“Financial well-being – A Generation Z perspective using a Structural Equation Modeling approach”

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FINANCIAL WELL-BEING – A GENERATION Z PERSPECTIVE USING A STRUCTURAL EQUATION MODELING APPROACH

Abstract

The current pandemic situation in the global economy has urged the need to revolutionize the financial services industry with a keen eye on consumers' financial needs for sound financial decisions, which is necessary for financial well-being. The purpose of the study is to assess the financial well-being of Indian Gen Z students in relation to financial literacy, financial fragility, financial behavior, and financial technology. In addition, the study also tries to determine how Gen Z students' financial well-being is influenced by other factors such as gender, age, parental education, employment status, and monthly income in India. The study uses the scientific data analysis approach, Partial Least Squares-SEM model to estimate, predict, and assess the hypotheses. A sample of 271 University students from India was surveyed using a self-administered structured questionnaire. Questions were incorporated to understand the effect of financial literacy, technology, fragility, behavior, demographic and parental characteristics on financial well-being. The results indicate that financial behavior is positively related to financial well-being, while financial fragility is negatively associated. However, financial literacy and financial technology do not significantly affect financial well-being. The results also show that financial well-being is significantly influenced by gender, parental education, employment status, and monthly income change. Understanding Indian Gen Z student financial well-being will expand the students' understanding of the importance of financial literacy for well-planned financial behavior and informed decisions, hence high levels of financial well-being. Government and financial institutions can more effectively identify gaps and deficiencies in student financial well-being.

Keywords financial literacy, financial behavior, financial fragility, financial technology, India

JEL Classification A20, D14, I21, I23

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INTRODUCTION

Economic conditions are fast-changing, and external shocks occur more often, resulting in increased growing financial instability (Orthner et al., 2004). The context of the pandemic creates uncertainty and stress. It heightens the need for sound financial decisions, which is necessary for financial well-being that would lead to a safety net and financial protection for individuals. During their college years, students began intense independent monetary planning and management without the supervision of parents (Gutter et al., 2010). Students' financial well-being is crucial since it has a substantial effect on their financial well-being after graduation and overall life satisfaction (Shim et al., 2009). Financial well-being, often known as financial wellness, is a critical issue that affects individuals throughout their different phases of life (Parcia & Estimo, 2017).

Financial wellness is a state where individuals can satisfy current and continuing financial commitments needs, feel safe with their financial future, and can meet the future contingencies in life (Prendergast et

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al., 2018). The degree of contentment that a person attains from their financial conditions refers to financial well-being (Prawitz et al., 2006). Incompetency to handle borrowings wisely, extravagant spending, and poor awareness about money can create financial stress for individuals. Financial stress can lead to affecting the physical health, psychological condition and personal life of individuals (Joo, 1998; Shim et al., 2009). Lack of financial education or awareness of managing, saving, and investing cash is one reason for financial issues. Financial literacy is a driving force for higher economic growth and better financial planning among the younger generation. Research has shown that the financial literacy rate of India is the lowest among the other major emerging economies (Klapper et al., 2015). Making good financial decisions requires informed financial judgments, leading to a planned financial behavior (Lusardi & Mitchell, 2014).

In India there is a need for extensive research on the financial well-being of Indian Gen Z students, as India constitutes the largest population of Gen Z, with 472 million (Hameed & Mathur, 2020). The study explores the direct and indirect impact of the four factors, viz. financial literacy, financial fragility, financial behavior, and financial technology, on financial well-being. In addition, the study also tries to determine how Gen Z students' financial well-being is influenced by other factors such as gender, age, parental education, employment status, and monthly income in India. The sample includes 271 University students from India, who have a powerful impact on individuals of all ages and financial levels and are truly digital natives.

1. LITERATURE REVIEW

Several theoretical approaches have been found to be highly relevant to explain the concept of financial well-being in this study. Maslow's hierarchy of needs is a motivational theory that explains human needs under five categories such as physiological needs, safety needs, love and belonging needs, esteem needs, and self-actualization needs (Maslow, 1943). According to this theory, a hierarchical order must be followed wherein when a person's basic needs are met, only then they can move on to addressing higher-level demands. The financial well-being of an individual falls under the lowest level need-safety. As per Maslow's hierarchy of needs, an individual's drive to reach higher levels of needs depends on his capacity to meet his personal needs. This sense of financial stability depends on his appropriate management in order to achieve long-term and short-term goals.

Several researchers have studied college students' financial knowledge, behavior, and well-being using consumer socialization theory (Gutter et al., 2010; Shim et al., 2009). Consumer socialization is the process "through which young individuals learn skills, information, and attitudes important to their functioning in the marketplace" (Ward, 1974).

Financial well-being has been identified as a domain of, or way of attaining, overall well-being in various studies (Vlaev & Elliott, 2014; Michael Collins & Urban, 2020). Salignac et al. (2020) redefined and re-conceptualized financial well-being, and studied its components and the associations between them. Lusardi (2019) did an empirical analysis of the factors that can influence financial well-being among millennials and found out that the financial well-being among millennials is lower when compared to older adults from the working class.

Being financially literate is of critical importance during these uncertain times. A larger portion of the population lacks the financial literacy needed to make critically important financial decisions that will benefit in the long run (Braunstein & Welch, 2002). Financially literate people would be in a highly efficient position to make sound financial decisions and protect themselves from economic shocks, ultimately leading to financial well-being (Lusardi & Mitchell, 2014; Perry, 2008). Philippas and Avdoulas (2020) used a sample set of university students from Greece who witnessed the financial crisis to explore the association between financial literacy and financial well-being. Results showed that the financial literacy levels among gender differed, and financially savvy students are more efficient in tackling unexpected financial shocks.

In addition to financial literacy, financial technology has the potential to help people improve their financial capabilities and well-being. Rapid advancements in financial technology highlight the chances of improving financial wellness. Financial technology advances may negatively affect an individual's financial well-being by inducing spontaneous behavior when dealing with financial tools and platforms, leading to making wrong choices (Panos & Wilson, 2020a).

Financial well-being can also be linked to financial fragility or financial distress (Prawitz et al., 2006). Financial fragility is defined as a shortage of reserves to deal with a probable, unplanned expenditure (Brunetti et al., 2016; Lusardi & Mitchell, 2011; Worthington, 2004). Brunetti et al. (2016) evaluated the part played by the structure of the household portfolio by using an SHIW dataset from 1998–2008 and results indicated a significantly negative association between financial distress and financial well-being. Furthermore, financial distress or well-being might affect an individual's propensity to take on financial risk (Gutter et al., 2010).

Shim et al. (2012) investigated the influence of saving and future-oriented financial habits on the wellness of young adults. Financial behavior refers to the actions taken in the areas of spending, saving, investing, cash flow, and credit management (Kautsar et al., 2019). A study on the inter-relationship between financial behaviors and financial well-being of 15,797 college students in the United States demonstrated that diverse socioeconomic characteristics and financial actions significantly affect financial well-being (Gutter et al., 2010). Chan et al. (2012) investigated the relationship between monetary biases, financial management processes, and financial well-being among college students. Results showed that students' views on debt, financial knowledge, and employment are connected to their inclination to involve ineffective financial management practices.

Several studies have provided meaningful insights on the influence of demographic variables on financial well-being (Hofferth, 2006; Kahneman & Krueger, 2006). Marital status, salary, education, age, the number of household dependents and financial knowledge are all determinants that influence the financial well-being of an individual (Joo, 1998). Studies have shown that there is a considerable disparity in financial well-being between male and female investors. Compared to female investors, male investors were more likely to report an average or high financial well-being (Dickason-Koekemoer & Ferreira, 2019; Rutherford & Fox, 2010). Lusardi (2019) found millennial women who were not graduate, single and unemployed exhibited a lower financial well-being level among various age groups. Studies to test the association between financial knowledge, financial behavior and financial attitude towards financial literacy on a sample of 394 working women in Delhi showed that financial attitude and behavior had a significant relationship with financial literacy than financial knowledge among working class women in Delhi (Rai, 2017).

To summarize, while the importance of financial literacy, financial technology, financial fragility and behavior has been demonstrated in numerous studies of financial well-being, the strength of this impact has not been consistently demonstrated across studies of various populations in different economies.

With shrinking employment prospects, unsteady income and the subsequent reduction in the purchasing power, financial well-being is gaining importance in India. The complexities of financial decisions and behavioral biases have posed a danger to people's quality of life, prompting academicians/researchers to look for solutions. Examining financial well-being among students with a focus on the young is an intriguing beginning point. Considering the importance of this generation, it is essential to understand the factors impacting the financial well-being of Gen Z students during the pandemic before devising wellness plans. This study attempts to understand the conceptual model for determining the financial well-being of Gen Z students. Previous research has yielded conflicting results that warrant the need for further research in the area of financial well-being. Hence, this study aims to understand the interplay of financial literacy, financial behavior, financial fragility and financial technology on the financial well-being of Gen Z students in India. It further investigates the impact of demographic characteristics on financial well-being. Based on the literature, the following research hypotheses are proposed:

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H1: Financial literacy is positively related to financial well-being among Gen Z students in India.

H2: Financial technology is positively related to financial well-being among Gen Z students in India.

H3: Financial fragility is negatively related to financial well-being among Gen Z students in India.

H4: Financial behavior is positively related to financial well-being among Gen Z students in India.

H5: Demographic variables significantly influence the financial well-being of Gen Z students in India.

2. METHODOLOGY

The empirical study was conducted using the Partial Least Squares-SEM. The model estimation and hypothesis assessments were done using direct and indirect relationships. The structural equation modeling (SEM) approach was adopted in this study. It can perform factor analysis and regression analysis simultaneously and identify the influence of various actors on financial well-being. Partial least squares (PLS) is a prediction-based SEM method. The use of PLS-SEM makes it easy for researchers to examine complex models with a large number of dimensions, and structural paths without imposing the normal distribution criteria on the data (Hair et al., 2019). The reason for choosing PLS-SEM for this study was due to the absence of distributional assumptions, given the sample size of just over 200. The response gathered was collected in an excel sheet and was analyzed using Smart PLS® version 2.0. For descriptive statistics, IBM SPSS version 25 was used.

2.1. Measurement

2.1.1. Survey instrument

Five dimensions were highlighted in the survey instrument. The demographic, parental, and financial behavior characteristics of the individuals are included in the first dimension. The second dimension focuses on financial behavior. Financial fragility is examined in the third dimension, financial well-being in the fourth, and financial technology in the fifth. A total of 37 multiple choice questions were distributed to the University graduate students.

To study the demographic profile, 18 items on participants' demographic characteristics were considered. Financial behavior consisted of five items adapted from Philippas and Avdoulas (2020). Financial fragility was measured with six items modified and adapted from Lusardi et al. (2011). To measure financial well-being, four items were adopted from Hira and Mugenda (1999a, 1999b) that measured financial satisfaction: saving behavior and present financial condition. Financial literacy involved six items to test the knowledge on the basis of compound interest, inflation, and risk tolerance. These items were taken from the scale validated by international financial literacy surveys in the literature (Klapper et al., 2013; Lusardi & Mitchell, 2006, 2014).

2.1.2. Survey administration and sample

The study employed a descriptive cross-sectional research design to examine the relationships with the

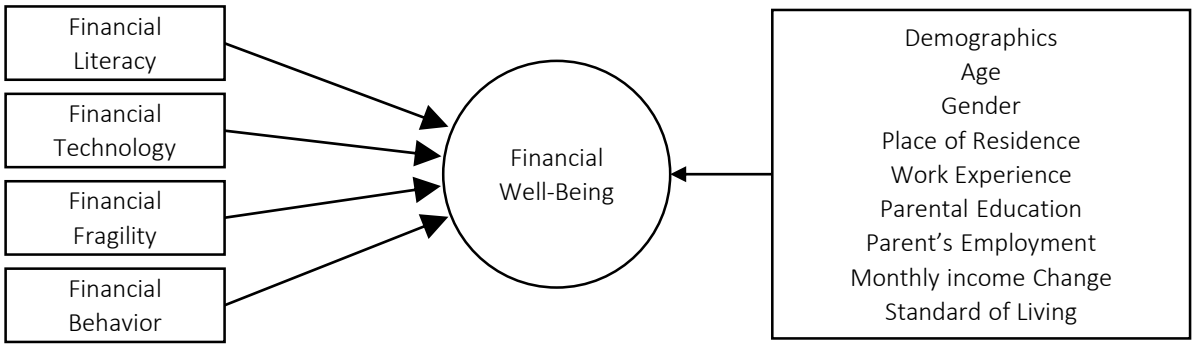

Figure 1. Conceptual model

underlying variables at a particular point of time (Sedgwick, 2014). The goal of a cross-sectional study is to collect a representative sample of the population by taking a cross section of the population. In this study, the population covered 271 Gen Z Post Graduate University students residing in India.

The study surveyed respondents through a self-administered questionnaire and collected the requisite data so as to examine the relationships represented in the hypotheses. The developed questionnaire would consist of five parts. Part 1 is designed to obtain required demographic characteristics, and Parts 2, 3, 4 and 5 are designed to determine the Gen Z students' financial behavior, fragility, financial well-being, financial literacy, and financial technology. Furthermore, a convenience sampling technique was employed in the study. Participation was voluntary and personal information confidentiality was maintained.

3. RESULTS AND DISCUSSION

3.1. Demographic analysis

Demographic details are showcased in Table 1. The demographic profile of 271 respondents is highlighted through this table.

It is observed that about 52% of the respondents are male and the rest are female. Almost half of the respondents are in the 18 to 22-year age group, and about 84% live in urban areas. About 25% have a work experience of 1 to 6 years, whereas the rest are without work experience. About 4% have felt no significant change in their monthly family incomes, about 36% have felt under 20% chance, and the rest have felt more than 20% change. About 53% of the fathers of the students are undergraduates, 25% are postgraduates, 1.5% are doctorates, whereas the rest have basic or no education. About 44% of the mothers of the students are undergraduates, 25% are postgraduates, 2.6% are doctorates, whereas the rest have basic or no education. About 88% of the fathers are employed, while about 31% of the mothers are employed.

As regards financial aspects, about 98% of the respondents hold a bank account, 59% regularly manage their accounts, 84% have not felt a reduction in their standard of living, 42% regularly keep an expense record, 44% save when they have enough money, 39% have investment experience, 60% cover their everyday expenses most of the time, 32% have long-term savings, 93% are concerned about their future, whereas 91% are concerned about their future income.

Table 1. Demographic and financial profile of 271 respondents

Variable	Responses	Frequency	Percentage
Gender	Male	140	51.7
	Female	131	48.3
Age (in years)	18-22	138	50.9
	23-28	133	49.1
Place of Residence	Urban	228	84.1
	Rural	41	15.1
Work Experience (in years)	None	203	74.9
	< 2 Years	42	15.5
	2-4 Years	22	8.1
	4-6 Years	4	1.5
Monthly Income Change	No Change	132	48.7
	Under 20%	97	35.8
	20-50%	38	14.0
	Over 50%	4	1.5
Father's Education	No Education	2	0.7
	Primary School	6	2.2
	Secondary School	16	5.9
	High School	28	10.3
	Undergraduate	144	53.1
	Postgraduate	69	25.5
	Ph.D.	4	1.5

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Table 1 (cont.). Demographic and financial profile of 271 respondents

Variable	Responses	Frequency	Percentage
Mother's Education	No Education	5	1.8
	Primary School	8	3.0
	Secondary School	17	6.3
	High School	47	17.3
	Undergraduate	120	44.3
	Postgraduate	67	24.7
	Ph.D.	7	2.6
Father's Employment	Employed	237	87.5
	Unemployed	30	11.1
Mother's Employment	Employed	84	31.0
	Unemployed	185	68.3
Qualification	Commerce	55	20.3
	Management	35	12.9
	Engineering	51	18.8
	Science	15	5.5
	Arts	8	3.0
	Unspecified	107	39.5
Bank Account Holders	Yes	266	98.2
	No	5	1.8
Manage Account	Regularly	161	59.4
	Sometimes	84	31.0
	Rarely	16	5.9
	Never	10	3.7
Reduction of Standard of Living	No	227	83.8
	Yes	44	16.2
Keep Expenses Record	Regularly	114	42.1
	Sometimes	114	42.1
	Rarely	29	10.7
	Never	14	5.2
Saving	Each month same amount	82	30.3
	When I have enough money	119	43.9
	When I want to buy something	28	10.3
	I don't save	20	7.4
	I don't have money to save	22	8.1
Investment Experience	Yes	105	38.7
	No	166	61.3
Cover Everyday Expenses	Always	71	26.2
	Most of the Time	163	60.1
	Almost Never	26	9.6
	Never	11	4.1
Long Term Savings	Regularly	87	32.1
	Rarely	110	40.6
	Never	23	8.5
	No Money to Save	51	18.8
Concern about your Future	Yes	251	92.6
	No	20	7.4
Concern about your Future Income	Yes	247	91.1
	No	24	8.9

3.2. Tests of association

Various association tests have been conducted using the Chi-square test to see if there is an association between certain pairs of indicators. Table 2 gives the results.

Table 2 shows that at the 5% significance level, there is a significant association between gender and concern about the future income, father's education and concern about the future income, mother's education and long-term savings/concern about the future/future income, father's em-

Table 2. Chi-square tests for financial well-being indicators against demographic and financial indicators

Indicator	Cover Everyday Expenses			Long-Term Savings			Concern about the future			Concern about the future income		
	Value	df	*p*-value	Value	df	*p*-value	Value	df	*p*-value	Value	df	*p*-value
Gender	0.304	3	0.959	7.621*	3	0.055	2.908*	1	0.088	5.744**	1	0.017
Age	1.006	3	0.800	0.568	3	0.904	0.144	1	0.705	0.273	1	0.601
Residence	5.598	3	0.133	7.771*	3	0.051	0.46	1	0.498	0.973	1	0.324
Work Experience	10.789	9	0.290	13.548	9	0.139	6.783*	3	0.079	0.932	3	0.818
Monthly Income Change	12.693	9	0.177	5.622	9	0.777	8.135**	3	0.043	8.394**	3	0.039
Father's Education	12.414	18	0.825	16.736	18	0.541	20.614**	6	0.002	28.622**	6	0.000
Mother's Education	15.02	18	0.661	29.857**	18	0.039	15.051**	6	0.020	54.31**	6	0.000
Father's Employment	6.795*	3	0.079	7.796**	3	0.050	0.033	1	0.856	3.338	1	0.068
Mother's Employment	1.513	3	0.679	1.189	3	0.756	0.39	1	0.532	1.337	1	0.248
Reduction in Standard of Living	1.897	3	0.594	2.721	3	0.437	4.186**	1	0.041	5.104**	1	0.024
Keep Expenses Record	30.765**	9	0.000	15.566**	3	0.001	15.566**	3	0.001	9.442**	3	0.024

Note: ** indicates significance at the 5% level. * indicates significance at the 10% level.

ployment and long-term savings/monthly income change/concern about the future/future income, reduction in standard of living and concern about the future/future income, as well as keeping expenses record and all the financial well-being indicators. At the 10% level of significance, gender has a significant association between long-term savings and concern about the future, place of residence and long-term savings, work experience and concern about the future, as well as father's employment and covering of everyday expenses.

From this preliminary analysis, the following conclusion can be drawn with a 5-10% chance of error in judgment. Students who keep an expense record and students who have employed fathers cover their everyday expenses. Female students, students from urban places of residence, students with educated mothers, and students who keep a record of expenses seem to save for the long term. Female students, students with little/no work experience, students with educated parents, students who sense little or no monthly income change, students who do not sense a reduction in their standard of living, and students who keep a record of expenses are concerned about their future. A similar profile of students as just mentioned, irrespective of work experience record, are concerned about their future income.

3.3. Measurement model

The first step before estimating the structural model is to evaluate and refine the measurement model. For this, the outer loadings of all the pertinent items in the survey were obtained and statistically tested for significance at the 1% level significance using a bootstrapping procedure with 5,000 samples. Indicators with statistically insignificant outer loadings, or those less than about 0.6, were dropped from the analysis as these would not correlate well with the underlying constructs.

Next, to test the construct reliability and validity, the usual measures of internal consistency were calculated. Table 3 displays these various measures of the dimensions.

The composite reliability values for the constructs range between 0.75 and 0.87, indicating acceptable internal consistency reliability (Hair et al., 2019). To assess the convergent validity, which gives the extent to which the construct converges to explain the variance of its items, the average variance (AVE) values were calculated as shown in Table 3. The AVE and communality values are all above 0.5, thus establishing convergent validity (Hair et al., 2019).

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Table 3. Validity and reliability measures of constructs

Construct	AVE	Composite Reliability	R^2	Cronbach's Alpha	Communality	Redundancy Q^2
FL	0.7722	0.8709	–	0.7213	0.7722	–
FT	0.6186	0.8658	0.0535	0.8103	0.6186	0.0246
FF	0.5602	0.7912	0.0065	0.6217	0.5602	0.0018
FB	0.5182	0.7602	0.1334	0.5480	0.5182	0.0575
FW	0.6172	0.7527	0.3550	0.4505	0.6172	0.1758

Table 4. Cross loadings of the indicators

Code	FL	FT	FF	FB	FW
FL2	0.8148	0.1412	–0.0107	0.0510	0.0837
FL3	0.9383	0.2452	–0.0771	0.0877	0.0773
FT4	0.0306	0.6934	–0.0851	0.0506	0.0549
FT1	0.2678	0.8533	–0.0271	0.0988	0.1420
FT2	0.1183	0.7814	–0.0229	0.1284	0.1205
FF2	–0.0512	–0.0979	0.8403	–0.3574	–0.3646
FF3	–0.0708	–0.0521	0.6948	–0.2431	–0.2030
FF4	–0.0066	0.0270	0.7012	–0.1459	–0.2921
FT3	0.1936	0.8093	–0.1079	0.0528	0.0803
FB3	0.1214	0.1665	–0.1112	0.6485	0.3013
FB4	–0.0207	0.0256	–0.4003	0.8479	0.5022
FB5	0.1402	0.0951	–0.1656	0.6442	0.3485
FW1	0.0848	0.0765	–0.0873	0.2449	0.5779
FW2	0.0720	0.1311	–0.4276	0.5520	0.9489

To test the discriminant validity of the constructs, the cross-loadings and latent variable correlations were calculated as given in Tables 4 and 5.

It can be observed that almost all the cross-loadings relevant to any given factor column are around 0.7 or greater. Also, for any given indicator, its loading is greater in the factor column that it is mapped to than in other factors. Table 5 gives the latent variable correlations and square root of the corresponding AVE values in the diagonal.

It is observed from Table 5 that the correlations are less than the square root of the corresponding AVE value. This establishes discriminant validity of the factors.

3.4. Structural model

After having established the measurement model, this study focuses on assessing the structural model. The latent variable correlations for all the independent factors are all less than 0.5 and hence there is no multicollinearity among them. The R^2 values as given in Table 3 indicate the proportion of variation captured for each factor. Particularly, for financial well-being, this is 0.355, which is termed as weak-to-moderate by Hair et al. (2019). Also, the redundancy measures Q^2 are all positive as indicated by Hair et al. (2019). The value of 0.176 corresponding to financial well-being indicates small-to-medium predictive relevance of the PLS-path model.

Table 5. Latent variable correlations and square root of AVE values (diagonal)

Construct	FL	FT	FF	FB	FW
FL	0.8787				
FT	0.2313	0.7865			
FF	–0.0586	–0.0676	0.7485		
FB	0.0829	0.1091	–0.3523	0.7199	
FW	0.0893	0.1371	–0.3935	0.5516	0.7856

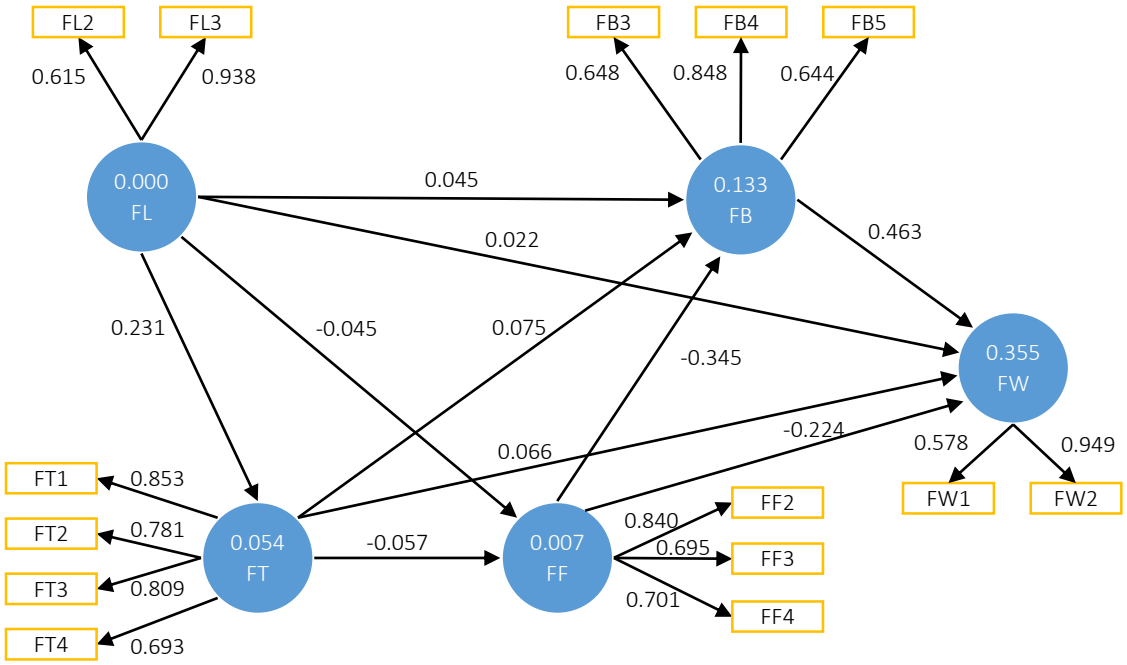

Figure 2. Path coefficients and outer loadings

Table 6. Total effects of the factors

Construct	FT	FF	FB	FW
FL	0.2313	–0.0586	0.0829	0.0893
FT	–	–0.0571	0.0950	0.1230
FF	–	–	–0.3446	–0.3841
FB	–	–	–	0.4635

Figure 2 shows path coefficients and outer loadings for the direct relationship between influencing factors and financial well-being. It may be observed that almost all the outer loadings are around 0.7, which means the underlying indicators correlate well with the factors.

Table 6 gives the total effect values for each of the relationships. The total effect indicates the relative importance of the constructs in the model.

Among the influencing factors for financial well-being, financial behavior seems to play the most important role, followed by financial fragility, technology, and literacy in order. Financial literacy and technology have an equal amount of influence on financial fragility. It is also evident that financial fragility is the most important factor in determining financial behavior.

Figure 3 depicts the estimated PLS-SEM with corresponding t-statistics for each of the indicators and constructs in the model based on a bootstrapping procedure with 5,000 samples.

Table 7 gives the estimates of the path coefficients, the t-statistics, and the corresponding *p*-values. The t-statistics are used to check the accuracy of the estimated path coefficients and indicators. If the *p*-values, corresponding to these t-statistics, are less than 0.001, then the corresponding estimated effects have been accurately estimated at the 0.1% level of significance.

Table 7 shows that financial behavior seems to have a significant positive influence on financial well-being, while financial fragility has a significant negative influence on financial behavior as well as well-being. Whereas financial literacy is a significant positive contributor to the adoption of financial technology products, both of them do not significantly influence financial well-being. That means, even if students are financially literate or are aware of/adopt Financial Technology

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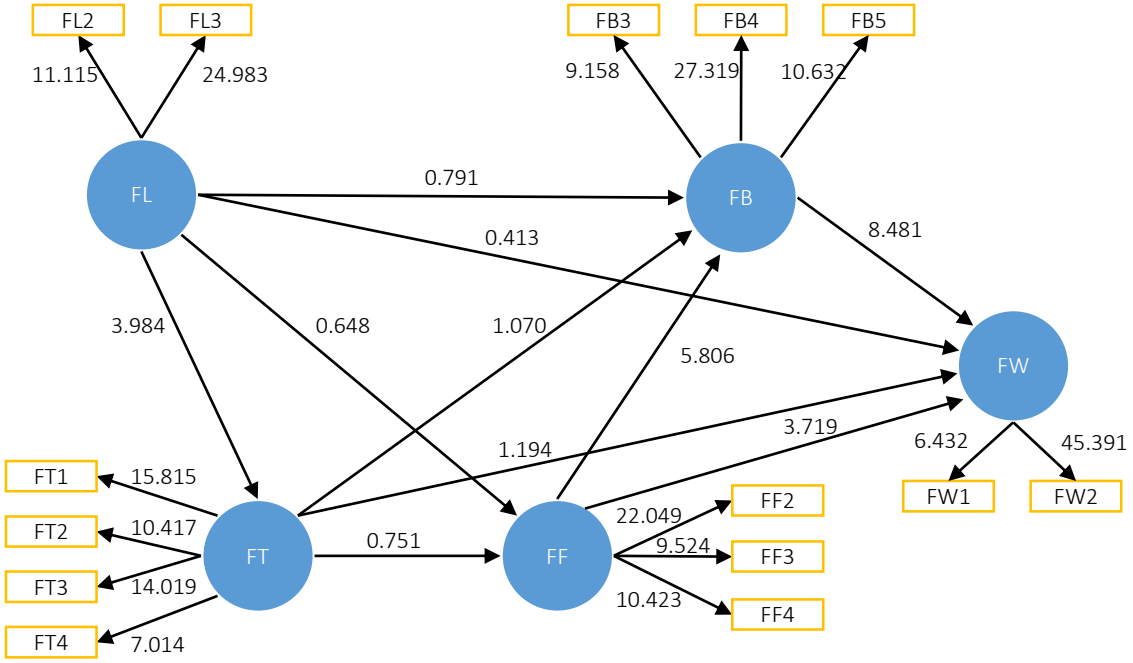

Figure 3. PLS-SEM with *t*-statistics, bootstrapping with 5,000 samples

Table 7. Path coefficients, *t*-statistics and *p*-values of the structural model

Paths	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	*t*-Statistic (|O/STERR|)	*p*-value
FL → FT	0.2313*	0.2377	0.0581	0.0581	3.9836	0.0001
FL → FF	–0.0454	–0.0496	0.0701	0.0701	0.6483	0.5173
FL → FB	0.0453	0.0460	0.0573	0.0573	0.7911	0.4296
FL → FW	0.0224	0.0227	0.0543	0.0543	0.4129	0.6800
FT → FF	–0.0571	–0.0618	0.0760	0.0760	0.7513	0.4531
FT → FB	0.0753	0.0774	0.0704	0.0704	1.0701	0.2855
FT → FW	0.0661	0.0683	0.0554	0.0554	1.1941	0.2335
FF → FB	–0.3446*	–0.3520	0.0594	0.0594	5.8057	0.0000
FF → FW	–0.2244*	–0.2272	0.0603	0.0603	3.7190	0.0002
FB → FW	0.4635*	0.4632	0.0546	0.0546	8.4806	0.0000

Note: * indicates significance at the 0.1% level.

products, that alone does not determine their financial well-being. Lastly, financial literacy does not significantly influence behavior or fragility.

3.5. Mediation analysis

Table 8 gives the specific indirect effects for the relationships involving financial literacy, behavior, fragility, technology, and financial well-being. From Table 8 it is clear that financial behavior successfully mediates between financial fragility and well-being. This mediation is partial because the direct effect between fragility and well-being is significant. It is also noted that financial technology successfully and completely mediates between financial literacy and fragility. All the other mediations dilute the respective direct effects.

Table 8. Specific indirect effects for mediation analysis

Paths	Indirect Effect	Direct Effect
FL → FT → FF	−0.0132**	−0.0454
FL → FT → FB	0.0174	0.0453
FL → FT → FW	0.0153	0.0224
FL → FF → FB	0.0156	0.0453
FL → FF → FW	0.0102	0.0224
FL → FB → FW	0.0210	0.0224
FT → FF → FB	0.0197	0.0753
FT → FF → FW	0.0128	0.0661
FT → FB → FW	0.0349	0.0661
FF → FB → FW	−0.1597**	−0.2244*
FL → FT → FF → FB	0.0046	0.0453
FL → FT → FF → FW	0.0030	0.0224
FL → FT → FB → FW	0.0081	0.0224
FL → FF → FB → FW	0.0073	0.0224
FT → FF → FB → FW	0.0091	0.0661
FL → FT → FF → FB → FW	0.0021	0.0224

Note: * indicates significance of the direct effect at the 0.1% level. ** indicates mediation.

3.6. Demographic analysis

Using the latent variable scores from the PLS-SEM, various sections of the demographic profiles were compared. Figure 4 depicts the distribution of financial literacy scores across genders and age groups.

It is clearly seen from Figure 4 that the average financial well-being scores are negative in the age group of 18-22 years, whereas they are positive in 23-28-year-olds, irrespective of gender. The results of independent samples t-tests for all the five financial dimensions against gender are given in Table 9. Levene's test for equality of variances was

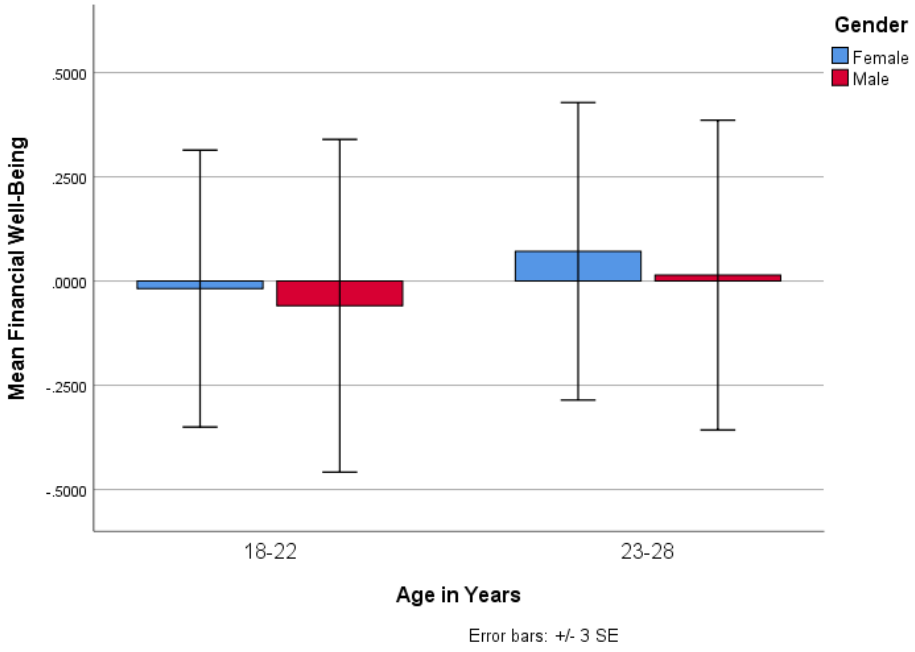

Figure 4. Distribution of financial well-being scores by age and gender

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Table 9. Independent sample *t*-tests for financial well-being and its factors by gender

Construct	Levene's Test for Equality of Variances		*t*-test for Equality of Means						
	F	Sig.	t	df	Sig. (Two-Tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Financial Literacy	3.63	0.06	–1.93	261.38	0.05	–0.24*	0.12	–0.47	0.00
Financial Technology	1.56	0.21	1.03	269	0.30	0.13	0.12	–0.11	0.37
Financial Fragility	4.07	0.04	–0.72	266.49	0.47	–0.09	0.12	–0.33	0.15
Financial Behavior	0.00	0.95	0.43	269	0.67	0.05	0.12	–0.19	0.29
Financial Well-Being	3.45	0.06	0.32	267.47	0.75	0.04	0.12	–0.20	0.28

Note: * indicates significance at the 5% level.

first performed, and based on its statistical conclusion, the corresponding t-test assumed equal or unequal variances.

From Table 9, the t-tests conclude that there is a significant difference between financial literacy scores of male and female students. The mean difference being negative implies that female students have statistically lower financial literacy scores than males. However, the other dimensions, including financial well-being, are not significantly different for the two genders.

Next, the five model factors were tested for significance across the two age groups covered by the study, namely, the 18-22 versus the 23-28-year-old students. Table 10 shows the results from independent samples t-tests. As before, the Levene's test results were used as the basis for deciding whether to assume equal variances or not.

It is apparent from the *p*-values in Table 10 that there is no significant difference between the two sets of factor scores for the two age groups at the 5% level of significance, whereas financial fragility seems to be marginally significant at the 10% level of significance.

Figure 5 illustrates the distribution of financial well-being scores over varying levels of work experience, as well as the comparison by place of residence (rural/urban).

Figure 5 brings out the fact that financial well-being scores are negative for students from a rural place of residence for almost all the work experience levels (except 2-4 years), whereas the scores improved for the urban students as their work experience increased. The differences for the five factors were statistically tested as explained below.

To compare students from a rural versus urban background, independent samples t-tests were performed on each of the factor scores. Table 11 gives the results of the comparison. Levene's test for equality of variances was first performed, and

Table 10. Independent sample *t*-tests for financial well-being and its factors by age

Construct	Levene's Test for Equality of Variances		*t*-Test for Equality of Means						
	F	Sig.	t	df	Sig. (Two-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Financial Literacy	0.80	0.37	–0.95	269	0.34	–0.12	0.12	–0.36	0.12
Financial Technology	0.10	0.76	–1.20	269	0.23	–0.15	0.12	–0.38	0.09
Financial Fragility	0.89	0.35	1.64	269	0.10	0.20*	0.12	–0.04	0.44
Financial Behavior	0.01	0.91	–1.31	269	0.19	–0.16	0.12	–0.40	0.08
Financial Well-Being	0.01	0.91	–0.62	269	0.54	–0.08	0.12	–0.32	0.16

Note: * indicates significance at the 10% level.

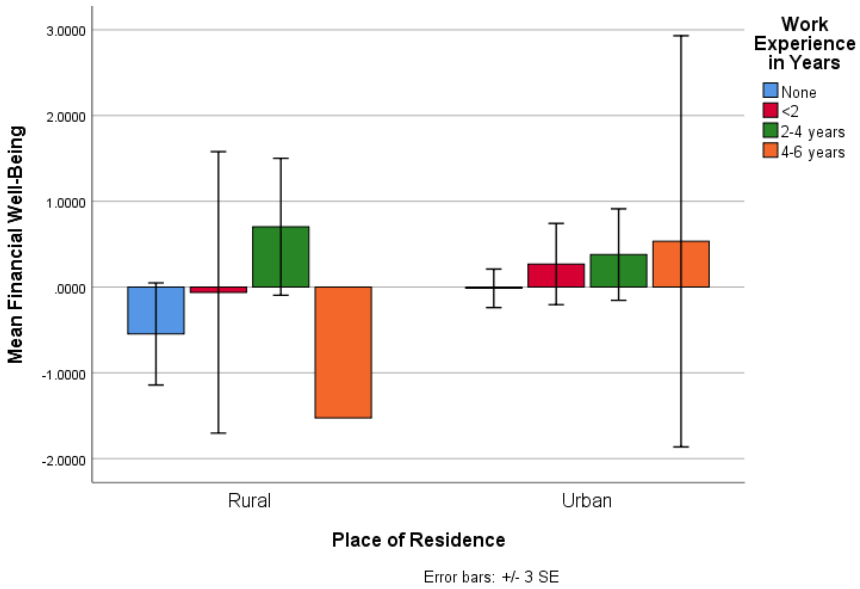

Figure 5. Distribution of financial well-being scores by place of residence and work experience

based on its statistical conclusion, the corresponding t-test assumed equal or unequal variances.

Table 11 reveals that financial literacy and fragility scores are similar irrespective of whether the students come from an urban or a rural background. Financial technology and behavior scores are statistically different at the 10% level of significance, whereas financial well-being is statistically different at the 2% level of significance.

The latent variable scores were first compared across various groups of work experience. A one-way ANOVA of the scores revealed the results given in Table 12.

It is clear from Table 12 that financial literacy scores are not significantly different across various work experience groups, and financial technology scores are only marginally significant at the 10% level. However, financial fragility, behavior and well-being scores certainly differ across the groups. Fisher's LSD tests bring out the fact that differences are statistically significant when it comes to students with no or little work experience. A major transition in the factor scores seems to take place at 2 years of work experience.

Table 13 gives the results of a one-way ANOVA to compare the average factor scores across varying levels of a student's father's education.

It can be observed from Table 13 that none of the five financial dimensions are statistically significant at the 5% level of significance.

Next, a one-way ANOVA was performed to compare the average factor scores across varying levels

Table 11. Independent samples *t*-test on factors versus place of residence

Construct	Levene's Test for Equality of Variances		*t*-test for Equality of Means						
	F	Sig.	t	df	Sig. (Two-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Financial Literacy	0.99	0.32	0.07	267	0.95	0.01	0.17	−0.33	0.35
Financial Technology	0.39	0.53	−1.70	267	0.09	−0.29*	0.17	−0.62	0.05
Financial Fragility	6.40	0.01	1.43	49.49	0.16	0.28	0.20	−0.11	0.68
Financial Behavior	0.02	0.88	−1.67	267	0.10	−0.28*	0.17	−0.62	0.05
Financial Well-Being	5.91	0.02	−2.45	51.16	0.02	−0.46**	0.19	−0.84	−0.08

Note: * indicates significance at the 10% level. ** indicates significance at the 2% level.

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Table 12. One-way ANOVA for each factor across work experience

Construct	Sum of Squares	df	Mean Square	F	Sig.	Fisher's LSD Significant Pairs
Financial Literacy	5.460	3	1.820	1.830	0.142	–
Financial Technology	6.211*	3	2.070	2.088	0.102	–
Financial Fragility	12.273**	3	4.091	4.222	0.006	None → 2-4 years
						< 2 years → 2-4 years
Financial Behavior	9.351**	3	3.117	3.181	0.024	None → 2-4 years
						< 2 years → 2-4 years
Financial Well-Being	8.246**	3	2.749	2.793	0.041	None → < 2 years
						None → 2-4 years

Note: * indicates significance at the 10% level. ** indicates significance at the 5% level.

Table 13. One-way ANOVA for each factor across father's education

Construct	Sum of Squares	Df	Mean Square	F	Sig.
Financial Literacy	8.750	6	1.458	1.462	0.191
Financial Technology	3.472	6	0.579	0.568	0.756
Financial Fragility	9.008	6	1.501	1.520	0.172
Financial Behavior	8.484	6	1.414	1.423	0.206
Financial Well-Being	5.125	6	0.854	0.847	0.535

of a student's mother's education. Table 14 shows the results.

Table 14 illustrates that average financial behavior and well-being scores are statistically significant across varying levels of the mother's education at the 5% level of significance. Financial technology scores are also significantly different but at the 10% level of significance. However, financial literacy and fragility scores do not significantly vary with mother's education. Fisher's LSD test indicates that the respective factor scores increase for financial behavior and well-being as the level of education of the mother increases.

There were groups of students that felt a reduction in the standard of their living over time, and also those that kept expenses record either regularly, sometimes, rarely or never. Figure 6 shows the distribution of financial well-being across these groups.

Figure 6 interestingly throws up a pronounced pattern where students who felt a reduction in the standard of living and never or rarely kept expenses records, had significantly negative financial well-being scores. These groups were tested statistically, and the results are elucidated below.

The factor scores were compared between the group which felt a reduction in the standard of living and the one that did not. Table 15 has the results.

It can be observed from Table 15 that there is no significant difference between the two groups at even the 10% level of significance.

Table 14. One-way ANOVA for each factor across mother's education

Construct	Sum of Squares	df	Mean Square	F	Sig.	Fisher's LSD Significant Pairs
Financial Literacy	6.842	6	1.140	1.140	0.340	–
Financial Technology	10.714*	6	1.786	1.811	0.097	–
Financial Fragility	7.029	6	1.172	1.172	0.322	–
Financial Behavior	14.588**	6	2.431	2.503	0.023	No education → (All others)
						Primary school → Secondary school/Ph.D.
Financial Well-Being	13.089**	6	2.181	2.233	0.040	No education → (All others)
						Secondary/High school → Ph.D.
						Under graduate → Post graduate/Ph.D.

Note: * indicates significance at the 10% level. ** indicates significance at the 5% level.

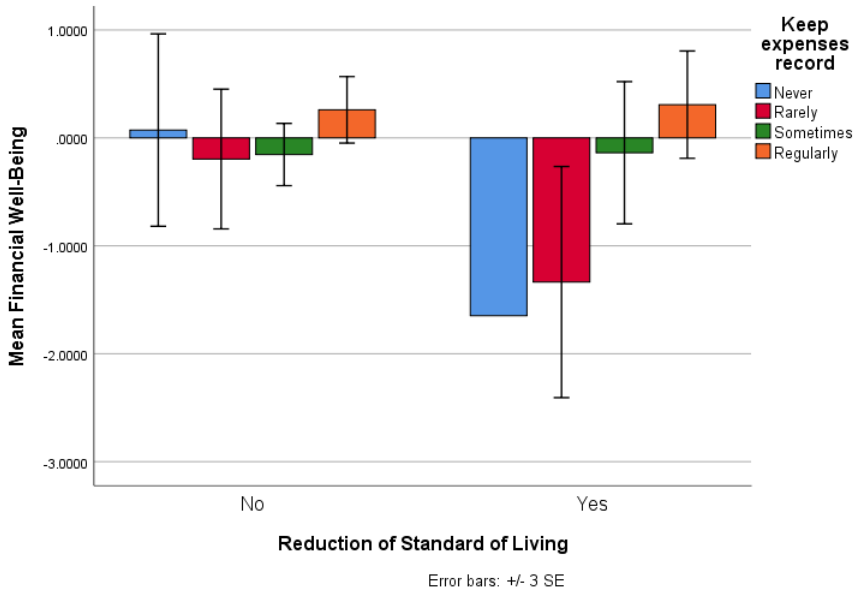

Figure 6. Distribution of financial well-being scores for students who felt a reduction of standard of living and kept expenses record versus those who did not

Table 15. Independent samples *t*-tests for the factors by reduction in standard of living

Construct	Levene's Test for Equality of Variances		*t*-Test for Equality of Means						
	F	Sig.	t	df	Sig. (Two-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Financial Literacy	0.60	0.44	0.53	269	0.59	0.09	0.17	−0.24	0.41
Financial Technology	0.08	0.77	−1.03	269	0.30	−0.17	0.17	−0.49	0.15
Financial Fragility	0.60	0.44	−0.08	269	0.93	−0.01	0.17	−0.34	0.31
Financial Behavior	0.04	0.85	−0.14	269	0.89	−0.02	0.17	−0.35	0.30
Financial Well-Being	0.40	0.53	1.18	269	0.24	0.19	0.16	−0.13	0.52

Table 16. One-way ANOVA across students who kept expense records never/rarely/sometimes/regularly

Construct	Sum of Squares	df	Mean Square	F	Sig.	Fisher's LSD Significant Pairs
Financial Literacy	5.852	3	1.951	1.964	0.120	–
Financial Technology	1.014	3	0.338	0.334	0.801	–
Financial Fragility	11.213*	3	3.738	3.841	0.010	Rarely → Regularly
						Sometimes → Regularly
Financial Behavior	30.795**	3	10.265	11.410	0.000	Never → Sometimes/Regularly
						Rarely → Sometimes/Regularly
						Sometimes → Regularly
Financial Well-Being	16.166**	3	5.389	5.646	0.001	Rarely → Regularly
						Sometimes → Regularly

Note: * indicates significance at the 1% level. ** indicates significance at the 0.1% level.

A one-way ANOVA was performed to compare the various groups where the students kept expense records regularly, sometimes, rarely, or never. Table 16 gives the results.

Table 16 indicates that financial fragility, behavior and well-being scores are statistically significant across the four groups, whereas financial literacy and financial technology is not significant. Fisher's

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Table 17. Hypothesis testing

Hypothesis	Result
H1: Financial literacy is positively related to financial well-being among Gen Z students in India	Supported
H2: Financial technology is positively related to financial well-being among Gen Z students in India	Not supported
H3: Financial fragility is negatively related to financial well-being among Gen Z students in India	Supported
H4: Financial behavior is positively related to financial well-being among Gen Z students in India	Not supported
H5: Demographic variables significantly influence the financial well-being of Gen Z students in India	Supported

LSD tests reveal the specific pairs that have different scores as listed in the last column of Table 16. It is apparent that there is definitely a difference between students who kept expenses records regularly as against those who did not.

3.7. Hypothesis testing results

Based on the hypothesis test results in Table 17, the paper evaluated relationships between various factors. The results reveal that financial literacy does not have a significant relationship with financial well-being, thus, *H1* is not supported. This result has gone against the findings by Lusardi (2019) who identified a significant and positive association with financial well-being. Also, the result of financial literacy does not support Philippas and Avdoulas (2020) findings that financially literate students are equipped to deal with unplanned financial shocks. In addition, the results also indicate an insignificant relationship between financial technology and financial well-being, which goes against the findings by Panos and Wilson (2020a) who identified a negative effect between financial technology and financial well-being. The result further support Panos and Wilson's (2020b) finding that financial technology supports financial literacy by promoting the next generation of financial tools. It is also noted that financial technology successfully and completely mediates between financial literacy and fragility.

The study indicates that financial fragility has a negative and significant relationship with financial well-being, which is in line with Prawitz et al. (2006), thus, *H3* is supported. Further, the results of hypothesis testing proved that financial behavior and financial well-being have a positive and significant relationship thereby supporting *H4*. The results were found to be in line with the findings of Gutter et al. (2010). The results further revealed that financial behavior partially mediated between financial fragility and financial well-being as the direct path was significant.

The results of the hypothesis testing with regard to demographic variables influencing financial well-being is in line with the results by Kahneman and Krueger (2006), who provided meaningful insights on the influence of demographic variables on financial well-being; thus, *H5* is supported. Also, Chi-square test was performed, and a significant association was found between demographic variables and financial well-being.

CONCLUSION

The main purpose of this study was to find out the factors that are important for determining the financial well-being among Gen Z students. The results reveal that financial well-being is significantly and positively influenced by financial behavior, while financial fragility has a negatively significant association. However, financial literacy and financial technology has an insignificant relationship with financial well-being. The results also show that financial well-being is significantly influenced by gender, parental education, employment status, and monthly income change. Financial behavior of students was identified to be confined to financial management tasks such as consumption and savings. Furthermore, the research identified that financial behavior also mediates between financial fragility and financial well-being. Thus, building a good financial behavior will lead to lesser financial stress and better financial management of funds during financial crisis. An understanding the Indian Gen Z students financial well- being will enable Governments to initiate financial planning programs as the first step towards sound financial well-being. The results of the study will aid financial institutions and investment

management companies to better target and service this market segment through appropriate financial and product awareness. Finally, the Gen Z can expand their understanding about the importance of meeting contingent financial situations and addressing challenges like debt distress, reduced quality of life, and future reductions in pensions, so that they may become informed and aware about organizing finances more successfully and efficiently.

The study has been done for Gen Z, which may not be applicable to Gen Y who constitute a larger investment base or older generations who contribute more to the savings. So, a comparative study on the financial well-being of different age groups would lead to interesting conclusions. Future studies could also be done on the moderating and mediating effects of different variables such as financial literacy, financial behavior, financial attitudes, and financial well-being, which may open up more interesting information and results that could enable government, educational institutions, financial institutions and society to create a conducive financial environment.

AUTHOR CONTRIBUTIONS

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Software: Smitha Vinod, Rajashree Kamath.
Supervision: Nisha Shankar.
Validation: Smitha Vinod, Rajashree Kamath.
Visualization: Rajashree Kamath.
Writing – original draft: Nisha Shankar.
Writing – review & editing: Nisha Shankar, Smitha Vinod, Rajashree Kamath.

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