

# Impact of Cognitive and Non-Cognitive Factors on the Financial Well-being of Working Women: Mediation of Financial Behavior

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## Abstract

*The study investigates how financial literacy and the non-cognitive traits of self-control and grit contribute to working women's financial well-being, and assesses the mediating role of financial behavior. Data from 247 female faculty members in Pakistan's education sector, collected through stratified random sampling, were assessed using covariance-based structural equation modeling. It is found that financial literacy contributes to FWB via financial behavior, whereas grit directly and significantly predicts FWB. The study offers empirical and theoretical contributions by developing a comprehensive FWB framework and integrating grit to bridge finance and psychology. These insights open the gate for future investigations and policymaking.*

**Keywords:** *Financial Well-being, Financial Literacy, Self-Control, Grit, Women*

**JEL Classification:** *D14, G50, I31, J16*

## INTRODUCTION

Financial well-being constitutes an essential dimension of overall well-being and plays an important role in managing the diverse demands of everyday life (Hageman et al., 2019). Beginning with Strumpel's seminal work in 1976, financial well-being was initially conceptualized as a composite of satisfaction with income, savings, perceived opportunities, and financial security. Based on this, subsequent studies explored various models to measure financial well-being objectively (Porter & Garman, 1993). However, recent research indicates that objective indicators may not consistently capture financial well-being (Brüggen et al., 2017). Consequently, researchers have shifted towards subjective assessments, examining individuals' beliefs, behaviors, and attitudes toward their financial circumstances. Following this perspective, Netemeyer et al. (2018) define financial well-being in terms of two interrelated

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dimensions: present money management stress and expectations of future financial security. It posits that both factors independently contribute to individuals' financial well-being, implying that current financial issues do not inevitably lead to low expectations for future financial security. This perspective underscores that individuals with similar financial profiles may exhibit entirely different levels of financial well-being based on their subjective perceptions (Nanda & Banerjee, 2021).

The conceptualization of financial well-being appears consistent across genders; however, empirical evidence suggests that gender-related differences significantly influence how this construct manifests across diverse populations. Notably, social roles profoundly affect women's career trajectories and financial well-being (Pascall, 2010). Traditionally, women are assigned primary responsibilities for familial caregiving and household management, whereas men are often positioned as primary breadwinners, aligning with the breadwinner model (Chesley, 2017). Consequently, women frequently engage in unpaid domestic labor, undertake part-time employment, experience broken career paths, and, consequently, encounter financial vulnerability or dependence on male partners (Hook & Pettit, 2016). Consequently, these gender-related dynamics give rise to distinct financial behaviors among women, which impose constraints on their financial well-being (Abdullah et al., 2019) and are driven by different cognitive (Al-Bahrani et al., 2020) and non-cognitive factors (Gonçalves et al., 2021).

Despite numerous studies underscoring the favorable effects of financial well-being across multiple facets of women's lives, including personal satisfaction, achievement, happiness, overall well-being, relationship quality, and emotional wellness (Hubler et al., 2016), the literature remains scant in extensive evidence of the diverse cognitive and non-cognitive factors shaping financial well-being outcomes. For example, Brügger et al.'s (2017) conceptual analysis highlighted the necessity for inclusive investigations that delineate and contrast the individual determinants influencing financial well-being across diverse demographic groups and genders. Similarly, the systematic review conducted by Gonçalves et al. (2021) revealed that most studies on women's financial well-being used data from European and American women. Consequently, they advocated for further research endeavors that encompass (working) women from various regions worldwide, thereby capturing a broader spectrum of financial, cultural, and social contexts, particularly in Asia. In alignment with this scholarly call, the present study focuses on elucidating gender-related disparities in financial well-being, with a specific focus on women in Asian countries.

Recent scholarship further reinforces the importance of examining financial well-being through cognitive, behavioral, and psychological lenses. Aziz et al. (2025), in a study of female employees at women's universities in Pakistan, found that financial socialization, financial literacy, financial capability, and financial autonomy play important roles in shaping women's financial well-being, thereby highlighting the contextual relevance of studying women's financial outcomes in Pakistan. Similarly, Saeedi and Nishad (2025) examined the role of non-cognitive traits in subjective financial well-being and financial behavior, supporting the need to integrate psychological traits into financial well-being models. Coats and Bajtelsmit (2026) further showed that time preferences, financial self-efficacy, and financial literacy are associated with financial well-being indicators, reinforcing the view that financial well-being is shaped not only by financial knowledge but also by behavioral and psychological factors. These recent developments strengthen the rationale for the present study, which integrates financial literacy,

self-control, grit, and financial behavior to explain the financial well-being of working women in Pakistan.

Specifically, this study pursues two main objectives: first, to examine how cognitive and non-cognitive factors influence the financial well-being of working women; and second, to assess whether financial behavior mediates the relationship between these factors and financial well-being. The study contributes to the literature in four important ways. First, it integrates cognitive and non-cognitive determinants of financial well-being within a single framework. Specifically, financial literacy is examined as a cognitive factor, while self-control and grit are examined as non-cognitive traits that may shape women's financial well-being. Second, the study extends prior research by examining financial behavior as a broader mediating mechanism rather than focusing on isolated financial practices such as saving, borrowing, or retirement planning. Third, given the growing concern of governments, businesses, legislators, and charitable organizations regarding individuals' financial well-being (Rickard 2018)), the findings offer practical insights for designing policies and interventions aimed at improving the financial well-being of working women. Finally, to the author's knowledge, this is among the earliest studies to explore the effect of grit on financial well-being. By incorporating grit into the financial well-being framework, the study extends the interface between finance and psychology and opens avenues for future research on non-cognitive traits in financial decision-making.

The subsequent sections of this paper present a comprehensive literature review to formulate hypotheses and establish a conceptual framework. Later, the methodology section is detailed, followed by the results section, including a discussion. The paper concludes with sections addressing limitations, future research directions, and references.

## **LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT**

The present study is grounded in the behavioral finance perspective, which suggests that financial outcomes are shaped by financial knowledge, individual behavior, and psychological characteristics. Financial literacy is considered a cognitive factor, whereas self-control and grit are non-cognitive traits that influence financial choices, goal persistence, and the ability to manage financial challenges. Financial behavior is positioned as the mediating mechanism through which these factors may translate into financial well-being. Thus, the proposed framework explains financial well-being through the combined role of financial literacy, self-control, grit, and financial behavior.

### ***Cognitive Factors and Financial Well-being***

Financial literacy (FL) is a cognitive factor related to an individual's consciousness regarding everyday financial matters (Hagadorn, 2017). The association between FL and financial well-being (FWB) rests on the idea that financially knowledgeable individuals tend to make better use of financial services and achieve stronger FWB (Fan and Henager, 2022). Furthermore, financial hardship and stress have been identified as significant predictors of FWB (Lacombe and Khatun, 2023). In addition, greater financial literacy enables individuals to manage their resources effectively, improve their savings strategies, make wise investment decisions, and build wealth over time. As a result, financial literacy is considered to have a significant impact on their FWB (Choung et al., 2023). Moreover, Philippas and Avdoulas (2020) also determined

that financial literacy fosters positive financial attitudes that contribute to FWB. Supporting this, the meta-analysis study by Hwang and Park (2023) highlighted that financial preparedness increases the likelihood of better FWB.

In the context of women, recent review studies have concluded that women's financial literacy is generally comparable to or lower than men's, but rarely higher (Goyal & Kumar, 2021). Other studies have confirmed that such a lack in women's financial literacy persists regardless of the concept or measurement tool used (Gonçalves et al., 2021). Supporting these findings, researchers worldwide have found that women underestimate their financial literacy when making financial decisions (Lind et al., 2020) and have less confidence in their financial abilities. These actions affect their FWB (Abdullah et al., 2019). In specific developing nations, Karakurum-Ozdemir et al. (2019) observed lower financial literacy among women despite having equal education to men. Similarly, they face greater difficulty with financial computations (Potrich et al., 2018), which adversely affects their FWB (Goyal & Kumar, 2021).

Despite the literature highlighting the dearth of women's financial literacy and its influence over their FWB (Santini et al., 2019), very few studies have examined the financial literacy of working women in Asia. For example, in Pakistan, only a single study by Zulfiqar and Bilal (2016) analyzed the significance of financial literacy on the FWB of working women in the non-financial sector. They incorporated the direct and indirect impacts of risk diversification, interest rates, inflation, investment choices, and the anticipated future value of a current amount, with inflation in mind. The study found that financial literacy was a significant and essential factor affecting the FWB of working women. Besides, Kamboj (2014) found a similar lack in India by adding that Indian women are aware of this shortfall. Therefore, the present study attempts to determine the effect of financial literacy on the FWB of working women by hypothesizing as follows:

**H1:** Financial literacy leads to higher FWB of working women

### ***Non-Cognitive Factors and Financial Well-being***

The literature has also highlighted non-cognitive factors, including self-control (SC). It is the capacity to resist impulsive behavior and temptations, break down the bad habitual routine, and conquer driving forces (Strömbäck et al., 2020). Self-control finds its roots in the theory of delayed gratification. Van Raaij et al. (2023) concluded that self-control is a significant and major determinant of FWB, affecting it both directly and indirectly. Similarly, Gonçalves et al. (2021) found that self-control affects several aspects of individuals' lives and, in turn, shapes their FWB. Other studies likewise highlighted the significant influence of higher self-control on FWB, and lower self-control leads to uneasiness about their financial circumstances (du Plessis et al., 2024). The extent of individuals' self-control significantly impacts their ability to regulate FWB (Kim, 2022). In particular, Strömbäck et al. (2017) indicated that women with higher SC feel less anxiety about financial matters and are more comfortable and safer about their future financial circumstances. Supporting the results, Ponchio et al. (2019) similarly found that women with higher consumer spending SC mitigated their current financial management anxiety and aggravated the anticipated future financial security.

However, the literature review highlighted that research on the effect of working women's self-control on their FWB in developing countries, particularly in Asia, is scant (Gonçalves et

al., 2021). Mufti et al. (2015) conducted a comparative analysis of self-control among working and non-working women. The results identified that working women possess a greater level of SC than non-working women. However, the study considered the responses from a single city and overlooked the relationship between self-control and FWB of (working) women. Moreover, very few studies have examined the direct relationship between self-control and FWB. The study of Bajwa and Latif (2020) supported the positive association between self-control and FWB, whereas Younas et al. (2019) reported an insignificant association between these variables. Hence, the results are inconclusive. In addition, both studies collected data from the general public in developing countries, overlooking gender-specific responses, particularly from women. Such inconclusive country-level findings call for reexamining the relationship between self-control and FWB of working women. Therefore, the present study hypothesizes the following:

**H2: Self-control leads to higher FWB of working women**

Self-control is presently receiving attention as a connected non-cognitive variable known as grit (Duckworth, 2016). Initially, Duckworth et al. (2007) outlined grit as a personal trait characterized by lasting interest and persistent effort directed toward long-term achievement. Since SC and grit are interconnected, investigating them in a single study is warranted, provided the distinctions between the variables are considered (Galla & Duckworth, 2015). Generally, both constructs appear to be significantly intertwined, yet individuals with high levels of self-control are not necessarily gritty, and vice versa (Duckworth, 2016). However, willpower is a common factor in both variables. In particular, self-control promotes deferred gratification and overcomes short-term impulses, whereas grit involves consistent determination and passion for long-term objectives. Both grit and self-control require objectives and determination, yet self-control is associated with short-term objectives and determination, whereas grit is associated with long-term goals and determination (Duckworth & Gross, 2014).

The role of grit in shaping FWB remains underexplored in the literature, particularly among working women. Based on the grit theory, which explains that individuals may achieve long-term goals if they have consistency in interest and perseverance of efforts, studies support that grit positively influences happiness (St Clair-Thompson & London, 2024), health and weight management (Gorin et al., 2024), and worth and self-efficacy (Muenks et al., 2017). In addition, it significantly influences the stability of positive emotions and motivated behaviors during adverse life occasions (Csizér et al., 2024).

Hence, past studies indicated a strong affiliation of grit with academic well-being (Ramos & Meador, 2023), psychological well-being (Tang & Zhu, 2024), subjective well-being (Hou et al., 2022), social well-being (Caldwell, 2019), personal well-being (Disabato et al., 2018), mental well-being (Foong et al., 2021) It supports the unequivocal association of grit with well-being. The current body of literature does not adequately address the impact of grit on FWB. However, it is unexplored whether grit positively influences FWB. Based on grit theory and the positive relation of grit with multiple well-being factors, including academic, psychological, subjective, social, and mental well-being, a positive relationship between grit and FWB is hypothesized as follows:

**H3: Grit leads to higher FWB of working women**

## **Mediation of Financial Behavior**

The goal of attaining FWB may be achievable when individuals are sufficiently equipped and engage in responsible financial behavior (FB) (Ponchio et al., 2019). Financial behavior is how individuals react to the information they obtain and make decisions (Marsh, 2006). The indicators include paying bills on time, maintaining retirement plans, saving, setting financial goals, managing budgets, making investments, and considering different options when making financial decisions. A recent study investigating the relationship between financial behavior and FWB in India found a positive and significant relationship between the constructs (Riyazahmed, 2021). Individuals who maintained good financial behaviors, including analyzing their spending and setting aside cash for unforeseen needs, were financially successful and attained FWB (Mokhtar et al., 2020). Hence, financial behavior is connected with FWB, both directly and indirectly. For example, managing monthly credit card bills, maintaining a monthly or weekly spending plan, and saving cash for emergencies (Saeedi & Nishad, 2024). Based on the given relationship, the study hypothesizes a positive relationship between FB and FWB:

**H4:** Financial behavior positively affects FWB of working women

Besides, some previous researchers have highlighted that cognitive and non-cognitive factors affect FWB through the mediation of financial behavior (Brüggen et al., 2017). A recent study found that financial behavior affects FWB and that this behavior is further influenced by cognitive factors such as financial literacy (Ingale & Paluri, 2020). Another study by Kim et al. (2019) established a strong association between financial literacy and an individual's overall FBs. Besides, individuals with higher financial literacy are more likely to save (Deuflhard et al., 2019), plan for retirement (Clark et al., 2017), and invest in financial markets (Sivaramakrishnan et al., 2017). It also enhances the ability to cope with income shocks and emergency expenses (Hasler et al., 2018), ultimately improving their FWB.

In particular, Rai et al. (2019) examined the association between financial behavior and financial literacy among working women in India and found a strong correlation. Similarly, OECD/INFE (2013) concluded that women are more involved in record-keeping and in budgeting for their finances. However, they have lower financial literacy, which influences significant aspects of their FBs. Bonga and Mlambo (2016) also emphasized the importance of improving women's financial literacy in developing countries, noting that it leads to long-term behavioral changes, as women are more likely than men to change their behavior after attending training or workshops on saving and retirement planning. However, fewer studies have examined the mediating effect of FB on financial literacy and FWB, which calls for additional investigation in this area. To this end, the hypothesis of the given relationship is as follows:

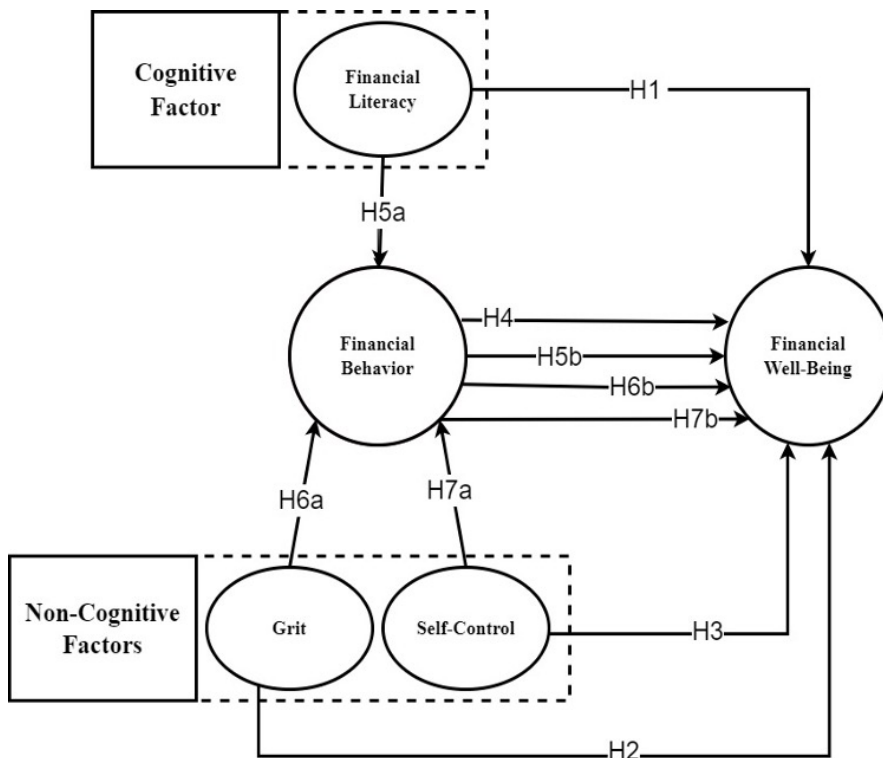
**H5:** Financial behavior functions as a mediating pathway linking financial literacy with the financial well-being of working women

Likewise, prior studies have documented the significant effect of SC on financial behavior, with individuals with low self-reported SC more likely to engage in impulsive buying (Atmaningrum et al., 2021). Another study by Siswanti and Halida (2020) showed that individuals lacking financial SC could experience adverse effects from credit withdrawals and unanticipated costs for consumables, which can lead to excess indebtedness. Similarly, Sekścińska et al. (2021) identified a significant relationship between SC and a reduced propensity to engage in financial

risk-taking behaviors. In the case of women, Stromback et al. (2020), Ponchio et al. (2019), and Stromback et al. (2017) found that SC significantly affects women's financial behavior, which in turn positively affects their FWB (Gonçalves et al., 2021). Thus, the present study hypothesizes as follows:

**H6:** Financial behavior functions as a mediating pathway linking self-control with FWB of working women.

In addition to the mediating role of financial behavior between self-control and FWB, the study hypothesizes that financial behavior may positively mediate the impact of grit on the FWB of women working as well. This relationship is present because SC and grit are interconnected, and willpower is a common factor in both variables (Galla and Duckworth, 2015). However, this phenomenon has not been studied earlier. Hence, it will add an addition to the literature. Thus, the developed hypothesis is as follows:



**H7:** Financial behavior functions as a mediating pathway linking grit with the FWB of working women.

**Figure 1:** Conceptual framework and hypothesized model

**METHODOLOGY**

**Population, sampling technique, and sample**

Data were obtained through stratified random sampling from 247 female faculty members selected at random from the target population of university-level female faculty in Pakistan.

The rationale for this choice is the assumption that university-educated women are likely to have higher levels of literacy and professional experience than women in less formal or less educated contexts. This is expected to result in comparatively reduced biases, providing a more controlled and idealized benchmark for our analysis and establishing a reference point against which we can evaluate and compare the intensity of the situations experienced by women in other sectors or with varying levels of education. Moreover, data from the Pakistan Bureau of Statistics (2017-18) indicate that women's overall participation in the labor force stands at 14.52% across all age groups, out of which the education sector exhibits the highest proportion with a participation rate of 6.36%, representing a significant portion of the labor force.

### **Data collection and data screening**

The study employed probability-based stratified random sampling at the university level to collect data from female faculty members working in Pakistani universities. The sampling frame consisted of universities located across the four provinces of Pakistan: Punjab, Sindh, Khyber Pakhtunkhwa, and Baluchistan. To ensure geographical representation, universities were first grouped according to province, and then 27 universities were randomly selected from these provincial strata. Female faculty members from the selected universities were contacted via their institutional email addresses, where available.

Data were collected through an internet-based survey administered using Google Forms. A total of 2,792 questionnaires were emailed to female faculty members in four different waves, as shown in Table 1A. Overall, 270 responses were received, yielding a response rate of 9.7%, close to the global average email response rate of 10% reported by McCoy (2023). The responses were then screened for completeness and eligibility. During data cleaning, 15 responses were excluded due to missing values, while 8 responses were removed because they were submitted by male faculty members who completed the questionnaire by mistake. Consequently, the final usable sample consisted of 247 responses.

The provincial distribution of the final sample was then calculated based on the respondents' institutional province. As shown in Table 1B, Punjab contributed the largest proportion of usable responses, followed by Sindh, Khyber Pakhtunkhwa, and Baluchistan. form.

**Table 1A: Wave-wise University Email Outreach and Response Summary**

<b>Waves</b>	<b>Universities</b>	<b>Emails Sent</b>	<b>Response Received</b>	<b>Emails Bounced Back</b>
1st wave	10	811	101	38 (4.7%)
2nd Wave	8	1001	74	61 (6.1%)
3rd Wave	6	456	49	32 (7%)
4th Wave	3	524	46	30 (5.7%)
Grand Total	27 Universities	2792	270	161 (5.8%)

**Table 1B: Province-wise Distribution of Final Usable Responses**

<b>Province</b>	<b>Frequency</b>	<b>Percent</b>
Baluchistan	18	7.3
KPK	35	14.2
Punjab	138	55.9

Sindh	56	22.7
Total	247	100.0

### **Measurement instruments**

The questionnaire was developed using established measurement scales from prior literature and adapted to the context of working women in Pakistan. FWB was operationalized through the 10-item instrument proposed by Netemeyer et al. (2018). The measure reflects two dimensions of the construct, namely perceived future financial security and present stress related to money management. Responses were recorded on a five-point Likert scale, where 1 indicated “does not describe me at all” and 5 indicated “describes me completely.” FB was captured using the nine-item Financial Management Behavior Scale introduced by Dew and Xiao (2011). This measure encompasses a wide range of everyday financial management activities. Participants indicated the extent to which they had practiced each behavior over the previous six months using a five-point response scale ranging from 1 (“not like me at all”) to 5 (“very much like me”). Financial literacy was assessed with five self-report items adapted from Van Rooij et al. (2012). Scores were based on the number of correct responses, with higher scores indicating greater financial knowledge, particularly regarding inflation, compound interest, and the time value of money.

Self-control was measured using the 13-item Brief Self-Control Scale developed by Tangney et al. (2004). Grit was assessed through the original scale developed by Duckworth et al. (2007), which includes the dimensions of consistency of interest and perseverance of effort. Both variables were measured on five-point Likert scales ranging from 1 (“not like me at all”) to 5 (“very much like me”). The individual items for all constructs are presented in Table 03. Demographic factors, namely marital status, education, age, residential area, and average monthly income, were included as control variables and are reported in Table 2.

Before the final survey administration, the instrument was reviewed to ensure clarity, contextual relevance, and consistency of wording. A pilot assessment was also conducted with respondents from the target population to identify potential issues in item comprehension, response format, and survey flow. Minor wording refinements were made before distributing the final questionnaire.

## **RESULTS**

### **Measurement Model (CFA)**

The study applied the two-step SEM procedure recommended by Anderson and Gerbing (1988) to test the proposed hypotheses. In the first step, a second-order confirmatory factor analysis (CFA) was performed in AMOS 25.0 to assess the measurement model. This approach was appropriate because financial well-being (FWB) and grit were specified as higher-order constructs with two underlying dimensions each. The results are reported using standard indicators from covariance-based structural equation modeling. The measurement model was evaluated through factor loadings, reliability, convergent validity, and discriminant validity, while the structural model was assessed through model fit indices, standardized path coefficients, significance levels, and mediation results.

The CFA results showed a chi-square value of 670.499 with 371 degrees of freedom ( $p < 0.001$ ). Given the sensitivity of chi-square to sample size, several alternative fit indices were considered. The model demonstrated acceptable fit, with CFI = 0.92, RMSEA = 0.057, SRMR = 0.067, GFI = 0.852, TLI = 0.902, and IFI = 0.919. Most factor loadings exceeded 0.50. However, a few items related to SC, FB, and grit were removed to improve model fit and enhance construct validity. The retained items are presented in Table 3. Construct reliability was established because both Cronbach’s alpha and composite reliability exceeded 0.70 for all constructs (Hair et al., 2019). Convergent validity was also supported, with AVE values above 0.50 for each construct (Fornell & Larcker, 1981). Table 4 reports these results.

To establish discriminant validity, a chi-square difference test was conducted by comparing the constrained and unconstrained models. The constrained model yielded  $\chi^2 = 738.14$  ( $df = 368$ ), whereas the unconstrained model produced  $\chi^2 = 603.225$  ( $df = 345$ ). The significant chi-square difference ( $p < 0.01$ ) supported discriminant validity (Segars & Grover, 1993). In addition, the squared inter-construct correlations were lower than the corresponding AVE values for all construct pairs, providing further evidence of discriminant validity. Collectively, these findings indicate that the measurement model is psychometrically sound. Therefore, the subsequent structural model testing was conducted only after establishing acceptable model fit, reliability, convergent validity, and discriminant validity of the measurement model.

**Table 2: Demographic Profile of the Respondents**

Variable	Categories and Frequencies
Marital Status	Unmarried (65); Married (174); Separated (6); Widowed (2)
Age	25 years or below (6); 26-34 (87); 35-55 (137); 56 or above (17)
Education	Graduate (5); Master (99); Ph.D./Post-Doc. (131); CA/ACCA/CMA (4); Other (8)
Residential Area	Rural (11); Urban (236)
Monthly Income	20,001-70k (34); 70,001-120k (84); 120,001-170k (60); 170,001-220k (35); 220,001-270k (16); 270,001-320k (8); 320,001 or above (8)

*Note: Figures in parentheses indicate frequencies.*

**Table 3: Factor loadings of the measurement model**

Construct Measurement	Factor loadings
<i>Financial Well-being (Cronbach's alpha=0.848, CR = 0.823)</i>	
FWB1 -	0.923
FWB2 -	0.874
FWB3 -	0.809
FWB4 -	0.582
FWB5 -	0.539
<i>Current Money Management Stress (Cronbach's alpha=0.864, CR=0.842)</i>	
FWB1 -	0.735
FWB2 -	0.786
FWB3 -	0.524
FWB4 -	0.769
FWB5 -	0.622

<i>Financial Behavior (Cronbach's alpha = 0.830, CR = 0.832)</i>	
FB1 -	0.592
FB2 -	0.89
FB3 -	0.76
FB4 -	0.82
<i>Grit (Cronbach's alpha = 0.858, CR = 0.855)</i>	
<i>Consistency of Interests (Cronbach's alpha = 0.870, CR = 0.856)</i>	
G1 -	0.699
G2 -	0.708
G3 -	0.606
G4 -	0.526
G5 -	0.841
G6 -	0.824
<i>Perseverance of Efforts (Cronbach's alpha = 0.787, CR = 0.757)</i>	
G1 -	0.623
G2 -	0.637
G3 -	0.831
G4 -	0.563
<i>Self-Control (Cronbach's alpha = 0.771, CR = 0.777)</i>	
SC1 -	0.51
SC2 -	0.507
SC3 -	0.531
SC4 -	0.58
SC5 -	0.757
SC6 -	0.571

*CR = Composite Reliability*

**Table 4: Squared inter-construct correlation values**

	<b>AVE Values</b>	<b>Self-Control</b>	<b>Grit</b>	<b>Financial Behavior</b>	<b>Financial Well-being</b>
Self-Control	0.510	0.611			
Grit	0.540	0.563***	0.622		
Financial Behavior	0.557	0.187*	0.204**	0.746	
Financial Well-being	0.517	0.001	0.186*	0.527***	0.596

### **Structural Equation Model (SEM) and Hypotheses Testing**

After establishing the measurement model, the structural model in SEM was used to test the direct and mediating hypotheses. The chi-square value of the model-fit was 700.361, with 397 degrees of freedom, having a significant value (p-value < 0.000). Other model fit measures provided satisfactory values for CFI = 0.917, RMSEA = 0.056, SRMR = 0.067, GFI = 0.85, TLI = 0.903, IFI = 0.919. The results of the direct relationship supported H3 and H4 of the study, suggesting that grit and FB have positive and significant direct effects on the FWB of working

women at the 5% and 0.1% levels of significance, respectively. Whereas the paths for H1 and H2 provided insignificant results, implying that financial literacy and self-control do not directly impact the FWB of working women. Table 5 reports the summarized results for H1-4.

**Table 5: Hypotheses tests results (Direct effects)**

Hypothesis	Standardized Coefficient	Result
H1: Financial Literacy → Financial Well-being	0.33n.s.	Not Supported
H2: Self-control → Financial Well-being	0.168n.s.	Not Supported
H3: Grit → Financial Well-being	0.545*	Supported
H4: Financial Behavior → Financial Well-being	0.548***	Supported

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , n.s. = not significant

To test the mediation effects hypothesized in H5-7, each indirect path was estimated separately in the combined model to get rigorous results. Hence, the user-defined estimand of Gaskin (2016) and a bias-corrected bootstrapping technique were utilized to find robust results. The results showed that the indirect effect of FL on FWB via FB is positive and significant ( $p < 0.05$ ), supporting H5. However, the effect of SC on FWB through FB is insignificant ( $p$ -value  $> 0.05$ ), rejecting H6. Similarly, the indirect effect of grit on FWB through FB is also insignificant ( $p$ -value  $> 0.05$ ), rejecting H7. Table 6 reports the summarized results of estimated standardized effects and confidence intervals (at 95 percent).

**Table 6: Hypotheses tests results (Indirect or mediation effects)**

Hypothesis	Effect of IV on MV	Indirect Effect	SE of an indirect effect	95% CI. for a mean interval	Results
H5: FL → FB → FWB	0.144*	0.031*	0.21	(0.003) - (0.093)	Supported
H6: SC → FB → FWB	0.048n.s.	0.031n.s.	0.113	(-0.195) - (0.295)	Not Supported
H7: Grit → FB → FWB	0.179n.s.	0.087n.s.	0.095	(-0.021) - (0.380)	Not Supported

\*\*\* $p < 0.001$ , \*\* $p < 0.01$ , \* $p < 0.05$ , n.s. = not significant

FL: Financial literacy, SC: Self-control, FB: Financial behavior, FWB: Financial well-being.

## Discussion

The results of the SEM suggest that FWB increased by 0.33 standard deviation by one standard deviation increase in FL. This relationship is positive but insignificant, implying that our study did not find enough evidence to prove the impact of FL on the FWB of women working. The findings contradict the existing literature. For example, the recent systematic review by Goyal and Kumar (2021) concluded that FL yields positive financial returns attributable to better FWB. Similarly, in a developing country, Zulfiqar and Bilal (2016) analyzed the impact of FL on the FWB of working women in the non-financial sector by incorporating the direct and indirect impacts of inflation, risk diversification, interest rate, and investment choices. The results depicted that the FL was a significant and essential factor affecting the FWB of working women in the non-financial sector.

The reason for the insignificant direct relationship between FL and FWB among working women may be that the mediating variable of financial behavior significantly explains this relationship. The results indicate a positive and statistically significant relationship between FL

and FWB, mediated by FB, with a 0.031 increase in standard deviation. It implies that the FL of working women first translates into budgeting, saving, consuming, and purchasing behaviors, which further reduce the stress of money management in the present and increase expected financial security in the future. The findings support the notion that attaining FWB may become possible only when individuals are sufficiently equipped and participate in responsible financial behavior (Ingale & Paluri, 2020; Ponchio et al., 2019). For women, the findings are similar to those of Rai et al. (2019), who examined the association between FB and FL in working women and found a strong correlation that further influenced their FWB (Sorgente & Lanz, 2019).

Moreover, the newer studies have found that Asian women, particularly South Asian women, are more prone to having less FL because of the culture they work in. They have less exposure to financial education and domestic financial decision-making, and a lower level of Financial socialization. Their male family members don't encourage them to participate in the family's financial decisions, and their opinions aren't sought before making any important financial decision; if any are provided, they aren't taken into consideration. Hence, such conditions undermine their financial confidence, making it difficult for them to make even day-to-day financial decisions. Before marriage, their fathers and elder brothers make such decisions, and after marriage, their husbands make day-to-day financial decisions. Such conditions, at the aggregate level, reduce women's financial contribution to a greater extent and hence lead to lower FL, which adversely impacts their FWB.

Drawing from the theory of delayed gratification, higher SC helps overcome temptations and conquer driving forces for a better future. Several studies have supported the effect of SC on people's FWB. For instance, a comprehensive literature review concluded that women's SC has a significant effect on their FWB (Gonçalves et al., 2021). Supporting the results, Ponchio et al. (2019) found that women with higher consumer spending SC mitigated their current financial management anxiety and aggravated the anticipated future financial security. However, the present study shows an insignificant direct relationship between SC and FWB of working women, implying that it does not support the notion of the delayed gratification theory. Hence, the results are inconsistent with the existing studies of developed countries.

In developing countries, however, the findings are inconclusive. For instance, Bajwa and Latif (2020) provided a significant direct effect of SC on FWB, whereas Younas et al. (2019) reported an insignificant result. In addition, both studies collected data from the general public, overlooking gender-specific responses, particularly from women. The findings also show the positive but insignificant impact of SC on working women's FWB. It supports the results of Younas et al. (2019).

Similarly, the result for the mediation of FB between the SC and FWB is also insignificant, which contradicts the studies of both Bajwa and Latif (2020) and Younas et al. (2019). The reason for insignificant results may include the combined effects of economic (e.g., income) and demographic factors (e.g., age, education), which impact SC (Mufti et al. 2015). Another reason may be that the sample is from women working as faculty in the education sector, and, due to their teaching, they are better in cognitive factors, such as FL, and rely less on non-cognitive factors like SC in terms of their FWB. Further, biases may influence the relationship, such as tolerance for delay, attitude towards rewards when overcoming impulsive behaviors, present bias, and lack of future orientation. Therefore, the contradictory result calls for a detailed investigation of the overall literature surrounding the FWB of working women. Hence,

further studies with larger sample sizes and control for moderating variables and biases may provide a more comprehensive understanding, particularly for working women.

The direct relationship between grit and FWB is significant, which supports the notion of grit theory. The literature suggests that grit has positive effects on multiple facets of well-being, including social well-being (Caldwell, 2019), personal well-being (Disabato et al., 2018), and mental well-being (Foong et al., 2021). This study also supports the association between grit and FWB. The finding suggests that grit significantly affects the FWB of working women.

However, the study did not find any significant mediating role of FB in the relationship between grit and FWB. The reason may be that grit is typically associated with pursuing long-term goals, not short-term ones like consumption or short-term investment. However, extensive studies with larger sample sizes may provide a more detailed and comprehensive understanding of the phenomenon. This study is the first to examine the impact of grit on FWB and the mediation of FB; thus, it makes an initial contribution by expanding research on another significant non-cognitive factor, "grit," in both the financial and behavioral literature.

In the Pakistani context, the findings suggest that gender-focused financial inclusion policies should move beyond general financial literacy to emphasize translating financial knowledge into practical financial behavior, such as budgeting, saving, responsible borrowing, and retirement planning. Workplaces, particularly universities and public/private organizations employing women, can introduce financial wellness initiatives, including financial planning workshops, pension awareness sessions, digital banking literacy, and access to financial counseling. Such initiatives may help working women improve their financial behavior and strengthen their overall financial well-being.

## **CONCLUSION, LIMITATIONS, AND RECOMMENDATIONS**

### ***Conclusion***

This study is among a few initial attempts to investigate the cognitive and non-cognitive factors affecting the FWB of working women. The findings show that on the cognitive side, FL does not directly influence the FWB of working women, but via the mediating role of FB. On the non-cognitive side, however, the direct relationship between SC does not align with the theory of delayed gratification and existing literature. However, grit has a positive and significant influence on FWB, supporting the grit theory. The mediation of FB is insignificant with both non-cognitive factors in relation to FWB of working women. In the Pakistani context, the findings suggest that gender-focused financial inclusion policies and workplace financial wellness initiatives should move beyond financial literacy alone and incorporate behavior-oriented and psychological support mechanisms for working women.

### ***Limitations and Recommendations***

One limitation is social desirability bias, as the data were collected through self-reported surveys. Additionally, it may lead to misinterpretation of the questions, resulting in respondents providing inaccurate information, either intentionally or unintentionally. In light of these findings and limitations, several avenues for future research are suggested. Firstly, subsequent studies could expand the sample size and investigate women employed beyond the education sector.

This would enable a comparative analysis of women's FWB across sectors in developing countries, using sector-specific variables as moderating factors in the model. Secondly, alternative research methodologies, such as laboratory and field experiments, should be employed to mitigate social desirability bias inherent in self-reported surveys. Moreover, these approaches would provide a more nuanced understanding of the phenomenon by utilizing treatment variables to evaluate pre- and post-experimental outcomes (Gonçalves et al., 2021). Lastly, given that the results diverge from existing literature, a qualitative approach could offer deeper insights into the various dimensions of FWB among working women in developing countries. This would facilitate the development of a comprehensive theoretical framework for further investigation.

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