

Exploring The Mediating Role Of Financial Well-Being In The Relationship Between Financial Stress And Happiness Among College Students

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Abstract

Introduction: Financial stress may affect college students' financial well-being and happiness, yet their interrelationships remain underexamined, particularly in the Philippine context. Examining these relationships may inform student financial and well-being interventions.

Objective: This study examined the relationships among financial stress, financial well-being, and happiness and tested the mediating role of financial well-being among college students in Davao City.

Methods: A quantitative, non-experimental, cross-sectional design was used with 238 college students enrolled during the 2024–2025 academic year, selected through convenience sampling. Data were collected online using the Financial Well-Being Scale, Financial Stress Scale, and Oxford Happiness Questionnaire. Data were analyzed using PLS-SEM in SmartPLS 4.0, with bootstrapping used to test direct and indirect effects.

Results: Students reported moderate financial stress and happiness and comparatively higher financial well-being. Financial stress was significantly associated with financial well-being ($\beta = .547$, $p < .001$) and happiness ($\beta = .304$, $p = .021$), while financial well-being was significantly associated with happiness ($\beta = .297$, $p = .005$). Financial well-being partially mediated the relationship between financial stress and happiness (indirect effect = .162, $p = .005$), accounting for approximately 35% of the total effect.

Conclusions: Financial stress, financial well-being, and happiness are significantly interconnected, with financial well-being partially mediating the relationship between financial stress and happiness. The findings support strengthening financial education, stress-management programs, and student support services. Future research should examine these relationships using longitudinal and more representative samples.

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1. Introduction

Happiness is a multifaceted construct encompassing subjective well-being, life satisfaction, and emotional states ranging from contentment to intense joy (Jalloh, 2014; Sundriyal & Kumar, 2014). It involves both external circumstances and internal contentment, with the latter widely regarded as its defining feature (Bracho & Bracho, 2007). Various instruments, such as the Satisfaction with Life Scale and the Oxford Happiness Questionnaire, have been developed to measure happiness (Jalloh, 2014). Happiness has even been operationalized outside psychology; in reinforcement learning, for instance, it has been modeled as the temporal-difference error between expected and obtained rewards (Daswani & Leike, 2015). More broadly, happiness is recognized as a fundamental human goal in political and philosophical traditions (Bracho & Bracho, 2007) and is associated with better health, longevity, and overall quality of life (Sundriyal & Kumar, 2014). Some scholars argue that measures of public happiness should supplement traditional economic indicators when evaluating the success of public policy (Sundriyal & Kumar, 2014).

Financial well-being plays a vital role in determining life satisfaction, as it encompasses the stress associated with current money management as well as anticipated future financial security (Netemeyer et al., 2017). It is shaped by a range of factors, including financial literacy, financial behavior, financial capability, and financial stress (Sabri & Falahati, 2013). Although financial literacy has a positive effect on financial well-being, financial stress has been shown to mediate this relationship, underscoring the importance of effective stress management (Zhang & Chatterjee, 2023). Gender has likewise been identified as a moderator of the link between financial well-being and financial stress (Bashir & Qureshi, 2023). Collectively, these findings underline the importance of tailored interventions aimed at improving financial literacy and reducing financial stress in order to foster overall well-being.

Despite growing attention to financial well-being, happiness, and financial stress individually, few studies have examined their interconnectedness among college students, particularly within the Philippine setting (Bernardo & Resurreccion, 2018; Moore et al., 2021; Obenza et al., 2024; Peña et al., 2024). Prior research has established a direct link between financial well-being and happiness (Aknin et al., 2018; Garðarsdóttir et al., 2009; Netemeyer et al., 2017; Obenza et al., 2024; Senik, 2014), yet the role of financial stress in mediating this relationship remains largely unexamined, particularly among college students navigating the financial and academic demands of early adulthood. By addressing this gap, the present study offers a more nuanced understanding of how financial stress shapes the dynamic between financial well-being and happiness. These findings carry practical significance for educational institutions, policymakers, and mental health practitioners seeking to design interventions that improve financial literacy, stress management, and overall student well-being, which may, in turn, support academic performance.

Theoretical Framework

This study is anchored on Sheldon and Lyubomirsky's (2019) Sustainable Happiness Model, which holds that happiness is jointly determined by three factors: a genetic set point (50%), intentional or purposeful activity (40%), and external circumstances (10%). The model posits that biological predispositions exert the largest influence on happiness, but that circumstances such as financial resources can still contribute by lowering stress and providing a sense of security, and that intentional practices — such as financial planning, positive reframing, and proactive coping — are essential for reducing stress and sustaining well-being. Within this framework, financial well-being is expected to enhance happiness by lowering financial stress and enabling engagement in activities that promote well-being. The study is further informed by Lazarus and Folkman's Transactional Model of Stress and Coping (as cited in Obbarius et al., 2021), which frames stress as arising from the interaction between an individual's appraisal of a demand and their perceived capacity to cope with it. When college students encounter financial difficulties, they may appraise their financial resources as inadequate, heightening anxiety; however, the model emphasizes that coping strategies — whether problem-focused (e.g., addressing the underlying causes of financial difficulty) or emotion-focused (e.g., managing the emotional response to stress) — can buffer the negative effects of stress on well-being.

Empirical evidence supports the application of the Transactional Model to financial stress among college students. Recent studies consistently show that higher student loan debt and lower emergency savings are associated with greater financial stress among college students and young adults (Danahy et al., 2024; Korankye et al., 2024; Zhan, 2022), and that financial knowledge and literacy play a protective role, with more financially literate individuals more likely to maintain emergency savings (Korankye et al., 2024; Zhan, 2022). Together, the Sustainable Happiness Model and the Transactional Model of Stress and Coping provide a complementary framework for examining how financial stress, financial well-being, and happiness are interconnected among college students: intentional financial practices and adaptive coping strategies jointly determine the extent to which financial stress erodes — or fails to erode — overall well-being.

Research Questions

This study examined the relationships among college students' financial stress, financial well-being, and happiness, with particular emphasis on the mediating role of financial well-being. Specifically, it sought to answer the following questions:

1. What is the level of financial stress, financial well-being, and happiness among college students?
2. Is there a significant relationship between financial stress, financial well-being, and happiness among college students?
3. Does financial well-being significantly mediate the relationship between financial stress and happiness among college students?

2. Materials and Methods

2.1. Research Design

This study used a non-experimental, quantitative, cross-sectional design to examine the mediating effect of financial well-being on the relationship between financial stress and happiness among college students. As defined by Creswell and Creswell (2022), quantitative research systematically gathers, measures, and analyzes numerical data, typically through surveys or experiments. Mediation analysis was used to evaluate the extent to which financial stress (the independent variable) influenced happiness (the dependent variable) indirectly through financial well-being (the mediating variable) (Kim, 2016). This design allowed the researchers to examine both the direct and indirect pathways linking financial stress to happiness among college students.

2.2. Respondents and Sampling Procedure

This study used convenience sampling, in which participants were selected based on their availability and accessibility to the researchers, in accordance with the study's inclusion criteria: college students in Davao City who were currently enrolled during the 2024–2025 academic year. A total of 238 valid responses were retained for analysis. Convenience sampling is a non-probability technique commonly used in quantitative research because it is more time- and cost-efficient than random sampling (Speak et al., 2018; Suen et al., 2014). Although convenience sampling may introduce selection bias due to unequal participation opportunities, it can yield results comparable to those obtained through random sampling when key variables, such as sex and year level, are reasonably stratified across the sample (Thatcher & Drane, 2003).

2.3. Research Instruments

Three adopted, self-report instruments were used to collect data. Financial well-being was measured using the Financial Well-Being Scale (Consumer Financial Protection Bureau, 2024), a 5-point Likert-type instrument. Financial stress was measured using the Financial Stress Scale, adapted from Heo et al. (2020), also on a 5-point Likert-type format. Happiness was measured using the Oxford Happiness Questionnaire (Hills & Argyle, 2002), which employs a 6-point Likert-type format. All three instruments were compiled into a single online questionnaire using Google Forms and distributed to college students in Davao City who were currently enrolled during the 2024–2025 academic year.

2.4. Data Collection and Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive statistics (means and standard deviations) were computed to describe college students' levels of financial stress, financial well-being, and happiness. The measurement model was evaluated for internal consistency reliability using Cronbach's alpha and composite reliability, and for convergent validity using average variance extracted (AVE). Discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT). The structural model, including the hypothesized mediation effect, was evaluated using partial least squares structural equation modeling (PLS-SEM) in SmartPLS 4.0, with bootstrapping used to test the significance of the direct, indirect, and total effects.

2.5 Ethical Considerations

The study observed ethical standards in conducting research involving human participants. Permission to conduct the study was secured from the concerned authorities before data collection. The participants were informed about the purpose of the study, the procedures involved, and their rights as participants. Their participation was voluntary, and they were allowed to withdraw from the study at any point without penalty. Informed consent was obtained before the conduct of interviews and survey administration. The researchers ensured that the participants' identities were protected by using codes instead of real names. No identifying information, such as names or school assignments, was included in the transcripts, datasets, or final report. The data were used only for the purposes of the study and were handled with confidentiality.

3. Results and Discussion

3.1. Measurement Model: Reliability and Validity

Table 1 presents the reliability and validity indices for the measurement model, evaluated using Cronbach's alpha, composite reliability, and average variance extracted (AVE). The constructs financial stress, financial well-being, and happiness obtained Cronbach's alpha values of .923, .730, and .731, respectively, indicating satisfactory internal consistency, as alpha values of .70 or higher are generally considered acceptable (Taber, 2018). Composite reliability values ranged from .725 to .942, likewise exceeding the recommended threshold of .70 and further supporting construct reliability. All constructs' AVE values exceeded the recommended minimum of .50 (Fornell & Larcker, 1981; Hair et al., 2019): .583 for financial stress, .649 for financial well-being, and .502 for happiness, indicating that each construct explained at least half of the variance in its respective indicators and confirming adequate convergent validity.

Table 1. Reliability and Validity of the Measurement Model

Construct	Cronbach's α	Composite Reliability	AVE
Financial Stress	.923	.942	.583
Financial Well-being	.730	.761	.649
Happiness	.731	.725	.502

Note. AVE = average variance extracted.

3.2. Discriminant Validity

Table 2 presents the discriminant validity results, assessed using the heterotrait-monotrait ratio (HTMT); per Hair et al. (2019), the measurement model should be evaluated before proceeding to structural (mediation) analysis. All HTMT values, ranging from .388 to .588, fell below the conservative threshold of .85 recommended by Henseler et al. (2015) and the more liberal threshold of .90, indicating that the three constructs were empirically distinct from one another. The highest HTMT value (.588) was observed between financial stress and financial well-being, still well within acceptable limits.

Table 2. Heterotrait-Monotrait Ratio (HTMT)

Construct	1	2	3
1. Financial Stress	—		
2. Financial Well-being	.588	—	
3. Happiness	.463	.518	—

Note. HTMT = heterotrait-monotrait ratio.

3.3. Levels of Financial Stress, Financial Well-Being, and Happiness

Table 3 summarizes participants' levels of happiness, financial well-being, and financial stress. Happiness was moderate on average ($M = 3.86$, $SD = 0.71$), suggesting that students experienced a mix of contentment and occasional dissatisfaction or stress rather than consistently high or low happiness. This is consistent with Kumar et al. (2022), who reported moderate happiness levels among nursing students in India, where year level, number of close friends, stress, and physical activity were associated with happiness scores. Similarly, Alam et al. (2021) reported moderate average happiness among dental students in Pakistan, underscoring the role of psychological support and student services in shaping student well-being across disciplines.

Financial well-being was comparatively higher ($M = 3.88$, $SD = 0.76$), suggesting that students perceived some measure of financial stability, even while remaining concerned about budgeting, loan management, and saving for future expenses. This finding is consistent with Hsu et al. (2017), who found that individuals with higher financial well-being were more likely to make planned rather than impulsive purchases, and with Pijoh et al. (2020), who identified financial literacy, financial behavior, and financial anxiety as key determinants of financial well-being.

Financial stress and its sub-dimensions were moderate overall ($M = 3.08$, $SD = 0.88$), with affective reactions of depression ($M = 3.31$, $SD = 1.03$), anxiety ($M = 3.43$, $SD = 0.92$), and emotional exhaustion ($M = 3.50$, $SD = 1.01$) somewhat higher than the behavioral and biophysiological sub-dimensions (M s ranging from 2.59 to 3.11), suggesting that students' financial strain was expressed more through emotional than physical or behavioral channels. These results align with Tran et al. (2018), who found a moderate-to-strong association between financial stress and anxiety symptoms among college students, and with Roll et al. (2016), who documented that financial stress is common among low- and middle-income households and carries meaningful consequences for mental health and well-being. Taken together, these moderate financial stress scores point to the importance of support mechanisms that address financial stress and its psychological correlates.

Table 3. Levels of College Students' Financial Stress, Financial Well-Being, and Happiness

Variable	N	M	SD	Descriptive Level
Happiness	238	3.86	0.714	Moderate
Financial Well-Being	238	3.88	0.756	High
Financial Stress (overall)	238	3.08	0.875	Moderate
Affective Reaction: Depression	238	3.31	1.027	Moderate
Affective Reaction: Anxiety	238	3.43	0.921	Moderate
Affective Reaction: Emotional Exhaustion	238	3.50	1.007	Moderate
Interpersonal Behavior: Academic-Related	238	3.11	0.989	Moderate

Interpersonal Behavior: Non-Academic-Related	238	2.88	1.006	Moderate
Biophysiological: Physiological Response	238	2.59	1.114	Moderate
Biophysiological: Sensory Response	238	2.75	1.091	Moderate

Note. Descriptive levels were interpreted using a 5-point scale (1.00–1.80 = very low/very poor, 1.81–2.60 = low/poor, 2.61–3.40 = moderate, 3.41–4.20 = high, 4.21–5.00 = very high), except Happiness, which was measured on a 6-point scale; authors should confirm the exact interpretive scale used.

3.4. Structural Model and Hypothesis Testing

Table 4 presents the direct, indirect, and total effects among financial stress, financial well-being, and happiness, along with the corresponding bootstrap statistics (5,000 resamples) and effect sizes (f^2). Financial stress was significantly and positively related to financial well-being (FS $\rightarrow$ FWB: $\beta = .547$, $M = .554$, $SD = .048$, $t = 11.521$, $p < .001$), supporting H1. The bootstrap mean ($M = .554$) closely approximated the original path coefficient, and the small bootstrap standard deviation ($SD = .048$) indicated a stable and precise estimate. The effect size was large ($f^2 = .428$) by Cohen's (1988) benchmarks. This finding aligns with Sabri and Falahati (2013) and Delafrooz and Paim (2013), who likewise reported a direct association between financial stress and financial well-being, and with Zhang and Chatterjee (2023), who found that financial stress mediates the relationship between financial literacy and financial well-being. While the positive direction of this relationship may initially appear counterintuitive, given that financial stress is typically framed as detrimental, it is consistent with the broader pattern observed in this dataset (see below) and may reflect the possibility that students who are more attentive to — and therefore more stressed about — their finances are also more actively engaged in managing them, a possibility discussed further under Limitations.

Financial stress was also significantly and positively related to happiness (FS $\rightarrow$ Happiness: $\beta = .304$, $M = .300$, $SD = .131$, $t = 2.317$, $p = .021$), supporting H2, with a small-to-moderate effect size ($f^2 = .090$). This result runs counter to Bernardo and Resurreccion (2018), who found that financial stress negatively predicted life satisfaction among Filipino students, albeit with this relationship moderated by external locus-of-hope. It is also worth noting that financial stress can affect physiological markers such as cortisol indirectly, through shifts in the balance of negative and positive affect (Puterman et al., 2013), suggesting that the pathway from financial stress to subjective outcomes such as happiness is unlikely to be simple or uniformly negative. One plausible interpretation is that, in this sample, financial stress may co-occur with active coping and resilience processes that offset some of its detrimental effects — an interpretation that must be treated cautiously given the cross-sectional design (see Limitations).

Financial well-being was significantly and positively related to happiness (FWB $\rightarrow$ Happiness: $\beta = .297$, $M = .307$, $SD = .105$, $t = 2.823$, $p = .005$), supporting H3, with a small-to-moderate effect size ($f^2 = .086$). This finding is consistent with Dewi et al. (2023) and Oquaye et al. (2020), who reported that financial well-being significantly predicts happiness, and with Netemeyer et al. (2017), who found that the influence of financial well-being on happiness is comparable in magnitude to that of other major life domains, such as job satisfaction and physical health. Dewi et al. (2023) further identified financial knowledge, behavior, and self-efficacy as antecedents of financial well-being, which may help explain the present finding. At the same time, Garðarsdóttir et al. (2009) cautioned that pursuing financial goals can undermine subjective well-being when driven primarily by the belief that money itself will produce happiness, a nuance that merits attention in future research on this sample.

As shown in Table 4, the indirect effect of financial stress on happiness through financial well-being was significant (indirect effect = .162, $M = .169$, $SD = .058$, $t = 2.82$, $p = .005$), supporting H4 and confirming that financial well-being significantly mediated the relationship between financial

stress and happiness. The total effect of financial stress on happiness (direct plus indirect) was likewise significant (total effect = .467, $M = .470$, $SD = .102$, $t = 4.570$, $p < .001$). Because both the direct effect ($\beta = .304$, $p = .021$) and the indirect effect ($\beta = .162$, $p = .005$) were significant and in the same direction, the mediation observed here is best classified as partial, complementary mediation (Zhao et al., 2010); the indirect effect accounted for approximately 34.7% of the total effect ($VAF = .162 / .467$), indicating that financial well-being explains a meaningful, but not exclusive, share of the relationship between financial stress and happiness.

The structural model explained a modest share of variance in the endogenous constructs: financial stress accounted for 30.0% of the variance in financial well-being ($R^2 = .300$), and financial stress and financial well-being jointly accounted for 29.7% of the variance in happiness ($R^2 = .297$). Following Hair et al. (2019), these values fall below the threshold typically labeled “moderate” ($R^2 \approx .50$), indicating that, while the tested pathways were statistically significant, a substantial share of the variance in financial well-being and happiness is attributable to factors outside the present model — an expected result for a parsimonious three-construct model of complex psychological outcomes, and a point taken up further under Limitations.

Table 4. Direct, Indirect, and Total Effects Among Financial Stress, Financial Well-Being, and Happiness

Path	β (O)	M	SD	t	p	95% CI	f^2
Direct effects							
Financial Stress → Financial Well-being	.547	.554	.048	11.521	< .001	[.438, .627]	.428
Financial Stress → Happiness	.304	.300	.131	2.317	.021	[.123, .464]	.090
Financial Well-being → Happiness	.297	.307	.105	2.823	.005	[.095, .514]	.086
Indirect effect							
Financial Stress → Financial Well-being → Happiness	.162	.169	.058	2.820	.005	[.050, .278]	—
Total effect							
Financial Stress → Happiness (total)	.467	.470	.102	4.570	< .001	[.034, .565]	—

Note. O = original sample estimate; M = bootstrap sample mean; SD = bootstrap standard deviation; CI = bias-corrected 95% bootstrap confidence interval; f^2 = Cohen’s (1988) effect size (.02 = small, .15 = medium, .35 = large). Bootstrapping based on 5,000 resamples.

Table 5. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Adjusted R^2
Financial Well-being	.300	−.297 ^a
Happiness	.297	−.273 ^a

Note. ^a The adjusted R^2 values are reproduced exactly as reported in the original analysis output. A negative adjusted R^2 of this magnitude relative to R^2 is unusual and may indicate a transcription or software-export error; the authors should re-verify these two values against the SmartPLS output before submission.

These results, considered together, are consistent with Qiao and Cai (2021), who reported a nuanced relationship between financial asset management and well-being, and with Mogilner et al. (2018), who highlighted the role of resource-allocation and spending decisions in shaping subjective well-being. They diverge, however, from Tariq (2012) and Bailey et al. (1998), both of whom reported a straightforwardly negative association between financial stress and life satisfaction. This divergence

underscores that the relationship between financial stress and well-being outcomes may be more context-dependent — and more sensitive to how financial stress interacts with coping resources — than a uniformly negative relationship would suggest.

3.5. Theoretical Implications

These findings can be understood through the lens of the two frameworks introduced above. Consistent with Sheldon and Lyubomirsky's (2019) Sustainable Happiness Model, financial well-being functioned as a significant external circumstance shaping happiness, and the observed mediation suggests that students who convert financial stress into improved financial well-being — for instance, through more intentional financial practices — may be better positioned to sustain happiness despite that stress. This is broadly consistent with the model's emphasis on purposeful activity (e.g., budgeting, financial planning, reframing financial difficulties) as a lever for well-being that operates alongside, rather than in place of, more fixed factors such as genetic disposition.

The findings are also consistent with Lazarus and Folkman's Transactional Model of Stress and Coping (as cited in Obbarius et al., 2021). In this model, stress arises when a demand is appraised as exceeding one's coping resources; the present results suggest that financial well-being may function as a coping resource in its own right. Students who reported greater financial well-being appeared better equipped to manage financial stress in ways that did not translate into lower happiness, and in this sample were associated with somewhat higher happiness overall. This is consistent with the model's emphasis on problem-focused coping (e.g., improving financial stability) and emotion-focused coping (e.g., reframing financial difficulties) as mechanisms that buffer the effects of stress on well-being.

4. Conclusion

This study examined the relationships among financial stress, financial well-being, and happiness among 238 college students in Davao City, and tested whether financial well-being mediated the relationship between financial stress and happiness. Contrary to the conventional framing of financial stress as uniformly detrimental, the results indicated a direct, positive relationship between financial stress and both financial well-being and happiness, a pattern that may reflect resilience or adaptive coping among students who remain engaged with, rather than disengaged from, their financial circumstances. Financial well-being emerged as a significant, partial mediator of the relationship between financial stress and happiness, indicating that interventions which strengthen financial well-being may both enhance happiness directly and buffer some of the effects of financial stress. These findings are broadly consistent with the Transactional Model of Stress and Coping, which emphasizes the role of adaptive coping in mitigating stress, and the Sustainable Happiness Model, which emphasizes the roles of external circumstances and purposeful activity in sustaining happiness. Collectively, the results underscore the importance of financial literacy, proactive financial management, and adaptive coping skills in supporting college students' happiness and overall well-being.

5. Recommendations

This study underscores the importance of financial literacy in reducing the adverse effects of financial stress and enhancing overall well-being. Financial education programs — covering budgeting, saving, and long-term financial planning — are recommended for integration into academic curricula to equip college students with the knowledge and skills needed to manage their finances effectively. Extending financial literacy programming to community centers and workplaces may similarly help broader populations make informed financial decisions, improving financial well-being and reducing stress. Beyond financial literacy, fostering adaptive coping mechanisms is essential to managing financial stress effectively. Training in problem-solving, mindfulness, and stress-reduction techniques can help students build resilience in the face of financial challenges. Academic institutions and employers are encouraged to offer workshops and resources that teach these skills and normalize seeking support for financial stress, thereby supporting emotional and psychological well-being alongside financial outcomes. Finally, public- and private-sector policies should prioritize interventions that enhance financial

well-being. Given that financial well-being significantly mediates the relationship between financial stress and happiness, policies that expand access to financial counseling, support services, and financial-planning resources may help reduce financial distress. Government initiatives that promote financial stability, such as debt-management assistance or emergency-savings programs, may likewise be beneficial. Consistent with the Sustainable Happiness Model, encouraging purposeful, meaningful activity can further support a more holistic strategy for enhancing well-being and mitigating the effects of financial stress.

6. Limitations of the Study

Several limitations should be considered when interpreting these findings. First, the cross-sectional, non-experimental design precludes causal inference; the direction of the relationships among financial stress, financial well-being, and happiness cannot be established from these data, and longitudinal or experimental designs are recommended to clarify causal ordering. Second, the use of convenience sampling limits the generalizability of the findings beyond college students in Davao City with characteristics similar to this sample. Third, all constructs were measured using self-report instruments administered through a single online survey, which raises the possibility of common method bias; future studies should consider procedural remedies (e.g., temporal or source separation) or statistical tests (e.g., Harman's single-factor test or a marker-variable approach) to assess and address this concern. Fourth, the structural model explained a modest proportion of variance in financial well-being ($R^2 = .300$) and happiness ($R^2 = .297$), suggesting that other variables not included in this study — such as financial literacy, financial behavior, self-efficacy, social support, or family financial background — likely contribute meaningfully to these outcomes and merit inclusion in future models. Finally, the counterintuitive positive relationship between financial stress and both financial well-being and happiness warrants further investigation, ideally through mixed-methods or qualitative designs that can illuminate the coping mechanisms and contextual factors underlying this pattern.

Supplementary Details

Supplementary Materials & Data availability statement:

The data that support the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to privacy and confidentiality restrictions, as they contain information that could compromise the anonymity of the research participants.

Author Contributions:

The author is responsible for the conceptualization and design of the study, development and validation of the research instrument, data collection and analysis, interpretation of findings, and preparation and revision of the manuscript. The authors also reviewed and approved the final version of the manuscript and accepted responsibility for the integrity and accuracy of the work.

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Institutional Review Board Statement

Not applicable. The study was conducted in accordance with ethical standards for educational research. Necessary permissions were secured from the concerned educational authorities and participating schools prior to the conduct of the study.

Informed Consent Statement:

The study adhered to ethical standards in research involving human participants. Prior to data collection, participants were provided with a comprehensive informed consent form detailing the purpose of the study, procedures, potential risks and benefits, confidentiality measures, and their rights, including voluntary participation and the option to withdraw at any time without

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Conflicts of Interest:

The authors declare no conflict of interest.

Disclosure Statement:

The authors used Grammarly only for language editing. No AI tools were used in the data analysis or in generating the study's results. The authors reviewed and validated all content and took full responsibility for the article's accuracy, originality, and integrity.

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