyola	0.7%
	Universidad de Lima	0.7%
	Pontificia Universidad Católica del Perú	0.5%
	Universidad Inca Garcilaso de la Vega	0.5%
	Universidad Norbert Wiener	0.5%
	ADEX Instituto Negocios Internacionales	0.2%
	IPAE - Acción Empresarial	0.2%
	Universidad del Pacífico	0.2%
	Universidad Nacional Federico Villarreal	0.2%
	Universidad Nacional de Tumbes	0.2%
	Universidad Peruana Cayetano Heredia	0.2%
	Universidad Privada del Norte	0.2%
	Universidad de San Martín de Porres	0.2%
	Ninguna	0.5%
Age range	Under 18 years old	17%
	18 to 20 years old	26%
	21 to 30 years old	12%
	31 to 40 years old	14%
	41 to 50 years old	14%
	More than 50 years old	18%
Educational level	Elementary school	9%
	Secondary school	30%
	Undergraduate	50%
	Postgraduate	10%
Socioeconomic level	Very low	5%
	Low	31%

	Medium	61%
	High	3%
Place of residence	Rural	22%
	Urban	78%
Have you received any financial education in the past?	No	68%
	Yes	32%
Do you use financial services such as bank accounts, credit cards, or loans?	Yes	59%
	No	41%
Do you feel empowered to make important financial decisions on your own?	Yes	61%
	No	39%
How familiar are you with basic financial concepts such as saving, investing, and budgeting?	A lot	22%
	Not at all	8%
	A Little	70%
Do you believe that financial independence can contribute to reducing sexual violence?	Yes	59%
	No	12%
	Maybe	29%
Have you been a victim of sexual violence at any time in your life?	No	72%
	Yes	18%
	I prefer not to answer	10%
Do you consider that financial education can be a tool to empower women and prevent sexual violence?	Yes	76%
	Maybe	18%
	No	6%

Source: own elaboration.

3.3. Data analysis technique

Microsoft Excel was used to analyze the demographic data, and SmartPLS version 4 statistical software was used to test the proposed hypotheses, applying Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach was selected due to the numerous benefits of PLS-SEM. As mentioned by Russo and Stol (2022), it is appropriate when the latent variables of interest are composites rather than "common factors". In addition, it is useful when the research objective is to predict or identify key constructs. PLS-SEM has become a popular method for estimating complex models with relationships and chains of effects between theoretical constructs in recent years (Guenther et al., 2023).

In the present study, relevant indices were included to evaluate the overall fit of the proposed model, such as SRMR, Chi-square and NFI, which are widely used in PLS-SEM based analysis. The results can be evidenced in **Table 3**. These results indicate that the model has an acceptable fit.

Table 3. Adjustment indexes.

Index	**Index**	**Index**
SRMR	0.074	0.096
d_ULS	1.402	2.355
d_G	0.629	0.720

Chi-cuadrado	1,597,285	1,684,154
NFI	0.657	0.638

3.4. Ethical considerations

Before applying the surveys to the students, the aim of the research was explained to them. They were also informed that the information would be collected for research purposes only and that their participation would be anonymous and voluntary. In this sense, it was made clear to the university students that there would be no charge or payment for participating in the study. In addition, it was explained to them that there were no right or wrong answers and that they could withdraw at any time. The questionnaire was also approved by the ethics committee of the Institución Universitaria Escolme with code PC2022-02.

4. Results

The analysis of results was carried out using a Structural Equation Model with PLS-SEM approach. This analysis was divided into two phases: the measurement model and the structural model. The validity of the measurement model was evaluated by means of convergent and discriminant validity, as well as its reliability. The structural model made it possible to test the hypotheses and evaluate the predictive capacity of the constructs.

4.1. Evaluation of the measurement model

Many researchers argue that combined factor loadings and cross-loadings are used to justify the convergent validity of the measurement model. In this sense, for reflective latent variables, factor loadings (coming from a structural matrix) should be high, while cross-loadings (coming from a pattern matrix) should be low (Amora, 2021). It is recommended that factor loadings exceed a value of 0.7 (Ummu Sakinah et al., 2020). Therefore, **Table 4** presents the factor loadings, where it can be observed that the reflective factor loadings are high (> 0.7), while the cross-loadings have lower values, thus evidencing convergent validity based on the factor loadings. To meet this criterion, the following items were eliminated: CRB4, CRB5, FA1, FA2, FB1, FL1, FL2, FS1, FS4, FS5, FI2 and FI3.

Another relevant statistic for measuring convergent validity is the Average Variance Extracted (AVE), since it is an indicator of the convergence of variables towards their construct or desired variable. To determine convergent validity, at least 50% of the AVE must be reached, which implies that the factor loadings must be greater than 0.708, demonstrating that more than half of the variance in the construct indicators is included in the score (Fauzi, 2022). In that sense, the AVE values must be higher than 0.5 (Purwanto and Sudargini, 2021). **Table 5** presents the results of convergent validity, demonstrating that the proposed model is valid in this aspect.

In this phase, the multicollinearity measure is applied through the Variance Inflation Factor (VIF). Experts recommend that this value should not exceed 5 to ensure that there are no multicollinearity problems among the constructs of the model (Shams et al., 2020). The results, presented in **Table 4**, show that there are no multicollinearity problems in the constructs. In addition, the reliability of the model is assessed using two fundamental statistics: Cronbach's α (CA) and composite reliability (CR).

For both CA and CR, the rule of thumb is that both measures exceed a value of 0.7 for the model to meet the reliability criteria. However, as explained by Hair et al. (2020), since the indicators are not equally reliable, the CR, which is weighted, is more accurate than the CA (unweighted). Therefore, CR should be evaluated and reported and usually given higher priority in PLS-SEM. In addition, it should be considered that values equal to or greater than 0.95 could indicate redundancy and are therefore not considered to be recommended (Legate et al., 2023). The results, presented in **Table 5**, show that the model is also statistically reliable.

Table 4. Cross-loading.

	Credit risk behavior	Financial attitude	Financial behavior	Women's financial inclusion	Financial literacy	Financial stress	Financial self-efficacy
CRB1	0.755	0.428	0.462	0.471	0.497	0.462	0.493
CRB2	0.852	0.404	0.475	0.483	0.491	0.348	0.437
CRB3	0.756	0.426	0.398	0.450	0.491	0.255	0.368
FA3	0.363	0.722	0.470	0.393	0.433	0.414	0.537
FA4	0.446	0.854	0.526	0.514	0.657	0.340	0.599
FA5	0.468	0.830	0.575	0.402	0.601	0.348	0.634
FB2	0.465	0.504	0.728	0.302	0.455	0.365	0.595
FB3	0.451	0.538	0.812	0.430	0.533	0.457	0.616
FB4	0.328	0.439	0.703	0.378	0.467	0.327	0.554
FB5	0.478	0.505	0.801	0.532	0.603	0.332	0.547
FI1	0.588	0.411	0.480	0.860	0.565	0.344	0.406
FI4	0.445	0.528	0.461	0.871	0.588	0.316	0.462
FL3	0.473	0.505	0.547	0.600	0.791	0.333	0.461
FL4	0.557	0.619	0.565	0.548	0.848	0.380	0.588
FL5	0.492	0.606	0.538	0.473	0.793	0.328	0.636
FS2	0.405	0.369	0.443	0.322	0.345	0.869	0.452
FS3	0.376	0.398	0.383	0.328	0.388	0.832	0.382
FSE1	0.437	0.558	0.551	0.412	0.605	0.392	0.814
FSE2	0.442	0.504	0.600	0.391	0.511	0.364	0.752
FSE3	0.420	0.538	0.583	0.390	0.537	0.390	0.749
FSE4	0.385	0.539	0.574	0.336	0.436	0.340	0.705
FSE5	0.407	0.640	0.556	0.360	0.508	0.369	0.749

Note: the shaded values show the correlation of each indicator with its respective latent variable.
Source: own elaboration based on SmartPLS 4.

Evaluation of the measurement model also requires discriminant validity analysis, which demonstrates that one construct is empirically distinct from the others. This means that each construct captures a unique phenomenon that is not represented by any other construct in the model (Hair et al., 2017). To assess the discriminant validity of the model, the Fornell-Larcker criterion is applied which specifies that the correlation of the indicators should be higher with the construct it should theoretically measure than the correlation with the other constructs and is obtained from AVE (Ab Hamid et al., 2017). The results of this criterion can be evidenced in **Table 6**.

Table 5. Reliability and convergent validity of the model.

Factor	Indicator	Outer loading	VIF	CA	CR	AVE
Credit risk behavior	CRB1	0.755	1.247	0.696	0.831	0.622
	CRB2	0.852	1.747			
	CRB3	0.756	1.512			
Financial attitude	FA3	0.722	1.311	0.727	0.845	0.647
	FA4	0.854	1.609			
	FA5	0.830	1.504			
Financial behavior	FB2	0.728	1.452	0.759	0.847	0.581
	FB3	0.812	1.693			
	FB4	0.703	1.391			
	FB5	0.801	1.628			
Women's financial inclusion	FI1	0.860	1.330	0.665	0.856	0.749
	FI4	0.871	1.330			
Financial literacy	FL3	0.791	1.411	0.739	0.852	0.658
	FL4	0.848	1.625			
	FL5	0.793	1.447			
Financial stress	FS2	0.869	1.252	0.620	0.840	0.724
	FS3	0.832	1.252			
Financial self-efficacy	FSE1	0.814	1.817	0.811	0.868	0.569
	FSE2	0.752	1.560			
	FSE3	0.749	1.564			
	FSE4	0.705	1.450			
	FSE5	0.749	1.561			

Note: Outer loading > 0.7; VIF < 3; CA > 0.7; CR > 0.7; AVE > 0.5. Source: own elaboration based on SmartPLS 4.

Table 6. Fornell-Larcker criterion.

	Credit risk behavior	Financial self-efficacy	Financial attitude	Financial behavior	Financial literacy	Financial stress	Women's financial inclusion
Credit risk behavior	0.789						
Financial self-efficacy	0.555	0.755					
Financial attitude	0.533	0.735	0.804				
Financial behavior	0.568	0.757	0.653	0.762			
Financial literacy	0.626	0.692	0.711	0.678	0.811		
Financial stress	0.459	0.492	0.449	0.487	0.429	0.851	
Women's financial inclusion	0.595	0.502	0.544	0.543	0.667	0.381	0.865

Source: own elaboration based on SmartPLS 4.

4.2. Evaluation of the structural model

In this phase, the path coefficients and the strength of the hypothesized relationships established in the model are analyzed. For this, a bootstrapping process is performed in SmartPLS 4, and the hypotheses are evaluated using the p-value, which must be less than 0.005 or within the 95% confidence interval (Hair et al., 2019). The upper and lower bounds of the confidence interval $\beta - 1.96\sigma$ and $\beta + 1.96\sigma$ are also calculated. In addition, the *t*-ratio test (*t*-statistic) is calculated, with a threshold greater than 1.96 (Kock, 2016). The results can be evidenced in **Table 7**.

Table 7. Hypothesis testing.

Hypothesis	β	*t*-statistic	*p*-value	Relation
Financial attitude → Financial literacy	0.330	6.156	0.000	Positive
Financial attitude → Financial behavior	0.543	13.372	0.000	Positive
Financial behavior → Financial literacy	0.201	3.269	0.001	Positive
Financial self-efficacy → Credit risk behavior	0.434	9.331	0.000	Positive
Financial self-efficacy → Financial literacy	0.160	2.799	0.005	Positive
Financial stress → Credit risk behavior	0.246	5.116	0.000	Positive
Financial stress → Financial behavior	0.243	5.499	0.000	Positive
Credit risk behavior → Financial literacy	0.247	5.606	0.000	Positive
Financial literacy → Women’s financial inclusion	0.667	22.179	0.000	Positive

Note: *t*-value > 1.96; sig. < 0.005. Source: own elaboration based on SmartPLS 4.

In the analysis of the predictive capacity of the model, the correlation coefficient R^2 and the redundancy test with cross-validation Q^2 (Hair et al., 2017). The authors agree that acceptable values for R^2 are: 0.25 (weak), 0.5 (moderate), and 0.75 (substantial) (Astrachan et al., 2014). The results indicate that, for the endogenous variables for predicting financial literacy, it was moderate, and for the variables risky credit behavior, financial behavior, and financial inclusion it was weak-moderate.

The Q^2 measure is based on the shielding technique and is used to evaluate the predictive power of a model with PLS-SEM (Magno et al., 2024). Researchers recommend values higher than 0 for the Stone-Geisser Q^2 criterion (Sohaib et al., 2020). However, there are benchmark values that indicate that higher values reflect higher predictive power, as they imply that the model can predict data not used in the model estimation. Thus, values of 0.15 are considered small, values greater than 0.25 are considered medium and values greater than 0.35 are considered large (Gotthardt and Mezhuyev, 2022). The results denote that for the endogenous variables financial literacy and financial behavior, the predictive power was large, and for the variables financial inclusion and risky credit behavior the power was medium.

5. Discussion

The findings indicate that the most significant relationship in the model is between financial literacy and its strong positive influence on women’s financial inclusion. This finding suggests that the greater the financial knowledge and skills of female college students, the more likely they are to participate in and use financial products and services. These results are consistent with those of Morgan and Long (2020), who found that financial literacy has statistically significant effects on financial inclusion in Laos. They found that people with higher levels of financial literacy tend to save more, both formally and informally, compared to those with lower levels, even when controlling for income and education. Similarly, the study by Tubastuvi and Purwidianti (2023) concluded that financial literacy is a key factor in increasing financial inclusion in women-led SMEs.

A very strong relationship was observed between financial attitude and financial behavior among university women. This suggests that a positive financial attitude could influence better performance in financial decision-making. Women with positive thoughts, beliefs, and predispositions regarding money management tend to exhibit more appropriate and responsible financial behaviors in terms of saving, investing, and credit management. These findings are consistent with the results of Sriyono and Rif'ah (2022), who argue that women possess financial literacy skills that can modify their financial behavior. Similarly, Wangi and Baskara (2021) found that better financial attitude in college students translates into better behavior in individual investment decisions. These results are also in line with the findings of Miglani (2024), who argues that women's financial attitude strengthens the relationship between financial knowledge and financial behavior.

The finding that financial self-efficacy has a positive influence on credit risk behavior is consistent with that found by Liu and Zhang (2021). These authors identified a mediating effect of financial self-efficacy on the relationship between financial literacy and risky credit behavior in college students. This suggests that higher financial literacy may improve students' financial confidence and self-control, thereby inhibiting their risky credit behavior. Thus, the results of this study demonstrate that the level of confidence female college students have in their ability to handle financial situations positively influences the way they take credit-related risks.

Regarding the factors that positively influence women's financial literacy, a significant effect of financial attitude was found. This suggests that women with a positive attitude towards money and financial management tend to possess higher financial knowledge and skills. These findings are supported by the studies of Rai et al. (2019), Banthia and Dey (2022). Rai et al. (2019) found that financial attitude and behavior have a strong association with the level of financial literacy among women in India, also providing insight into an emerging economy. Meanwhile, Banthia and Dey (2022) also identified a positive effect of financial knowledge and attitude on the level of financial literacy, coinciding with the findings of this study.

Another finding related to financial literacy is that it was influenced by credit risk behavior, which shows that H8 is not met. This suggests that, as Peruvian female university students increase their financial literacy, they may be more exposed to credit risk behavior. This phenomenon could occur when women, having greater access to and understanding of financial products, take more risks, such as taking on more debt or using credit in a riskier way. Therefore, this finding could reflect that greater knowledge does not always imply more prudent decisions; in certain contexts, people may feel more confident in making risky financial decisions. An example of this is illustrated in the study by Mottola (2013), who found that a sharp and unexpected drop in income generates higher levels of costly credit card behaviors, especially among low-income and minority individuals. However, the literature posits that credit risk behavior has a negative relationship with financial literacy, as female college students with lower levels of financial literacy will not only have false cognitions and value judgments about the rights and responsibilities of online credit services but may also engage in credit abuse and other risky credit behaviors, in addition to conspicuous consumption risk and impulse buying, which will increase the likelihood of risky credit behaviors (Liu and Zhang, 2021; Xiao, Serido et al., 2011; Xiao, Tang et al., 2011).

Financial stress also showed influential relationships on both credit risk behavior and financial behavior contradicting H6 and H7, which according to the literature have a negative effect, arguing that college students facing high financial stress are more prone to risky credit behavior (Liu and Zhang, 2021; Xiaoand Kim, 2022). These results indicate that, at higher financial stress, women might resort more frequently to credit risk behaviors, such as over-indebtedness, and might also adopt less sustainable or more impulsive practices in managing their financial resources. This could be supported by approaches such as those of Sabri et al. (2021), who argue that financial behavior mediates the relationship between financial literacy and financial vulnerability, such as credit risk, and that gender influences these dynamics. Also, studies such as those by Adams and Moore (2007) observed interesting patterns of credit behavior across different demographic variables. For example, increasing age and year of schooling, together with decreasing grade point averages, were associated with an increase in high-risk credit behavior in college students.

Finally, a positive relationship was found between financial behavior and financial self-efficacy concerning women’s financial literacy. These results show that female students who practice better financial habits, such as planning and proper money management, tend to have a higher level of financial literacy. Thus, the higher the financial literacy of women, the better and wiser their financial behavior will be (Andarsari and Ningtyas, 2019). Likewise, the results also indicate that those women who are more confident in their ability to handle financial situations tend to possess greater financial knowledge and skills. This aligns with Farrell et al. (2016), who notes that women with higher levels of financial self-efficacy are more likely to invest, acquire a mortgage, or open a savings account, due to their knowledge about these products.

This study contributes theoretically to the existing knowledge on the financial literacy and inclusion of university women in the context of an emerging economy. In addition, it proposes a theoretical behavioral model that explains financial literacy and inclusion based on theoretical background and validates it through a statistical procedure, supporting all the hypotheses put forward. The findings of the model indicate that financial attitude, financial behavior, financial self-efficacy and credit risk behavior have a positive influence on financial literacy. In turn, the latter factor directly influences women’s financial inclusion.

Another contribution of this research is the theoretical contribution in a specific context of an emerging economy, which would help to understand how literacy and financial inclusion could prevent gender violence from the perspective of university women as a hypothesis for future studies. In this way, existing knowledge is expanded and a precedent is generated on this phenomenon, which could be replicated in other contexts in the region. It is considered that financial empowerment can have beneficial effects not only in the economic sphere but also in the social sphere, helping to reduce problems such as gender violence, especially economic violence.

Finally, the proposed theoretical model offers an interdisciplinary approach that is not limited only to women but can also be applied to populations of both men and women, to understand the factors that influence people's financial literacy and inclusion. This can open new lines of research and public policies focused on financial education, as well as a financial literacy approach for the prevention of gender-based violence within universities and higher education institutions.

From a more practical perspective, this study offers several implications. First, the findings are useful for universities and institutions of higher education in Peru, as they can design and implement financial literacy and inclusion programs specifically targeted at women. This would strengthen the financial skills of female students and support the economic and social empowerment of women in the educational context. In this sense, support programs could include content focused on improving financial self-efficacy, and financial attitude, and fostering responsible financial behaviors in women. In addition, strategies could be designed to reduce economic vulnerability in the face of situations of gender-based violence.

Finally, the findings of this study could also be useful for government entities in charge of designing public policies in Peru. These findings can guide the creation of policies that promote financial education as a key tool for gender equity and violence prevention, aligned with state and regional development plans.

This study also has limitations. Although a theoretical model of financial literacy and inclusion is proposed, it is limited to certain factors, leaving aside aspects such as financial experience, financial awareness, financial planning, financial vulnerability, financial knowledge, financial well-being, financial products and services, and demographic factors. These factors represent an opportunity to be included in future models related to the topic. Likewise, the major limitation of this study is that it does not include a factor on the reduction of economic violence and the positive relationship that women's literacy and financial inclusion could have. Therefore, it is recommended that future studies propose models that include this variable to empirically prove that economic violence against women could be prevented based on the study variables.

It is also recommended that, in future studies, models with mediating effects between variables be proposed. Likewise, it would be beneficial to test parts of the framework separately before attempting a full test of the model, to ensure a model of higher quality and explanatory capacity. In addition, it would also be beneficial to measure financial literacy based on Lusardi's Big Five or Big Three questions, as they are the most widely used and accepted (Xiao and Xin, 2022).

There is also a limitation in terms of the sample. Although it was composed of university students from various universities in Peru, most of them were concentrated in the city of Lima. Therefore, it is important to diversify the sample to include other regions of the country. It is recommended that future studies in Peru and other countries with similar sociodemographic characteristics in Latin America consider this diversification. Finally, since the sample was composed of female university students, we did not consider whether they were financially dependent on anyone. Therefore, this is considered a crucial aspect to take into account in future studies of this type.

6. Conclusion

The aim of this study was to evaluate the determinants that influence the financial literacy and financial inclusion of Peruvian university students. To this end, a theoretical model composed of the factors of financial self-efficacy, financial stress, financial behavior, credit risk behavior, financial attitude, financial literacy, and financial inclusion was proposed. This model was statistically validated using PLS-SEM and proved to be consistent.

The results indicated that the factors that have a positive influence are mainly financial attitude, followed by credit risk behavior, financial behavior, and financial self-efficacy. The most relevant relationship was found between financial literacy and financial inclusion of university women. In addition, it was observed that financial attitude has a positive influence on financial behavior and that financial self-efficacy significantly influences credit risk behavior. Finally, financial stress was found to directly influence financial behavior and risky credit behavior.

The data also revealed that most women feel capable of making important financial decisions for themselves, although they feel unfamiliar with basic financial concepts such as saving, investing, and budgeting. Regarding sexual and economic violence, they perceived that financial independence could contribute to reducing sexual and economic violence, and consider that financial education can be a tool to empower women and prevent sexual violence. Therefore, it is important to consider financial literacy as a key aspect of higher education for women to implement strategies to reduce gender-based violence and foster women's financial independence in emerging economies.

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References

Ab Hamid, M. R., Sami, W., & Mohmad Sidek, M. H. (2017). Discriminant Validity Assessment: Use of Fornell & Larcker criterion versus HTMT Criterion. Journal of Physics: Conference Series, 890, 012163. https://doi.org/10.1088/1742-6596/890/1/012163

Adams, T., & Moore, M. (2007). High-Risk Health and Credit Behavior Among 18- to 25-Year-Old College Students. Journal of American College Health, 56(2), 101–108. https://doi.org/10.3200/JACH.56.2.101-108

Alkan, Ö., Özar, Ş., & Ünver, Ş. (2021). Economic violence against women: A case in Turkey. PLOS ONE, 16(3), e0248630. https://doi.org/10.1371/journal.pone.0248630

Alomari, A. S. A., & Abdullah, N. L. (2023). Factors influencing the behavioral intention to use Cryptocurrency among Saudi Arabian public university students: Moderating role of financial literacy. Cogent Business & Management, 10(1). https://doi.org/10.1080/23311975.2023.2178092

Amagir, A., Groot, W., van den Brink, H. M., & Wilschut, A. (2020). Financial literacy of high school students in the Netherlands: knowledge, attitudes, self-efficacy, and behavior. International Review of Economics Education, 34, 100185. https://doi.org/10.1016/j.iree.2020.100185

Amora, J. T. (2021). Convergent validity assessment in PLS-SEM: A loadings-driven approach. Data Analysis Perspectives Journal, 2(3), 1–6.

Andarsari, P. R., & Ningtyas, M. N. (2019). The Role of Financial Literacy on Financial Behavior. Journal of Accounting and Business Education, 4(1), 24–33. https://doi.org/10.26675/jabe.v4i1.8524

Andriamahery, A., & Qamruzzaman, Md. (2022). Do Access to Finance, Technical Know-How, and Financial Literacy Offer Women Empowerment Through Women's Entrepreneurial Development? Frontiers in Psychology, 12, 776844. https://doi.org/10.3389/fpsyg.2021.776844

Antonijević, M. S., Ljumović, I., & Ivanović, Đ. (2022). Is there a Gender Gap in Financial Inclusion across Countries? JWEE, 1–2, 79–96. https://doi.org/10.28934/jwee22.12.pp79-96

Asongu, S. A., Nnanna, J., & Acha-Anyi, P. N. (2020). Inequality and gender economic inclusion: The moderating role of financial access in Sub-Saharan Africa. Economic Analysis and Policy, 65, 173–185. https://doi.org/10.1016/j.eap.2020.01.002

Astrachan, C. B., Patel, V. K., & Wanzenried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. Journal of Family Business Strategy, 5(1), 116–128. https://doi.org/10.1016/j.jfbs.2013.12.002

Aydin, A. E., & Akben Selcuk, E. (2019). An investigation of financial literacy, money ethics and time preferences among college students. International Journal of Bank Marketing, 37(3), 880–900. https://doi.org/10.1108/IJBM-05-2018-0120

Banthia, D., & Dey, S. K. (2022). Impact of Financial Knowledge, Financial Attitude and Financial Behaviour on Financial Literacy: Structural Equitation Modeling Approach. Universal Journal of Accounting and Finance, 10(1), 327–337. https://doi.org/10.13189/ujaf.2022.100133

Bire, A. R., Sauw, H. M., & Maria, -. (2019). The effect of financial literacy towards financial inclusion through financial training. International Journal of Social Sciences and Humanities, 3(1), 186–192. https://doi.org/10.29332/ijssh.v3n1.280

de Bassa Scheresberg, C. (2013). Financial Literacy and Financial Behavior among Young Adults: Evidence and Implications. Numeracy, 6(2). https://doi.org/10.5038/1936-4660.6.2.5

Duvendack, M., & Mader, P. (2020). IMPACT OF FINANCIAL INCLUSION IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW OF REVIEWS. Journal of Economic Surveys, 34(3), 594–629. https://doi.org/10.1111/joes.12367

Eggers del Campo, I., & Steinert, J. I. (2022). The Effect of Female Economic Empowerment Interventions on the Risk of Intimate Partner Violence: A Systematic Review and Meta-Analysis. Trauma, Violence, & Abuse, 23(3), 810–826. https://doi.org/10.1177/1524838020976088

El Saadi, J. (2023). The Role of Financial Literacy in Gender-based Violence: Developing Financial Freedom and Confidence for Women [Master thesis]. University of Windsor.

Fanta, A., & Mutsonziwa, K. (2021). Financial Literacy as a Driver of Financial Inclusion in Kenya and Tanzania. Journal of Risk and Financial Management, 14(11), 561. https://doi.org/10.3390/jrfm14110561

Farrell, L., Fry, T. R. L., & Risse, L. (2016). The significance of financial self-efficacy in explaining women's personal finance behaviour. Journal of Economic Psychology, 54, 85–99. https://doi.org/10.1016/j.joep.2015.07.001

Fauzi, M. A. (2022). Partial least square structural equation modelling (PLS-SEM) in knowledge management studies: Knowledge sharing in virtual communities. Knowledge Management & E-Learning: An International Journal, 14(1), 103–124. https://doi.org/10.34105/j.kmel.2022.14.007

Fessler, P., Silgoner, M., & Weber, R. (2020). Financial knowledge, attitude and behavior: evidence from the Austrian Survey of Financial Literacy. Empirica, 47(4), 929–947. https://doi.org/10.1007/s10663-019-09465-2

Garg, N., & Singh, S. (2018). Financial literacy among youth. International Journal of Social Economics, 45(1), 173–186. https://doi.org/10.1108/IJSE-11-2016-0303

Ghosh, S., & Vinod, D. (2017). What Constrains Financial Inclusion for Women? Evidence from Indian Micro data. World Development, 92, 60–81. https://doi.org/10.1016/j.worlddev.2016.11.011

Gilroy, H., Symes, L., & McFarlane, J. (2015). Economic solvency in the context of violence against women: a concept analysis. Health & Social Care in the Community, 23(2), 97–106. https://doi.org/10.1111/hsc.12103

Gotthardt, M., & Mezhuyev, V. (2022). Measuring the Success of Recommender Systems: A PLS-SEM Approach. IEEE Access, 10, 30610–30623. https://doi.org/10.1109/ACCESS.2022.3159652

Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. International Journal of Consumer Studies, 45(1), 80–105. https://doi.org/10.1111/ijcs.12605

Grohmann, A., Klühs, T., & Menkhoff, L. (2018). Does financial literacy improve financial inclusion? Cross country evidence. World Development, 111, 84–96. https://doi.org/10.1016/j.worlddev.2018.06.020

Guenther, P., Guenther, M., Ringle, C. M., Zaefarian, G., & Cartwright, S. (2023). Improving PLS-SEM use for business marketing research. Industrial Marketing Management, 111, 127–142. https://doi.org/10.1016/j.indmarman.2023.03.010

Hair Jr., J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2), 107–123. https://doi.org/10.1504/IJMDA.2017.087624

Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. Journal of Business Research, 109, 101–110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J., Hollingsworth, C. L., Randolph, A. B., & Chong, A. Y. L. (2017). An updated and expanded assessment of PLS-SEM in information systems research. Industrial Management & Data Systems, 117(3), 442–458. https://doi.org/10.1108/IMDS-04-2016-0130

Hasan, M., Le, T., & Hoque, A. (2021). How does financial literacy impact on inclusive finance? Financial Innovation, 7(1), 40. https://doi.org/10.1186/s40854-021-00259-9

Hasan, R., Ashfaq, M., Parveen, T., & Gunardi, A. (2023). Financial inclusion – does digital financial literacy matter for women entrepreneurs? International Journal of Social Economics, 50(8), 1085–1104. https://doi.org/10.1108/IJSE-04-2022-0277

Henager, R., & Cude, B. J. (2016). Financial Literacy and Long- and Short-Term Financial Behavior in Different Age Groups. Journal of Financial Counseling and Planning, 27(1), 3–19. https://doi.org/10.1891/1052-3073.27.1.3

Hetling, A., Postmus, J. L., & Kaltz, C. (2016). A Randomized Controlled Trial of a Financial Literacy Curriculum for Survivors of Intimate Partner Violence. Journal of Family and Economic Issues, 37(4), 672–685. https://doi.org/10.1007/s10834-015-9479-7

Instituto Nacional de Estadística e Informática. (2024, March 7). Más de 17 millones de mujeres conmemoran su día este 8 de marzo. INEI. https://www.gob.pe/institucion/inei/noticias/916825-mas-de-17-millones-de-mujeres-conmemoran-su-dia-este-8-de-marzo

Jian Xiao, J., & Kumar, S. (2023). Introduction to A Research Agenda for Consumer Financial Behavior. In A Research Agenda for Consumer Financial Behavior (pp. 1–15). Edward Elgar Publishing. https://doi.org/10.4337/9781803922652.00008

Kadoya, Y., & Khan, M. S. R. (2020). Financial Literacy in Japan: New Evidence Using Financial Knowledge, Behavior, and Attitude. Sustainability, 12(9), 3683. https://doi.org/10.3390/su12093683

Kock, N. (2016). Hypothesis testing with confidence intervals and P values in PLS-SEM. International Journal of E-Collaboration, 12(3), 1–6.

Koomson, I., Villano, R. A., & Hadley, D. (2020). Intensifying financial inclusion through the provision of financial literacy training: a gendered perspective. Applied Economics, 52(4), 375–387. https://doi.org/10.1080/00036846.2019.1645943

Legate, A. E., Hair, J. F., Chretien, J. L., & Risher, J. J. (2023). PLS-SEM: Prediction-oriented solutions for HRD researchers. Human Resource Development Quarterly, 34(1), 91–109. https://doi.org/10.1002/hrdq.21466

Liu, L., & Zhang, H. (2021). Financial literacy, self-efficacy and risky credit behavior among college students: Evidence from online consumer credit. Journal of Behavioral and Experimental Finance, 32, 100569. https://doi.org/10.1016/j.jbef.2021.100569

Magno, F., Cassia, F., & Ringle, C. M. (2024). A brief review of partial least squares structural equation modeling (PLS-SEM) use in quality management studies. The TQM Journal, 36(5), 1242–1251. https://doi.org/10.1108/TQM-06-2022-0197

Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. Journal of Financial Counseling and Planning, 20(1), 15–24.

McDougal, L., Klugman, J., Dehingia, N., Trivedi, A., & Raj, A. (2019). Financial inclusion and intimate partner violence: What does the evidence suggest? PLOS ONE, 14(10), e0223721. https://doi.org/10.1371/journal.pone.0223721

Miglani, V. (2024). Understanding the Effect of Peers on the Financial Attitude and Financial Behaviour of Women in Kaithal, Haryana. International Journal of Social Science Research and Review, 7(8), 151–164. https://doi.org/10.47814/ijssrr.v7i8.2221

Mishra, D. K., Malik, S., Chitnis, A., Paul, D., & Dash, S. S. (2021). Factors Contributing to Financial Literacy and Financial Inclusion among Women in Indian SHGs. Universal Journal of Accounting and Finance, 9(4), 810–819. https://doi.org/10.13189/ujaf.2021.090427

Morgan, P. J., & Long, T. Q. (2020). Financial literacy, financial inclusion, and savings behavior in Laos. Journal of Asian Economics, 68, 101197. https://doi.org/10.1016/j.asieco.2020.101197

Mottola, G. (2013). In Our Best Interest: Women, Financial Literacy, and Credit Card Behavior. Numeracy, 6(2), 4. https://doi.org/10.5038/1936-4660.6.2.4

Nandru, P., Chendragiri, M., & Velayutham, A. (2021). Examining the influence of financial inclusion on financial well-being of marginalized street vendors: an empirical evidence from India. International Journal of Social Economics, 48(8), 1139–1158. https://doi.org/10.1108/IJSE-10-2020-0711

Ngo, P. T. H., & Puente Moncayo, D. (2021). Can Financial Literacy Reduce Domestic Violence? SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3809469

Noor, N., Batool, I., & Arshad, H. M. (2020). Financial literacy, financial self-efficacy and financial account ownership behavior in Pakistan. Cogent Economics & Finance, 8(1), 1806479. https://doi.org/10.1080/23322039.2020.1806479

Organisation for Economic Cooperation and Development (OECD). (2009). Measuring Financial Literacy: Questionnaire and Guidance Notes for Conducting an Internationally Comparable Survey of Financial Literacy.

Postmus, J. L., Hoge, G. L., Breckenridge, J., Sharp-Jeffs, N., & Chung, D. (2020). Economic Abuse as an Invisible Form of Domestic Violence: A Multicountry Review. Trauma, Violence, & Abuse, 21(2), 261–283. https://doi.org/10.1177/1524838018764160

Postmus, J. L., Plummer, S.-B., McMahon, S., & Zurlo, K. A. (2013). Financial Literacy: Building Economic Empowerment with Survivors of Violence. Journal of Family and Economic Issues, 34(3), 275–284. https://doi.org/10.1007/s10834-012-9330-3

Potrich, A. C. G., Vieira, K. M., & Kirch, G. (2018). How well do women do when it comes to financial literacy? Proposition of an indicator and analysis of gender differences. Journal of Behavioral and Experimental Finance, 17, 28–41. https://doi.org/10.1016/j.jbef.2017.12.005

Purwanto, A., & Sudargini, Y. (2021). Partial Least Squares Structural Squation Modeling (PLS-SEM) Analysis for Social and Management Research : A Literature Review. Journal of Industrial Engineering & Management Research, 2(4), 114–123.

Rahman, M., Isa, C. R., Masud, M. M., Sarker, M., & Chowdhury, N. T. (2021). The role of financial behaviour, financial literacy, and financial stress in explaining the financial well-being of B40 group in Malaysia. Future Business Journal, 7(1), 52. https://doi.org/10.1186/s43093-021-00099-0

Rai, K., Dua, S., & Yadav, M. (2019). Association of Financial Attitude, Financial Behaviour and Financial Knowledge Towards Financial Literacy: A Structural Equation Modeling Approach. FIIB Business Review, 8(1), 51–60. https://doi.org/10.1177/2319714519826651

Ranganathan, M., Knight, L., Abramsky, T., Muvhango, L., Polzer Ngwato, T., Mbobelatsi, M., Ferrari, G., Watts, C., & Stöckl, H. (2021). Associations Between Women's Economic and Social Empowerment and Intimate Partner Violence: Findings From a Microfinance Plus Program in Rural North West Province, South Africa. Journal of Interpersonal Violence, 36(15–16), 7747–7775. https://doi.org/10.1177/0886260519836952

Robb, C. A. (2011). Financial Knowledge and Credit Card Behavior of College Students. Journal of Family and Economic Issues, 32(4), 690–698. https://doi.org/10.1007/s10834-011-9259-y

Russo, D., & Stol, K.-J. (2022). PLS-SEM for Software Engineering Research. ACM Computing Surveys, 54(4), 1–38. https://doi.org/10.1145/3447580

Sabri, M. F., Cheng-Xi Aw, E., Rahima, H. A., Burhanc, N. A. S., Othmana, M. A., & Simanjuntak, M. (2021). Financial Literacy, Behavior and Vulnerability Among Malaysian Households: Does Gender Matter? International Journal of Economics and Management, 15(2), 241–256.

Shams, M. S., Niazi, M. M., & Asim, F. (2020). The Relationship BetweenPerceived Organizational Support,Employee Engagement, andOrganizational Citizenship Behavior:Application of PLS-SEM Approach. Kardan Journal of Economicsand Management Sciences, 3(1), 35–55.

Singh, C., & Kumar, R. (2017). Financial Literacy among Women - Indian Scenario. Universal Journal of Accounting and Finance, 5(2), 46–53. https://doi.org/10.13189/ujaf.2017.050202

Sohaib, O., Hussain, W., Asif, M., Ahmad, M., & Mazzara, M. (2020). A PLS-SEM Neural Network Approach for Understanding Cryptocurrency Adoption. IEEE Access, 8, 13138–13150. https://doi.org/10.1109/ACCESS.2019.2960083

Sriyono, S., & Rif'ah, N. L. (2022). Can Gender be a Moderating Variable in Micro Small Medium Enterprises Financial Behavior? A Perspective from Financial Financial Literacy, Financial Attitude, and Income. Jurnal Manajemen Bisnis, 13(2), 306–323. https://doi.org/10.18196/mb.v13i2.14199

Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. Journal of Business Economics, 87(5), 581–643. https://doi.org/10.1007/s11573-017-0853-9

Thomas, B., & Subhashree, P. (2020). Factors that Influence the Financial Literacy among Engineering Students. Procedia Computer Science, 172, 480–487. https://doi.org/10.1016/j.procs.2020.05.161

Tubastuvi, N., & Purwidianti, W. (2023). Performance of Women-Led Smes in Indonesia: The Role of Financial Inclusion, Financial Literacy, and Technology adoption. Journal of Law and Sustainable Development, 11(12), e1899. https://doi.org/10.55908/sdgs.v11i12.1899

Ummu Sakinah, S., Ridzwan, C. R., Ramlee, M., & Zaliza, H. (2020). Career Challenges Model Among Female Engineers: PLS-SEM Analysis. Malaysian Journal of Public Health Medicine, 1, 243–250.

Wangi, L. A. L. G. C., & Baskara, I. G. K. (2021). The Effect of Financial Attitude, Financial Behavior, Financial Knowledge, and Sociodemographic Factors on Individual Investment Decision Behavior. American Journal of Humanities and Social Sciences Research, 5(2), 519–527.

Warren, A., Marchant, T., Schulze, D., & Chung, D. (2019). From Economic Abuse to Economic Empowerment: Piloting a Financial Literacy Curriculum With Women Who Have Experienced Domestic and Family Violence. Affilia, 34(4), 498–517. https://doi.org/10.1177/0886109919868828

Xiao, H., & Xin, Z. (2022). Financial literacy is better than income to predict happiness. Journal of Neuroscience, Psychology, and Economics, 15(3), 119–136. https://doi.org/10.1037/npe0000161

Xiao, J. J., & Kim, K. T. (2022). The Able Worry More? Debt Delinquency, Financial Capability, and Financial Stress. Journal of Family and Economic Issues, 43(1), 138–152. https://doi.org/10.1007/s10834-021-09767-3

Xiao, J. J., & Meng, K. (2024). Financial capability and financial anxiety: comparison before and during the COVID-19 pandemic. International Journal of Bank Marketing, 42(6), 1348–1369. https://doi.org/10.1108/IJBM-03-2023-0140

Xiao, J. J., Serido, J., & Shim, S. (2011). Financial Education, Financial Knowledge, and Risky Credit Behavior of College Students. In D. Lamdin (Ed.), Consumer Knowledge and Financial Decisions (pp. 113–128). Springer New York. https://doi.org/10.1007/978-1-4614-0475-0_8

Xiao, J. J., Tang, C., Serido, J., & Shim, S. (2011). Antecedents and Consequences of Risky Credit Behavior among College Students: Application and Extension of the Theory of Planned Behavior. Journal of Public Policy & Marketing, 30(2), 239–245. https://doi.org/10.1509/jppm.30.2.239

Yahaya, R., Zainol, Z., Abidin, J. H. O. @ Z., & Ismail, R. (2019). The Effect of Financial Knowledge and Financial Attitudes on Financial Behavior among University Students. International Journal of Academic Research in Business and Social Sciences, 9(8), 22–32. https://doi.org/10.6007/IJARBSS/v9-i8/6205

Yau, J. H.-Y., Wong, J. Y.-H., & Fong, D. Y.-T. (2021). Economic Abuse as a Form of Intimate Partner Violence: A Literature Review of the Instruments and Mental Well-Being Outcomes. Violence and Victims, 36(4), 479–492. https://doi.org/10.1891/VV-D-19-00082