

Article

Financial Wellbeing and Financial Resilience: Insights from Personal Experiences and Gender Differences

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Abstract

This study aims to examine the relationships between perceived financial health indicators, lived financial experiences, and actions taken to cope with economic crises, as well as exploring potential gender differences. A non-experimental, quantitative, cross-sectional design is applied to a sample of 499 working professionals who graduated from universities in Veracruz, Mexico, and were employed in the public or private sector. A 24-item Likert scale instrument assessed financial health perceptions, experiences, and crisis-related behaviors. In this study, reliability indices (Cronbach's alpha and McDonald's omega) exceeded the acceptability threshold of 0.70. Data were analyzed using Exploratory Factor Analysis, Structural Equation Modeling, and Bayesian estimation to examine gender effects. The results supported a four-factor structure explaining 64.86% of the variance. Financial wellbeing showed a moderate association with resilience ($r = 0.32$), a weaker relationship with financial experiences ($r = 0.18$), and a strong association between experiences and crisis-related actions ($r = 0.47$). No statistically significant gender differences were identified. These findings contribute to understanding how experiential and behavioral components interact to shape financial outcomes, and we propose a refined three-factor framework linking financial experiences and adaptive actions to overall financial wellbeing.

Keywords: financial wellbeing; financial resilience; gender differences**JEL Classification:** I22; C6; J16

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1. Introduction

Financial wellbeing has evolved from a concept narrowly associated with income stability to a multidimensional construct that incorporates subjective perceptions, lived financial experiences, and the capacity to cope with adverse economic events. Recent international frameworks emphasize that financial wellbeing does not solely depend on income level, but rather on individuals' ability to manage day-to-day finances, absorb shocks, and maintain financial security over time (CFPB, 2015; Brüggén et al., 2017; Netemeyer et al., 2018; OECD, 2023). Within this perspective, financial resilience has gained prominence as a key explanatory element. Financial resilience refers to the capacity to respond to, adapt to, and recover from financial adversity through deliberate financial actions and strategic adjustments (Białowolski et al., 2022; Tahir et al., 2022). Rather than being merely

a psychological trait, recent studies conceptualize financial resilience as a set of observable behaviors and strategies that individuals implement to stabilize their financial situation during or after economic shocks (Kulshreshtha et al., 2023; Okumu et al., 2024).

At the same time, empirical evidence suggests that financial wellbeing encompasses both subjective perceptions of financial health and objective or lived financial conditions (CFPB, 2022; OECD, 2023). Individuals evaluate their financial situation not only based on measurable assets or debts, but also on how secure and prepared they feel in facing future uncertainties. In this context, the present study proposes a structural model in which financial wellbeing is operationalized through two complementary dimensions: (1) Perception toward Financial Health Indicators (PFHI) and (2) Lived Experiences related to Financial Health Indicators (LEFHI). Financial resilience is conceptualized as a third dimension reflecting actions taken to address financial crises (AAFC). This approach allows us to examine whether resilience emerges as a behavioral response grounded in individuals' financial perceptions and experiences.

By focusing on university students in Mexico, this study contributes to the literature in emerging economies, where financial vulnerability and limited social safety nets make resilience particularly relevant (Tahir et al., 2022; Okumu et al., 2024). The study seeks to determine whether perceptions and lived financial conditions form an underlying structure explaining financial wellbeing and whether these dimensions significantly predict financial resilience behaviors.

Research Contributions

This study makes three main contributions to the financial wellbeing and resilience literature. First, it proposes and empirically validates a multidimensional structure of financial wellbeing integrating both perception-based and lived-experience financial health indicators within a unified structural framework. Second, it conceptualizes financial resilience as observable adaptive financial actions rather than as a purely attitudinal or resource-based construct, responding to recent calls for behaviorally grounded operationalizations. Third, it provides empirical evidence from a young adult population in an emerging economy context, contributing to the limited body of research examining financial wellbeing structures outside developed countries.

2. Theoretical Framework

2.1. Financial Wellbeing: Perception and Lived Experience

Contemporary research defines financial wellbeing as a state in which individuals can meet current obligations, feel secure about their financial future, and maintain freedom of financial choice (Brüggen et al., 2017; Netemeyer et al., 2018). Importantly, financial wellbeing includes both subjective and objective components. The subjective dimension refers to individuals' perceptions regarding financial health indicators such as savings adequacy, sustainable debt levels, insurance coverage, and credit history. These perceptions shape financial confidence and influence financial behavior. The experiential dimension reflects lived financial conditions, whether individuals actually possess savings, maintain sustainable debt, or plan future expenses. Empirical findings suggest that discrepancies between perceived and actual financial conditions can significantly influence financial decision-making and adaptive capacity (CFPB, 2022; OECD, 2023).

In this study, financial wellbeing is therefore modeled as a latent construct reflected in two dimensions: PFHI and LEFHI. This dual structure aligns with recent frameworks that integrate cognitive evaluation and practical financial conditions into the broader concept of wellbeing.

2.2. Financial Resilience as Adaptive Financial Action

The concept of resilience originated in developmental and socio-ecological research as the capacity to adapt positively despite adversity (Rutter, 1987; Masten, 2001). In financial research, this concept has evolved to represent households' or individuals' ability to absorb financial shocks, reorganize resources, and implement corrective strategies (Białowolski et al., 2022). Recent empirical studies emphasize that financial resilience is not merely the possession of savings, but the proactive implementation of financial strategies, such as restructuring debt, increasing savings rates, adjusting consumption, or improving credit management (Kulshreshtha et al., 2023; Okumu et al., 2024).

Thus, resilience can be understood as a behavioral manifestation of adaptive capacity. In this study, financial resilience is operationalized through Actions to Address Financial Crises (AAFCs), which capture whether individuals implemented concrete financial strategies during or after adverse situations. This behavioral operationalization responds directly to calls in the recent literature to move beyond purely attitudinal measures of resilience and incorporate observable coping strategies (OECD, 2023; Tahir et al., 2022).

2.3. Structural Relationship Between Wellbeing and Resilience

The literature suggests that financial wellbeing and financial resilience are closely interconnected but conceptually distinct. Wellbeing reflects the state of financial health, whereas resilience represents the adaptive response mechanism that stabilizes or restores that state when threatened (Białowolski et al., 2022). Individuals who perceive themselves as financially healthy and who have lived experiences of stable financial conditions may be more likely to implement structured financial strategies during crises. Conversely, weak financial conditions may constrain adaptive capacity. Accordingly, this study proposes a structural model in which perceptions of financial health indicators (PFHI) and lived financial experiences (LEFHI) predict the implementation of financial resilience actions (AAFCs). This framework avoids interpreting correlations as causal determinism; instead, it evaluates directional relationships within a Structural Equation Modeling framework, consistent with contemporary methodological standards.

Figure 1 presents the conceptual framework guiding the structural model, illustrating the hypothesized relationships among Perception toward Financial Health Indicators (PFHI), lived financial experiences (LEFHI), and Actions to Address Financial Crises (AAFC).

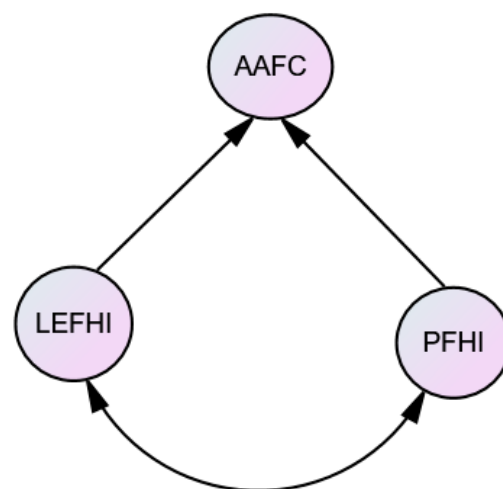


Figure 1. Conceptual framework of the study.

2.4. Gender Differences in Financial Health Indicators

Prior research indicates that gender differences persist in financial behaviors, risk tolerance, and credit participation (Bannier & Neubert, 2016; Almenberg & Dreber, 2015). Some studies report lower financial confidence among women despite comparable financial performance, suggesting perceptual differences that may influence resilience behaviors. Examining gender differences in perceptions and lived financial experiences provides additional insight into how financial wellbeing structures may vary within young adult populations.

2.5. Hypotheses

Structural Hypotheses

H1. *Perception toward Financial Health Indicators (PFHI) has a positive and significant effect on Actions to Address Financial Crises (AAFC).*

H2. *Lived Experiences related to Financial Health Indicators (LEFHI) has a positive and significant effect on Actions to Address Financial Crises (AAFC).*

H3. *Perception toward Financial Health Indicators (PFHI) is positively associated with Lived Experiences related to Financial Health Indicators (LEFHI).*

Measurement Hypothesis

H4. *Financial wellbeing is adequately represented by a multidimensional structure composed of Perception toward Financial Health Indicators (PFHI) and Lived Experiences toward Financial Health Indicators (LEFHI).*

Gender Hypothesis

H5. *There are statistically significant differences by gender in perceptions and Lived Experiences related to Financial Health Indicators.*

2.6. Limits of the Role of Financial Resilience

Although financial resilience is positioned in this study as a relevant behavioral dimension, its role must be interpreted within clear conceptual and methodological boundaries. Financial resilience, operationalized here as Actions to Address Financial Crises (AAFC), captures adaptive financial strategies implemented during or after adverse situations. However, resilience does not fully determine financial wellbeing, nor does it replace structural economic conditions such as income level, labor stability, or macroeconomic context. In this model, resilience is conceptualized as a behavioral response mechanism rather than a comprehensive explanatory construct.

It reflects the capacity to implement corrective financial actions, but it does not eliminate pre-existing financial vulnerabilities. Individuals with limited resources may display adaptive behaviors while still experiencing constrained financial wellbeing. Furthermore, the cross-sectional design of the study prevents establishing temporal causality between wellbeing dimensions and resilience actions. The structural paths represent directional associations supported by theory, but they should not be interpreted as deterministic causal relationships. Therefore, financial resilience in this framework should be understood as a partial and context-dependent mechanism that contributes to financial stability but operates within broader socioeconomic constraints. Future research using longitudinal designs could further clarify the dynamic interaction between financial wellbeing and resilience over time.

3. Materials and Methods

This study employed a non-experimental, quantitative, and cross-sectional design. The database was analyzed to determine whether perceptions of financial health indicators, lived experiences, and actions taken to address financial crises converge into an underlying factorial structure explaining financial wellbeing. Additionally, the study evaluated the relationship between financial wellbeing and financial resilience. Furthermore, to test gender differences proposed in Hypothesis 5, the analysis was conducted following the criteria proposed by [Jeffreys \(1961\)](#) for the interpretation of the Bayes factor, which are presented in Table 1.

Table 1. Quantifiable values of the Bayes factor, according to Jeffreys.

BF0u Null Hypothesis over the Alternative		Value
In favor of H0	Very strong	>30
	Strong	10 to 30
	Moderate	3.1 to 10
	Anecdotal	1.1. to 3.1
No evidence		1
In favor of H1	Anecdotal	0.3 to 0.9
	Moderate	0.29 to 0.1
	Strong	0.09 to 0.03
	Very strong	<0.03

Source: based on the work of [Jeffreys \(1961\)](#).

3.1. Participants

A non-probabilistic self-selection sampling strategy was used. Data were collected in the state of Veracruz, Mexico. The final sample consisted of 499 individuals linked to higher education institutions, including current university students and recent graduates, all of whom were economically active at the time of the study and employed in either the public or private sector. Of the participants, 56.9% (n = 284) identified as male and 41.5% (n = 207) as female. Regarding institutional affiliation, 42.5% (n = 212) were enrolled in public universities and 49.6% (n = 246) in private institutions. In terms of age distribution, 55.5% (n = 277) were between 18 and 20 years old, 26.5% (n = 132) between 21 and 25, and 13.4% (n = 67) between 26 and 30 years old. Regarding marital status, the majority were single (75.4%, n = 376), followed by being married (11.6%, n = 58) and those in common-law relationships (12.6%, n = 63).

3.2. Ethics

This study was approved by the Ethics Committee of the Business School at the University under study (Project ID P-11/2024). The research adhered to the principles established in the Declaration of Helsinki. Participants were informed about the objectives and procedures of the study, and confidentiality and anonymity were guaranteed. Informed consent was obtained from all participants prior to data collection.

3.3. Instrument

The instrument used was developed by [Flores et al. \(2024\)](#). It includes sociodemographic indicators and 24 items measured on a 5-point Likert scale (see Appendix A). The questionnaire is structured into three sections: 8 items measuring PFHI1 to PFHI8, 8 items assessing LEFHI to LEFHI8 and 8 items evaluating Actions to Address Financial Crises (AAFC1 to AAFC8). The items measuring perceptions of financial health indicators were

conceptually based on the financial health framework proposed by [BBVA \(2020\)](#) and the Center for Financial Services Innovation (CFSI).

Operational Definition of Variables

In the structural model, financial wellbeing is specified as a latent construct reflected by two first-order dimensions: Perception toward Financial Health Indicators (PFHI) and Lived Experiences toward Financial Health Indicators (LEFHI). PFHI captures individuals' subjective evaluations regarding savings adequacy, debt sustainability, insurance coverage, and credit management, whereas LEFHI reflects actual financial practices and lived economic conditions. Financial resilience is operationalized as a latent behavioral construct measured through Actions to Address Financial Crises (AAFC), representing adaptive financial strategies implemented during or after adverse financial situations. All constructs are modeled reflectively and estimated within the Structural Equation Modeling (SEM) framework.

For ease of reference, the items of each construct were assigned reduced codes. Specifically, PFHI items (PFHI1–PFHI8) are labeled as PX1–PX8, LEFHI items (LEFHI1–LEFHI8) as EX1–EX8, and AAFC items (AAFC1–AAFC8) as AX1–AX8. This coding scheme facilitates the interpretation of results and the mapping of observed indicators to their corresponding latent constructs within the SEM framework.

3.4. Procedure

Reliability and Internal Consistency

The reliability of the scale was assessed using Cronbach's alpha and McDonald's omega coefficients, adopting a threshold of 0.70 as acceptable. While Cronbach's alpha estimates internal consistency based on item covariance, McDonald's omega is derived from factor loadings and provides a more robust estimate of composite reliability, as it is less sensitive to the number of items and better reflects the factorial structure of the construct ([Gerbing & Anderson, 1988](#); [McDonald, 1999](#)).

Assessment of Normality

Multivariate normality was evaluated using skewness (<2) and kurtosis (<7) criteria following [Kim \(2013\)](#). When normality assumptions were not satisfied, polychoric correlation matrices were considered appropriate for ordinal Likert-type data ([Muthén & Kaplan, 1985](#); [Richaud, 2005](#); [Ogasawara, 2011](#); [Timmerman & Lorenzo-Seva, 2011](#)).

Factorial Analysis

An Exploratory Factor Analysis (EFA) was conducted to identify the underlying factorial structure. Factors were extracted using the eigenvalue-greater-than-one criterion and rotated using the orthogonal Varimax method to obtain an interpretable factorial solution ([Gorsuch, 1983](#); [Gerbing & Anderson, 1988](#); [Thurstone, 1931](#)). Subsequently, the factorial structure was confirmed through Structural Equation Modeling (SEM). Model fit, structural validity, and parsimony were evaluated following established criteria ([Ho, 2006](#); [Schreiber et al., 2006](#); [Hooper et al., 2008](#); [Hair et al., 1999](#)). Statistical analyses were performed using SPSS 31 (31.0.1) and AMOS v29.

Structural Model Specification

The structural relationships proposed in this study can be expressed as follows:

$$\begin{aligned} \text{AAFC} &= \beta_1 \text{PFHI} + \beta_2 \text{LEFHI} + \varepsilon_1 \\ \text{LEFHI} &= \gamma_1 \text{PFHI} + \varepsilon_2 \end{aligned}$$

where AAFC represents Actions to Address Financial Crises, PFHI denotes Perception toward Financial Health Indicators, LEFHI corresponds to Lived Experiences toward Financial Health Indicators, and ε represents disturbance terms. These equations were estimated within a Structural Equation Modeling (SEM) framework, allowing simultaneous assessment of measurement and structural components.

Bayesian Analysis

Bayesian analysis was conducted to test the gender-based hypothesis (H_0). The Bayes factor (BF) was calculated to quantify the strength of evidence in favor of the null or alternative hypothesis. Interpretation of the Bayes factor:

If $BF > 1$: Evidence favors the alternative hypothesis (H_1).

If $BF < 1$: Evidence favors the null hypothesis (H_0).

If $BF = 1$: No evidence favors either hypothesis.

The Bayes factor provides a quantitative measure of the comparative likelihood of competing hypotheses based on the observed data (Jeffreys, 1961), which are summarized in Table 1.

4. Results

The data matrix shows acceptable reliability with a Cronbach's alpha of 0.876 and a McDonald's omega of 0.949 (individual item values are provided in the Appendices A and B). The Kaiser–Meyer–Olkin measure of sampling adequacy is 0.930, and Bartlett's test of sphericity yields a Chi-square value of 7491.454 with 276 degrees of freedom and a p -value < 0.001 . Table 2 also present the correlation matrices, with the sampling adequacy measure MSA, and descriptive statistics including mean, standard deviation, skewness, and kurtosis.

The correlation matrices show that the results are acceptable, as evidenced by the determinant value close to zero. Additionally, the measure of sampling adequacy (MSA) for each variable exceeds the suggested theoretical threshold (>0.5). However, the means show a concentration at the midpoint three (on a scale from one to five) on the Likert scale, which leads to excess kurtosis and skewness, not aligning with the theoretical criteria suggested by Kim (2013). Therefore, in the absence of normality in the data, Lorenzo-Seva and Ferrando (2006) suggest using polychoric matrices. Other studies have proposed robust estimation techniques, such as using the robust minimum discrepancy estimator and data transformation, among other techniques (Gorsuch, 1983; Simmerman, 1985; Browne & Cudeck, 1992; Fabrigar et al., 1999; Preacher & MacCallum, 2002; Costello & Osborne, 2005).

Given these considerations, the data matrix was evaluated based on eigenvalues greater than one and principal component extraction with Varimax orthogonal rotation, considering loadings greater than (>0.5). Table 3 shows the rotated component matrix and total variance, while Figure 1 displays the initial measurement model based on the obtained factor solution and the component plot in the rotated space.

Table 2. (a) Correlation Matrix, MSA and Descriptives—PFHI Factor (PX). (b) Correlation Matrix, MSA and Descriptives—LEFHI Factor (EX). (c) Correlation Matrix, MSA and Descriptives—AAFC factor (AX).

(a)													
	PX1	PX2	PX3	PX4	PX5	PX6	PX7	PX8	MSA	Mean	Standard deviation	Skewness	Kurtosis
PX1	1.000								0.925 ^a	3.25	1.48	−0.19	−1.40
PX2	0.684	1.000							0.914 ^a	3.57	1.50	−0.57	−1.24
PX3	0.482	0.605	1.000						0.931 ^a	3.15	1.14	−0.05	−0.63
PX4	0.472	0.535	0.637	1.000					0.943 ^a	3.34	1.31	−0.39	−1.05
PX5	0.451	0.511	0.599	0.549	1.000				0.920 ^a	3.09	1.11	−0.08	−0.67
PX6	0.652	0.708	0.626	0.606	0.604	1.000			0.926 ^a	3.61	1.36	−0.56	−1.03
PX7	0.482	0.519	0.571	0.625	0.463	0.703	1.000		0.923 ^a	3.38	1.34	−0.39	−1.08
PX8	0.524	0.591	0.568	0.665	0.503	0.749	0.767	1.000	0.914 ^a	3.56	1.41	−0.53	−1.11
(b)													
	EX1	EX2	EX3	EX4	EX5	EX6	EX7	EX8	MSA	Mean	Standard deviation	Skewness	Kurtosis
EX1	1.000								0.935 ^a	3.17	1.22	−0.25	−0.97
EX2	0.598	1.000							0.950 ^a	3.24	1.23	−0.23	−0.91
EX3	0.357	0.378	1.000						0.803 ^a	2.77	1.00	0.04	−0.33
EX4	0.307	0.308	0.634	1.000					0.853 ^a	2.84	1.00	−0.02	−0.40
EX5	0.417	0.427	0.396	0.327	1.000				0.928 ^a	2.90	1.12	−0.05	−0.73
EX6	0.425	0.504	0.274	0.314	0.581	1.000			0.953 ^a	3.13	1.25	−0.03	−1.01
EX7	0.085	0.199	0.351	0.264	0.171	0.148	1.000		0.782 ^a	2.86	1.16	0.09	−0.64
EX8	0.297	0.353	0.153	0.158	0.277	0.365	0.322	1.000	0.919 ^a	3.18	1.19	−0.18	−0.93
(c)													
	AX1	AX2	AX3	AX4	AX5	AX6	AX7	AX8	MSA	Mean	Standard deviation	Skewness	Kurtosis
AX1	1.00								0.964 ^a	3.21	1.13	−0.04	−0.83
AX2	0.588	1.00							0.968 ^a	3.18	1.15	−0.15	−0.76
AX3	0.558	0.572	1.00						0.949 ^a	3.02	1.06	−0.07	−0.39
AX4	0.551	0.566	0.665	1.00					0.950 ^a	3.07	1.10	−0.15	−0.67
AX5	0.604	0.590	0.649	0.702	1.00				0.950 ^a	3.12	1.07	−0.22	−0.59
AX6	0.482	0.532	0.556	0.588	0.663	1.00			0.938 ^a	3.00	1.05	−0.15	−0.52
AX7	0.430	0.453	0.596	0.565	0.590	0.661	1.00		0.927 ^a	2.96	0.99	−0.08	−0.36
AX8	0.518	0.522	0.587	0.584	0.656	0.599	0.589	1.00	0.948 ^a	3.07	1.04	−0.09	−0.42

Note: Determinant = 0.0001. The superscript letter (^a) in the table footer represents the values of the measure of sampling adequacy in the anti-image matrix.

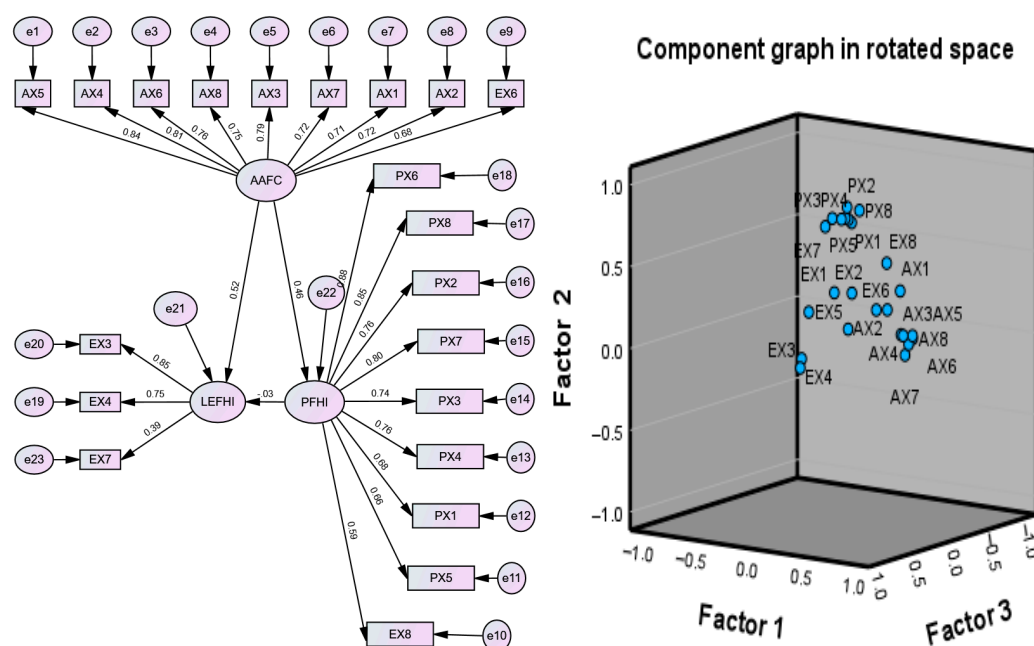


Figure 2. Initial measure path model and component graph in rotated space; Chi-square = 989.405, degrees of freedom = 186, probability level = 0.000.

Table 3. Rotated component matrix and explained variance.

Items	F1	F2	F3	F4	h_i^2
AX5. Have you defined any strategy to maintain your debts in a sustainable manner and that you can pay when due?	0.836				0.699
AX4. Did you take any action to have enough savings or long-term assets?	0.790				0.624
AX6. If you did not have a healthy credit history, did you carry out any plan?	0.786				0.618
AX8. In case of not doing, it in your personal life, did you implement a strategy to plan the expenses that you will have in the immediate future and in the short term?	0.783				0.613
AX3. If so, did you implement any plan to increase your savings in liquid financial products?	0.767				0.588
AX7. In case of not having adequate insurance, or having some, did you implement any plan to modify this scheme?	0.767				0.588
AX1. Personally, did you take any actions to spend less than you earn?	0.676				0.457
AX2. In the event of having had pending payments, and not having paid on time: did you take any action to resolve the payment of your invoices on time and in full?	0.664				0.441
EX6. Today, do you have a healthy credit history?	0.614				0.377
PX6. Have a healthy credit history?		0.856			0.733
PX8. Plan expenses for the future?		0.818			0.669
PX2. Do invoices have to be paid on time and in full?		0.778			0.605
PX7. Have adequate insurance?		0.774			0.599
PX3. Is it convenient to have enough savings in liquid financial products?		0.767			0.588
PX4. Have enough savings or long-term assets?		0.761			0.579
PX1. Do you think that you should spend less than what you earn?		0.732			0.536
PX5. Have a sustainable level of debt?		0.717			0.514

Table 3. Cont.

Items	F1	F2	F3	F4	h_i^2
EX8. In your personal life, do you plan the expenses that you will have in the immediate future and in the short term?		0.508			0.258
EX3. Do you have enough savings in liquid financial products?			0.800		0.640
EX4. Do you have enough savings or long-term assets?			0.756		0.572
EX7. Do you currently have adequate insurance in force?				0.684	0.468
Eigenvalue	9.458	3.473	1.506	1.13	Σ
% variance explained by extraction	39.409	14.469	6.276	4.706	64.86
% variance explained by rotation	25.440	24.460	9.702	5.258	64.86
AVE (average variance extracted)	0.556	0.565	0.404	**	
CR composite reliability	0.918	0.920	0.575		

Extraction method: Principal Component Analysis. Rotation method: Varimax with Kaiser Normalization. The rotation converged in 10 iterations. (EX2, EX5 and EX1 are not charged). ** This item is included in factor 3 (see Figure 2).

Confirmatory analysis

The factorial solution obtained from the Exploratory Factor Analysis (Figure 2) is confirmed using SEM methodology. With this factorial solution, the research question regarding the existence of an underlying structure that explains the Perception toward Financial Health Indicators, as well as lived experiences and Actions to Address Financial Crises, can be assessed. To assess the validity of the model, its goodness of fit was analyzed using indices classified into three groups: absolute fit, incremental fit, and parsimony (Ho, 2006).

The subsequent model adjustments and their effects are illustrated in Figures 3–7, which show the stepwise refinement of the SEM model and the corresponding fit indices and parameter estimates.

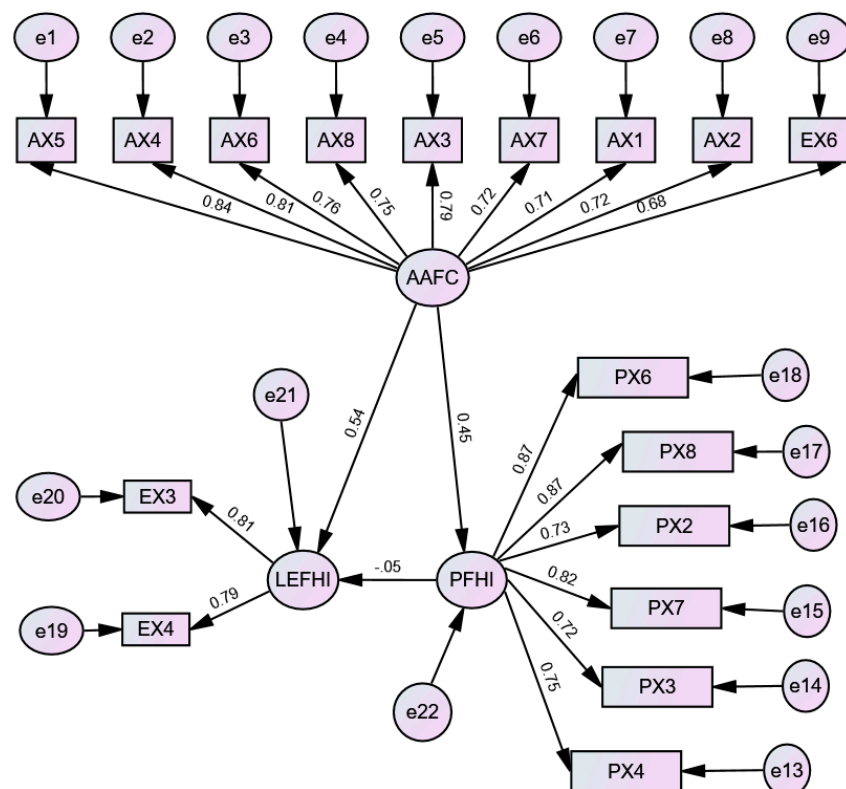


Figure 3. Measure model adjusted 2.

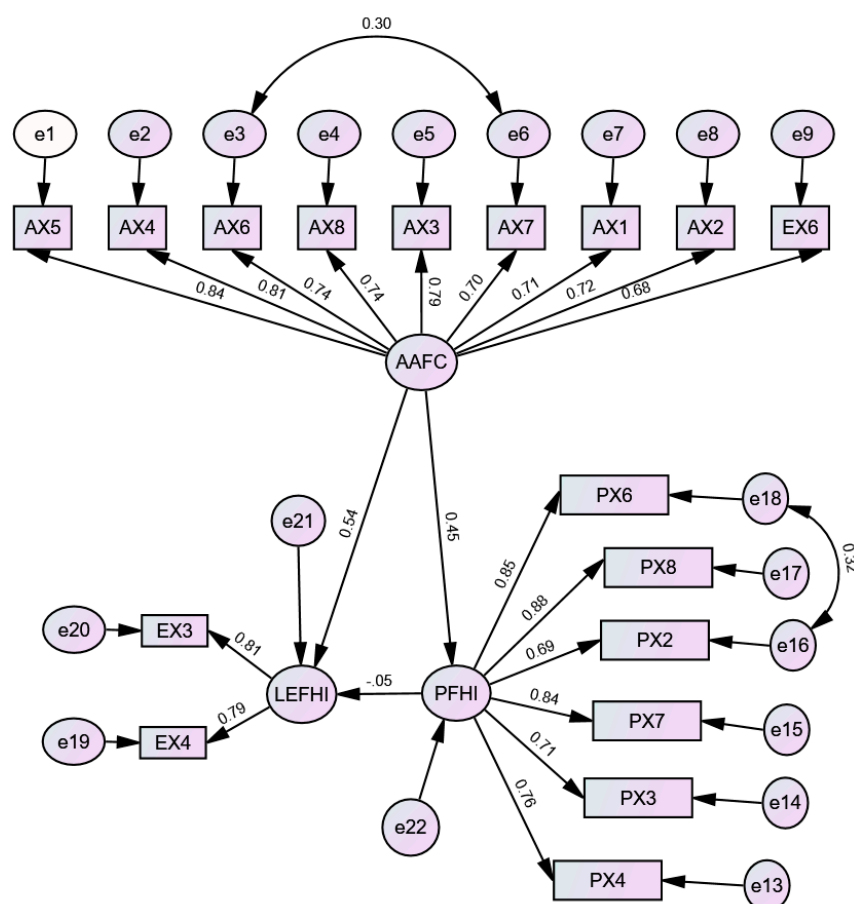


Figure 4. Measure model adjusted 3.

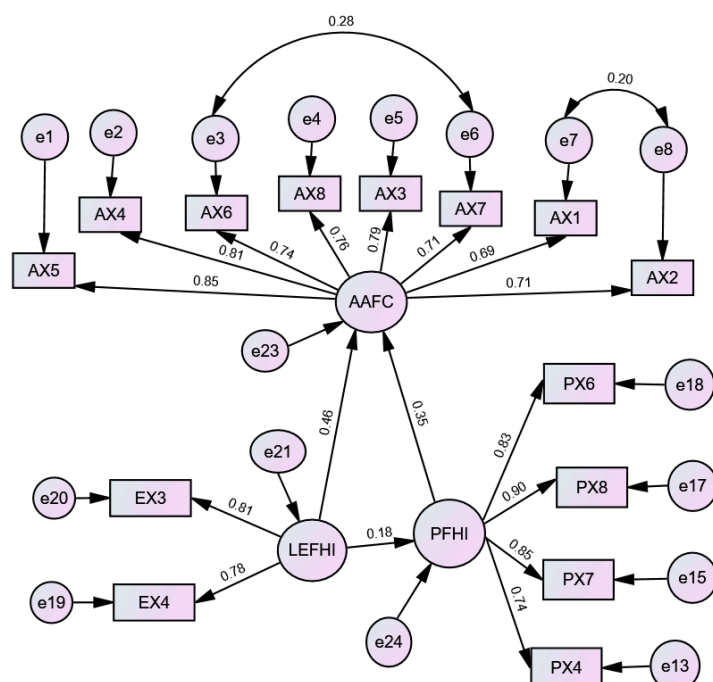


Figure 5. Measure model adjusted 4.

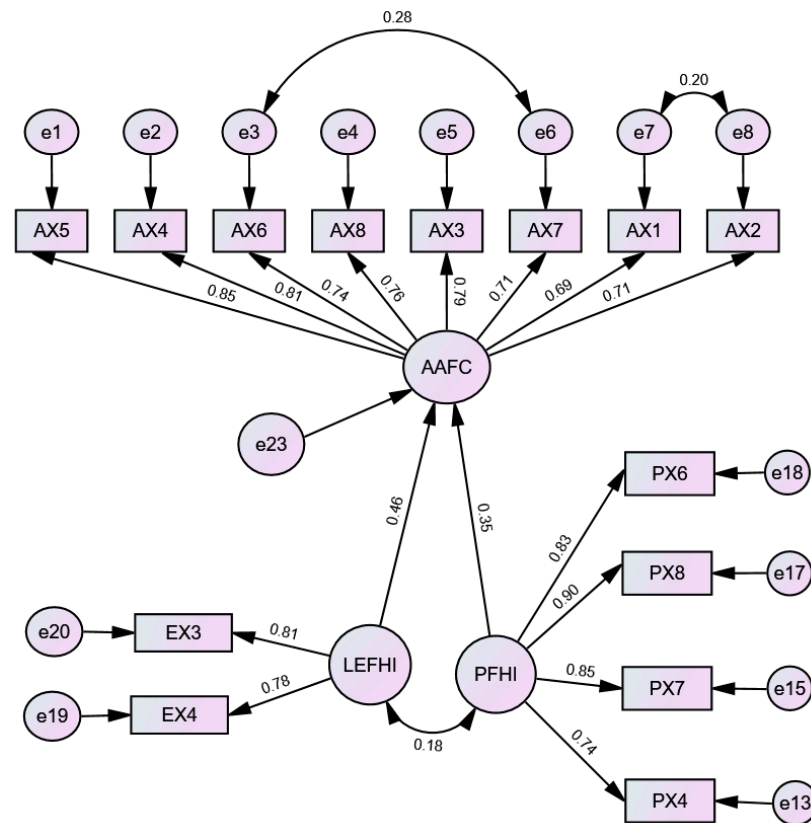


Figure 6. Measure model adjusted 5.

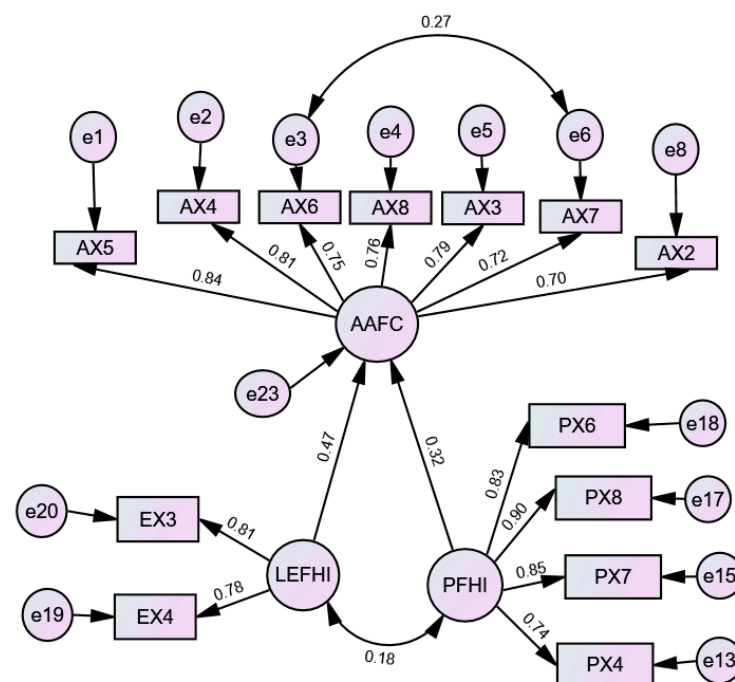


Figure 7. Final model adjusted (Chi-square = 161.396, Degrees of freedom = 61, Probability level = 0.070).

The model fit, structural fit, and parsimony results are presented below. First, Table 4 shows the values for the maximum likelihood ratio, CMIN/DF, RMR, GFI, and AGFI. Some authors, such as Carmines and McIver (1981), suggest that the ratio should be between 2.1 and 3.1 for the model to be considered acceptable. In contrast, Ullman (2006) and Paswan (2009) indicate that it should be less than two for a good fit. Kline (1998) suggests a value

of three, but [Schumacker and Lomax \(2004\)](#) have even accepted values up to five for the model to be considered a good fit. In this study, the value of 2.646 in the final adjusted model is considered acceptable. The goodness-of-fit indices GFI and AGFI exceed the acceptability threshold (>0.9). Additionally, the root mean square residual (RMR) is close to zero (0.052), which is acceptable for this study. The parsimony goodness-of-fit index (PGFI) suggests that a higher value indicates greater parsimony, and the result (0.637) is considered acceptable.

In Table 5, the Baseline comparison values for NFI, RFI, IFI, TLI and CFI are presented, as well as the parsimony-adjusted measures PRATIO, PNFI and PCFI. The final adjusted model shown in Figure 6 yields a CFI value > 0.9 , indicating a good model fit based on non-centrality, although it may be biased ([Curran et al., 1996](#)). Regarding the Incremental Fit Index (IFI), it should be equal to or greater than 0.90 to accept the model; in our case, it exceeds the threshold of >0.9 . Similarly, the Normed Fit Index (NFI) ranges from 0 to 1, with 1 representing a perfect fit; the model in Figure 6 exceeds this threshold (0.958). The Relative Fit Index (RFI), known as rho1, should be close to 1; the study yields a value of 0.946, which is acceptable.

The Tucker–Lewis Index (TLI), also known as the Non-Normed Fit Index, is like the NFI but penalizes model complexity; a value close to one indicates a good fit. In our case, we obtain a TLI value of 0.966, which exceeds the threshold proposed by [Hu and Bentler \(1999\)](#), who suggest that $TLI \geq 0.95$ to denote a good model fit. For the Parsimony-Adjusted Fit Index (PNFI), no commonly accepted value for an acceptable model is established; however, some studies suggest it should be greater than 0.50. In this study, we obtain a value of 0.749, which is acceptable.

It is worth noting that parsimony measures often present issues. According to [Mulaik et al. \(1989\)](#), absolute and Incremental Fit Indices frequently perform better with simpler models compared to more complex ones. Consequently, fit analysis incorporates parsimony indices with degrees of freedom as a weighting factor. [Mulaik et al. \(1989\)](#) recommended a threshold of 0.05 for parsimony indices, which is quite low compared to other indices suggesting values greater than 0.9. Thus, it can be concluded that the parsimony measures comfortably exceed the recommended threshold (PRATIO: 0.782; PNFI: 0.749; PCFI: 0.761).

Table 6 shows the Root Mean Square Error of Approximation (RMSEA), which is a popular fit measure because it does not require comparison with a null model. This index is among the least affected by sample size. [Fan et al. \(1999\)](#) note that if the sample is small, the RMSEA tends to overestimate the goodness of fit. Some authors, such as [Schumacker and Lomax \(2004\)](#), suggest that the RMSEA value should be ≤ 0.05 , though values ≤ 0.08 are also considered acceptable. [Hu and Bentler \(1999\)](#) indicate that a value ≤ 0.06 is acceptable for denoting a good model fit. For this study, the obtained RMSEA value was 0.057, which aligns with the suggested criteria.

Finally, the Hoelter index is analyzed to assess whether the sample size was adequate. The Hoelter index is a statistical measure used to evaluate the robustness of results obtained in a factorial analysis, specifically in confirmatory factor analysis, to assess the stability of factor solutions based on sample size. For this study, two values were obtained: one at a significance level of 0.05 and another at 0.01, indicating that a sample of at least 248 to 277 participants is required. In our case, the sample consisted of 499 participants. The criterion is that if the sample size is greater than 277, it is considered adequate, while if it is below 248, it is considered insufficient to accept the model, according to the Chi-square test.

Table 4. Likelihood ratio: Chi-square.

Model Fit Summary		Model 1 Initial Factorial Solution	Adjusted Model 2	Adjusted Mode 3	Adjusted Mode 4	Adjusted Mode 5	Adjusted Final Model 6	Theoretical Criterion
CMIN	NPAR	45	37	35	32	33	30	
	CMIN	989.405	543.434	298.994	237.618	221.285	161.396	
	DF	186	116	85	73	72	61	
	P	0	0	0	0	0	0	
	CMIN/DF	5.319	4.685	3.518	3.255	3.073	2.646	2.1 to 3.1
RMR, GFI	RMR	0.115	0.087	0.082	0.071	0.073	0.052	Close to 0
	GFI	0.832	0.878	0.924	0.933	0.939	0.951	>9
	AGFI	0.792	0.839	0.892	0.904	0.912	0.927	>9
	PGFI	0.67	0.666	0.654	0.649	0.644	0.637	>0.5 value > parsimony

Table 5. Baseline comparison and parsimony-adjusted measures.

Model Fit Summary		Model 1 Initial Factorial Solution	Adjusted Model 2	Adjusted Mode 3	Adjusted Mode 4	Adjusted Mode 5	Adjusted Final Model 6	Theoretical Criterion
Baseline Comparisons	NFI-Delta 1	0.851	0.899	0.936	0.944	0.948	0.958	≥ 0.9
	RFI-rho1	0.832	0.882	0.92	0.93	0.934	0.946	≥ 0.9
	IFI-Delta 2	0.876	0.919	0.953	0.96	0.964	0.973	≥ 0.9
	TLI-rho2	0.859	0.905	0.942	0.95	0.954	0.966	≥ 0.95
	CFI	0.875	0.919	0.953	0.96	0.964	0.973	≥ 0.9
Parsimony-Adjusted Measures	PRATIO	0.886	0.853	0.81	0.802	0.791	0.782	>0.50
	PNFI	0.754	0.767	0.757	0.757	0.75	0.749	>0.50
	PCFI	0.775	0.784	0.771	0.77	0.763	0.761	>0.50

Table 6. Root mean square error of approximation and Hoelter index.

Model Fit Summary		Model 1 Initial Factorial Solution	Adjusted Model 2	Adjusted Mode 3	Adjusted Mode 4	Adjusted Mode 5	Adjusted Final Model 6	Theoretical Criterion
FMIN	FMIN	1.987	1.091	0.6	0.477	0.444	0.324	
	F0	1.613	0.858	0.43	0.331	0.3	0.202	
	LO 90	1.423	0.72	0.331	0.244	0.217	0.134	
	HI 90	1.819	1.011	0.543	0.432	0.397	0.285	
RMSEA	RMSEA	0.093	0.086	0.071	0.067	0.065	0.057	≤ 0.05
	LO 90	0.087	0.079	0.062	0.058	0.055	0.047	
	HI 90	0.099	0.093	0.08	0.077	0.074	0.068	
	PCLOSE	0.000	0.000	0.000	0.002	0.007	0.121	
HOELTER	HOELTER 0.05	111	131	180	197	209	248	
	HOELTER 0.01	118	142	197	218	232	277	

Results of the Financial Wellbeing and Financial Resilience Model

The final model of financial wellbeing and financial resilience comprises three factors, described as follows: Factor 1: Actions to Address Financial Crises. This factor includes items AAFC, AAFC, AAFC, AAFC, AAFC, and AAFC. It evaluates whether a strategy has been established to manage and pay debts on time sustainably. It also considers whether measures have been taken to ensure sufficient savings or long-term assets. In cases of poor credit history, whether a plan has been implemented to improve the situation should be reviewed. If not, it is advisable to plan for immediate and short-term expenses. Additionally, whether a plan has been developed to increase savings in liquid financial products should be assessed.

Finally, if adequate insurance is lacking or needs adjustment, a plan should be considered to address this. It should be noted that items AAFC and AAFC were not representative in the model. Factor 2: Perception of Financial Health Indicators. This factor is composed of items PFHI6, PFHI8, PFHI7, and PFHI4. It highlights the importance of maintaining a healthy credit history, planning future expenses, and having adequate insurance. It also emphasizes the need to have sufficient savings or long-term assets to ensure financial stability and handle unexpected events. Factor 3: Experiences Related to Financial Health Indicators. This factor includes items LEFHI3 and LEFH4, which indicate the importance of having sufficient savings in liquid financial products and having enough savings or long-term assets.

Finally, to evaluate hypothesis H05, which states that there is no difference by gender regarding financial health indicators, hypothesis H05 is examined using Bayesian inferential statistics, specifically through Bayesian ANOVA. Table 7 presents the comparison model.

Table 7. Model comparison.

Models	P(M)	P(M Data)	BF _M	BF ₀₁	Error %
Null model	0.500	0.051	0.0537	1.000	0.020
Gender	0.500	0.949	18.501	0.054	

The first column shows two possible models: an alternative model and a null model. The models are ordered by their predictive performance relative to the best model; this is indicated in the BF₀₁ column, which displays the Bayes factor in relation to the best model that only includes the gender factor. The prior probability of the model P(M) is 0.5 for both models, and the resulting posterior model probabilities are given by P(M | data). The BF_M column shows the change from prior to posterior probabilities for each model. The best model has gender as a predictor, and the change in probabilities is $(0.051 / (1 - 0.051)) \times ((1 - 0.5) / 0.5) = 0.0537$, which matches the result from Table 7.

The BF₀₁ column shows the Bayes factors of the models compared to the best model. The Bayes factor for the null model versus the gender model can be obtained by dividing their Bayes factors against the best model: $0.054 / 1 = 0.054$ in favor of the alternative hypothesis. Column 6 provides a percentage of error indicating the accuracy of the numerical approximations, which should not be too large. Table 8 shows the averaged posterior distributions for each level using four statistics: posterior mean, posterior standard deviation, and the lower and upper limits of the 95% central confidence interval.

The relationship associated with the gender level corresponding to men is obtained by adding the posterior mean of the intercept to the posterior mean of the male attribute: $77.138 - (-6.020)$ results in 83.158. For the female attribute, the result is 79.254, and finally, for LGBT, it is 69.02.

These results show that the contributions from men and women are very similar; however, there is a slight difference in relation to the LGBT community (see Figure 8).

Table 8. Model-averaged posterior summary.

Variable	Level	Means	Sd	95% Credible Interval	
				Lower	Upper
Intercept		77.138	2.057	72.750	81.001
Gender	1—Male	−6.020	1.964	−10.042	−2.175
	2—Female	−2.116	2.000	−6.188	1.783
	3—LGBT+	8.136	3.630	1.017	15.587

Note: Level 1, male, $77.138 - (-6.020) = 83.158$; level 2, female, $77.138 - (-2.116) = 79.254$; and level 3, LGBT+, $77.138 - (8.136) = 69.002$.

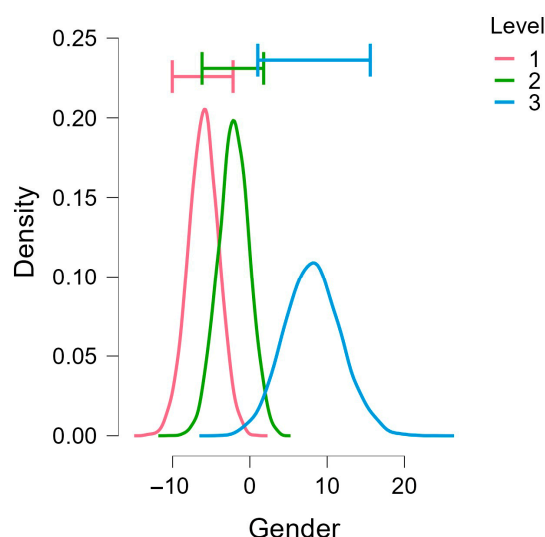
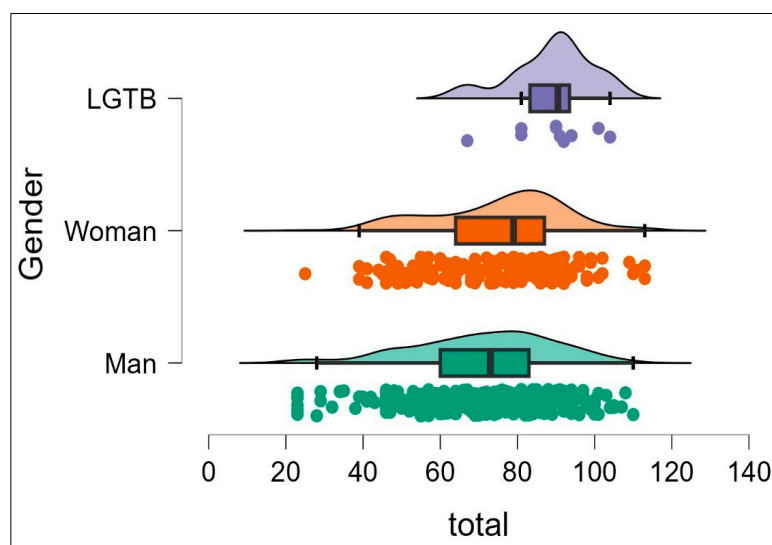
**Figure 8.** Gender (level 1, male; level 2, female; and level 3, LGBT+).

Figure 9 displays a rain cloud plot that includes raw data points and a half-violin to illustrate the probability density (the “cloud”). The plot also visualizes key summary statistics using a box plot, which shows the mean alongside a confidence interval. This analysis reveals that financial health varies very little with respect to gender.

**Figure 9.** Rain cloud plot showing probability density (level 1, male; level 2, female; and level 3, LGBT+).

5. Discussion and Conclusions

This study examined the structural relationships between financial wellbeing, lived financial experiences, and financial resilience among university students in Veracruz, Mexico. Financial wellbeing was conceptualized as a multidimensional construct reflected by two latent factors: Perception toward Financial Health Indicators (PFHI) and Lived Experiences related to Financial Health Indicators (LEFHI). Adaptive financial behaviors were captured through Actions to Address Financial Crises (AAFC). The final model demonstrates that both PFHI and LEFHI significantly predict adaptive financial behaviors, with lived experiences exerting a stronger influence ($r = 0.47$) than perceptions ($r = 0.32$). These results highlight those tangible financial conditions, rather than solely subjective perceptions, are central in shaping resilience strategies, confirming prior theoretical frameworks that position financial resilience as a behavioral manifestation of adaptive capacity (Białowolski et al., 2022; Kulshreshtha et al., 2023).

Gender differences were minimal, though women and LGBT+ students displayed slightly lower financial health scores. This finding aligns with existing research on perceptual differences in financial confidence (Bannier & Neubert, 2016; Almenberg & Dreber, 2015) and complements studies emphasizing inclusion challenges for marginalized populations (Tahir et al., 2022; Yadav & Shaikh, 2023). While gender influenced perceptions, adaptive behaviors remained largely consistent across groups, suggesting that interventions aimed at improving financial resilience can focus on both knowledge and practice without being limited to perceptual disparities.

The theoretical contributions of this research are threefold. First, it reinforces the conceptualization of financial resilience as a behavioral, rather than purely attitudinal, construct. Second, it empirically supports the integration of subjective perceptions and lived experiences into a multidimensional framework of financial wellbeing, extending models proposed by Lusardi and Mitchell (2011) and Brüggén et al. (2017). Third, by examining university students in an emerging economy context, it provides evidence on financial literacy and resilience where social safety nets are limited, extending findings from García-Santillán et al. (2024).

Practically, the findings suggest that higher education institutions, policymakers, and financial educators should develop programs that combine financial knowledge with hands-on experience, such as budgeting simulations, debt management workshops, and savings incentives. Targeted interventions for women and LGBT+ students may help address perceptual differences while promoting empowerment and engagement (Tahir et al., 2022; Yadav & Shaikh, 2023). By integrating perception, experience, and behavior, interventions can more effectively enhance students' capacity to respond to financial shocks.

Several limitations must be acknowledged. The cross-sectional design precludes causal inference, self-reported measures may be influenced by social desirability bias, and the non-probabilistic sample limits generalizability beyond the studied population. Additionally, sample sizes for marginalized groups were relatively small, which may limit the robustness of gender and minority comparisons.

Future research should employ longitudinal or experimental designs to explore the temporal dynamics of financial perceptions, lived experiences, and adaptive behaviors. Expanding studies to other populations, regions, and countries would improve generalizability and provide comparative insights into financial wellbeing across diverse contexts. Incorporating objective behavioral tracking could complement self-reported measures, providing a more precise assessment of resilience strategies. Further investigation into gender- and minority-specific factors would support more-inclusive financial education interventions (Tahir et al., 2022; Yadav & Shaikh, 2023).

In conclusion, this study provides robust evidence that financial wellbeing among university students is multidimensional, with lived experiences exerting the strongest influence on adaptive financial behaviors. Gender differences are present but minimal, highlighting the need for targeted interventions for women and LGBT+ students. The findings reinforce the theoretical understanding of financial resilience as an adaptive behavioral process and emphasize the importance of integrating perceptual, experiential, and behavioral dimensions in research and practice. By addressing these aspects, higher education institutions and policymakers can design effective programs to enhance financial literacy, wellbeing, and resilience among young adults in emerging economies.

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Institutional Review Board Statement: This study was approved by the Ethics Committee of the Business School at the University under study (Project ID P-11/2024). The research adhered to the principles established in the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data are available in public sources.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A. Financial Wellbeing Scale, Financial Skill Scale and Financial Resilience Scale

Consent Declaration

You have been invited to participate in a questionnaire targeting university students as part of the “Study on Financial Wellbeing, Resilience and Financial Education in Students,” conducted by the authors. The aim of this research is to gather information to better understand the levels of financial wellbeing and financial resilience among students. Before proceeding, we request your consent to participate, having read and understood the following information:

Your participation in this questionnaire is entirely voluntary and without cost. There will be no advantages or disadvantages whether you choose to participate or not. Additionally, you are free to withdraw from the study at any time without any negative consequences.

The Declaration of Helsinki and all its amendments, and its modifications regarding the protection of personal data protect the confidentiality of your data. This ensures that your responses cannot be associated with your identity.

Should you have any questions or require further clarification, please contact the technical team of the institution conducting the study at the following email: arturogarcias-antillan@yahoo.com.mx.

The information collected in this survey is confidential and will be used for research purposes. The data provided will remain confidential and anonymous.

Profile of respondents

1. Gender:

☐ Male ☐ Female ☐ others

2. Type of the University

Public ☐ Private ☐

3. Age: () 18 to 20; 21 to 25 (); 26 to 30 (); 30 to 40 (); >40 ()

4. Civil status

() Single () Married, () Free union () Separate () Divorced () Widowed

Financial resilience scale

(Dimensions of Financial Health indicator and Financial Resilience: Perception toward Financial Health Indicators (PFHI), Lived Experiences toward Financial Health Indicators (LEFHI) and Actions to Address Financial Crises (AAFC))

Part 1: perception toward financial health indicators

Items
PFHI 1. Do you think that you should spend less than what you earn?
PFHI 2. Do invoice have to be paid on time and in full?
PFHI 3. Is it convenient to have enough savings in liquid financial products?
PFHI 4. Have enough savings or long-term assets?
PFHI 5. Have a sustainable level of debt?
PFHI 6. Have a healthy credit history?
PFHI 7. Have adequate insurance?
PFHI 8. Plan expenses for the future?

Part 2: Lived experience towards financial health indicators

Items
LEFHI 1. Personally, have you experienced a situation where you spend less than you earn?
LEFHI 2. If you had outstanding payments, did you pay the bills on time and in full?
LEFHI 3. Do you have enough savings in liquid financial products?
LEFHI 4. Do you have enough savings or long-term assets?
LEFHI 5. Currently, do you have a sustainable level of debt?
LEFHI 6. Today, do you have a healthy credit history?
LEFHI 7. Do you currently have adequate insurance in force?
LEFHI 8. In your personal life, do you plan the expenses that you will have in the immediate future and in the short term?

Part 3: During or after the some adverse financial situation

Items
AAFC 1. Personally, did you take any actions to spend less than you earn?
AAFC 2. In the event of having had pending payments, and not having paid on time: did you take any action to resolve the payment of your invoices on time and in full?
AAFC 3. If so, did you implement any plan to increase your savings in liquid financial products?
AAFC 4. Did you take any action to have enough savings or long-term assets?
AAFC 5. Have you defined any strategy to maintain your debts in a sustainable manner and that you can pay when due?

AAFC 6. If you did not have a healthy credit history, did you carry out any plan?

AAFC 7. In case of not having adequate insurance, or having some, did you implement any plan to modify this scheme?

AAFC 8. In case of not doing it in your personal life, did you implement a strategy to plan the expenses that you will have in the immediate future and in the short term?

Appendix B

Table A1. Total item statistics and Cronbach's alpha.

	Average Scale If the Element Has Been Suppressed	Scale Variance If the Element Has Been Suppressed	Total Item Correlation Corrected	Cronbach's Alpha Suppressed Element
Gender	156.0481	1248.869	0.175	0.876
TypeUniv	155.8377	1264.915	−0.216	0.879
Age	155.8136	1248.168	0.104	0.877
Marital status	156.1122	1262.754	−0.147	0.878
PFHI1	154.2425	1196.646	0.555	0.871
PFHI2	153.9279	1186.139	0.651	0.870
PFHI3	154.3427	1208.198	0.585	0.872
PFHI4	154.1503	1197.285	0.623	0.871
PFHI5	154.4028	1214.546	0.516	0.873
PFHI6	153.8838	1184.501	0.739	0.869
PFHI7	154.1162	1193.645	0.650	0.870
PFHI8	153.9359	1186.550	0.692	0.870
LEFHI1	154.3267	1203.068	0.602	0.872
LEFHI2	154.2545	1196.367	0.679	0.871
LEFHI3	154.7255	1226.083	0.409	0.874
LEFHI4	154.6573	1225.997	0.408	0.874
LEFHI5	154.5972	1210.289	0.567	0.872
LEFHI6	154.3667	1196.831	0.664	0.871
LEFHI7	154.6373	1228.465	0.317	0.875
LEFHI8	154.3166	1202.815	0.622	0.871
AAFC 1	154.2886	1199.599	0.701	0.871
AAFC 2	154.3126	1200.794	0.671	0.871
AAFC 3	154.4790	1207.049	0.647	0.872
AAFC 4	154.4269	1205.036	0.650	0.872
AAFC 5	154.3747	1205.303	0.661	0.872
AAFC 6	154.4950	1211.668	0.585	0.872
AAFC 7	154.5311	1216.623	0.549	0.873
AAFC 8	154.4248	1211.446	0.594	0.872
PFHI	130.5371	836.249	0.702	0.888

Table A1. Cont.

	Average Scale If the Element Has Been Suppressed	Scale Variance If the Element Has Been Suppressed	Total Item Correlation Corrected	Cronbach's Alpha Suppressed Element
LEFHI	133.4168	924.874	0.817	0.860
AAFC	132.8677	905.107	0.740	0.869

Table A2. Total item statistics, Cronbach's alpha and McDonald's omega.

	Average Scale If the Element Has Been Suppressed	Scale Variance If the Element Has Been Suppressed	Total Item Correlation Corrected	Cronbach's Alpha Suppressed Element	McDonald Omega If Suppressed Element
Gender	156.0481	1248.869	0.175	0.876	0.949
TypeUniv	155.8377	1264.915	−0.216	0.879	0.935
Edge	155.8136	1248.168	0.104	0.877	0.951
Marital status	156.1122	1262.754	−0.147	0.878	0.938
PFHI1	154.2425	1196.646	0.555	0.871	0.947
PFHI2	153.9279	1186.139	0.651	0.870	0.946
PFHI3	154.3427	1208.198	0.585	0.872	0.947
PFHI4	154.1503	1197.285	0.623	0.871	0.946
PFHI5	154.4028	1214.546	0.516	0.873	0.947
PFHI6	153.8838	1184.501	0.739	0.869	0.945
PFHI7	154.1162	1193.645	0.650	0.870	0.946
PFHI8	153.9359	1186.550	0.692	0.870	0.945
LEFHI1	154.3267	1203.068	0.602	0.872	0.947
LEFHI2	154.2545	1196.367	0.679	0.871	0.946
LEFHI3	154.7255	1226.083	0.409	0.874	0.949
LEFHI4	154.6573	1225.997	0.408	0.874	0.949
LEFHI5	154.5972	1210.289	0.567	0.872	0.948
LEFHI6	154.3667	1196.831	0.664	0.871	0.947
LEFHI7	154.6373	1228.465	0.317	0.875	0.948
LEFHI8	154.3166	1202.815	0.622	0.871	0.946
AAFC 1	154.2886	1199.599	0.701	0.871	0.946
AAFC 2	154.3126	1200.794	0.671	0.871	0.947
AAFC 3	154.4790	1207.049	0.647	0.872	0.947
AAFC 4	154.4269	1205.036	0.650	0.872	0.947
AAFC 5	154.3747	1205.303	0.661	0.872	0.947
AAFC 6	154.4950	1211.668	0.585	0.872	0.948
AAFC 7	154.5311	1216.623	0.549	0.873	0.948
AAFC 8	154.4248	1211.446	0.594	0.872	0.948
PFHI	130.5371	836.249	0.702	0.888	0.970

Table A2. Cont.

	Average Scale If the Element Has Been Suppressed	Scale Variance If the Element Has Been Suppressed	Total Item Correlation Corrected	Cronbach's Alpha Suppressed Element	McDonald Omega If Suppressed Element
LEFHI	133.4168	924.874	0.817	0.860	0.939
AAFC	132.8677	905.107	0.740	0.869	0.955

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