

FINANCIAL LITERACY LEADS TO RETIREMENT FINANCIAL PLANNING: A STRUCTURAL EQUATION MODELLING APPROACH

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Abstract *The present article examines (i) the dimensions of financial literacy and (ii) financial literacy as a second-order (higher order) factor measuring retirement financial planning of working individuals in the city of Delhi. The study incorporated cross-sectional data of working individuals (N = 538) from different public/private sector organisations in Delhi & NCR. For data collection, a well-designed online questionnaire was framed on a five-point Likert scale and data were analysed using the AMOS (version 20) software using structural equation modelling approach (SEM). The results of the study showcased that when dimensions of financial literacy modelled directly with retirement financial planning (RFP), only financial knowledge, financial behaviour, and financial attitude are significantly associated with RFP, whereas financial awareness is not found to be associated in a significant manner. However, when financial literacy modelled as a second-order (higher order) factor with RFP, the results showed a significant association with RFP. Thus, financial literacy as a second order is the preferred model.*

Keywords: *Financial Literacy, Financial Awareness, Financial Behaviour, Retirement Financial Planning, Financial Knowledge*

INTRODUCTION

The concept of financial literacy (FL) is gaining increasing attention from policy makers, financial institutions, and individuals (Yoong, See & Baronovich, 2012; BassaScheresberg, 2013), due to increased digital payment systems. Anthes (2004) defined financial literacy as the capacity of an individual to recite, manage, communicate, and analyse a person's financial position that may influence the financial well-being of the individual. Thus, financial literacy of individuals can be measured through the understanding power of their financial knowledge, financial awareness, monetary attitude, and financial behaviour (Lusardi & Mitchell, 2007a & b). The role of financial literacy in the decision-making process is quite important, as it curtails the chance of being deceived in the process of making investment decisions (Braunstein & Welch, 2002). In many research studies, it has been observed that people who have a high level of retirement savings are generally high on the level of literacy, in terms of financial knowledge or information. It means there exists a positive association between financial literacy level and financial planning (Howlett, Kees & Kemp, 2008; Van Rooij, Lusardi & Alessi, 2011; Palaci, Jiménez & Topa, 2017; Heuberger, Kasman & Hammond, 2018). Efficient financial planning for retirement

is a need of ours for a happy and confident retired life. In order to understand the retirement process and to gain a sense of control over the future, thinking about retirement is required in advance (Kapoor, Dlabay & Hughes, 1994). Teusta (2016) and Annink, Gorgievski and Den (2016) have observed that in many developed countries, the current pension support system is not adequate and the government is transferring this responsibility to individuals. The reasons behind inadequate retirement financial planning are lack of financial knowledge, financial risk factor, financial literacy, health issues (Topa, Lunceford & Boyatzis, 2018), attitude towards savings (Dulebohn & Murray, 2008), changing demographics (Savador, 2012), and lower mortality rates (Tengku Aizan, 2015). Government and financial institutions in India have designed many retirement financial planning (RFP) policies that accumulate savings into investments to cover the requirements of a post-retirement life.

Due to the increasing importance of retirement financial planning, the present study places emphasis on the dimensions of financial literacy that influence retirement financial planning. In the present study, the authors have tried to propose a model for retirement financial planning (RFP). The present article examines (i) the dimensions of financial literacy and (ii) financial literacy as a second-order (higher order) factor measuring retirement financial planning of working individuals in the city of Delhi.

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LITERATURE REVIEW

Dimensions of Financial Literacy

Financial Knowledge (FK)

Lawson and Hershey (2005), through their research, stated that for predicting retirement saving practices of the individuals, financial knowledge is a significant variable. Setyawati and Suroso (2016) stated that socio-economic characteristics influence the financial knowledge of the individual. Lusardi and Mitchell (2009) and Hershey et al. (2010) also stated that financial knowledge is absolutely connected to retirement savings, along with the planning process. Kadoya and Khan (2016) stated that age, education, and balance of financial assets are positively related to financial knowledge, while employment status is negatively related to the variable. They also concluded that men are better at attaining financial knowledge compared to women. Mahapatra, Raveendran and De (2019), in their study, narrated that financial knowledge helps in strengthening the mental accounting of an individual, which in turn will influence the financial planning done by the person. They also suggested that banks must work in building financial knowledge, which will improve the financial planning process of the individuals. Alessie, Rooij and Lusardi (2011), by studying the population of Netherlands both pre- and post-financial crises, concluded that retirement planning is boosted by financial knowledge in a significant manner. Howlett, Kees and Kemp (2008) stated that a patron holding good financial knowledge and good future orientation has a tendency to participate in retirement plans.

H1: There is a substantial association between the level of financial knowledge and retirement planning.

Financial Behaviour (FB)

Potrich, Vieira and Mendes-Da-Silva (2016) stated that financial behaviour of an individual is influenced by financial knowledge and financial attitude in a positive manner. Further, they stated that monetary behaviour is seriously prejudiced by the level of questions on financial knowledge. Kadoya and Khan (2016) stated that women are good at financial behaviour compared to men. Ibrahim, Isa and Ali (2012), through their study in Malaysia, narrated that positive financial behaviour is of utmost importance in planning finances during retirement. Financial behaviour is positively related to retirement planning. Ntalianis and Wise (2011) stated that high level of education or awareness about financial programmes will positively influence the financial

saving behaviour of the individual. Joo and Pauwels (2002) concluded that financial behaviour is of utmost importance in defining the level of confidence among both men and women.

H2: There exists a noteworthy association between financial behaviour and the level of retirement planning.

Financial Attitude (FAT)

Yap, Komalasari and Hadiansah (2018) stated that financial attitude is a vital element in defining the financial management behaviour. Kenayathulla and Siraj (2018), through their research in Malaysia, stated that financial attitude significantly contributes in influencing retirement financial planning. Mahapatra, Raveendran and De (2019), in their study, narrated that financial attitude helps in strengthening the mental accounting of an individual, which in turn will influence the financial planning done by the person. Sabri & Juen (2014) narrated that saving behaviour is a substantial forecaster of retirement planning involving financial aspects. Joo and Pauwels (2002) concluded that financial attitude is one element in fixing the level of retirement confidence among the individuals.

H3: There is a substantial association between financial attitude and the level of retirement planning.

Financial Awareness (FAW)

Ibrahim, Isa and Ali (2012), through their study in Malaysia, stated that mindfulness on status of retirement savings is crucial and an important variable for the retirement planning mechanism. Ntalianis and Wise (2011) and Clark and Mcdermed (2003) stated that good exposure to financial education or awareness level will positively influence the retirement financial planning of the individual. Nga, Yong and Sellappan (2010) stated that men exhibit more financial awareness compared to women.

H4: There is a significant association between financial awareness and retirement planning.

Financial Literacy Leads to Retirement Financial Planning Activity

Lusardi and Mitchell (2011), in their working paper, stated that financial literacy is essential for a good level of retirement planning. They narrated that individuals who have a large score on the measurement scale used for ensuring financial literacy concepts are better at planning for their retirement, compared to those who are not good at financial concepts. It is essential for the poorly vulnerable people

of the society. Prast and Soest (2016) stated that financial literacy is a momentous element for influencing quality of the pension and retirement decisions. Financial education provided to the individuals will improve financial knowledge, which in turn will improve the retirement decisions. Kadoya and Khan (2016), through their study, stated that gender, age, education, income, balance of financial assets, and use of financial information is positively related to financial literacy, while factors like employment status and experience of financial trouble is significantly negatively related to financial literacy of the individual. Surendar and Sarma (2018), through their research on teachers, stated that financial literacy is meaningfully connected to the financial planning done by the individuals. They stated that to have good financial planning, a higher level of financial literacy is essential. Selvadurai, Kenayathulla and Siraj (2018), through their research in Malaysia, stated that financial literacy, along with demographic variables, are essential for retirement financial planning. In addition, they observed that various psychological factors like monetary goal setting affects the literacy level of the individual, which in turn will affect the financial retirement planning. Kumar, Tomar and Verma (2019), through their research work, commented that factors like financial literacy, socio-demographic factors, economic forces, and so on, are significant elements of financial planning done by women for retirement. Agnew, Bateman and Thorp (2012) conducted a survey on nearly 1,024 Australians and concluded through their study that financial literacy is connected to the planning for retirement in a positive manner. Githui and Ngare (2014) concluded that financial literacy is really linked with retirement planning in a positive way. They also recommended that there is a need to invest in financial literacy programmes to enlighten people about retirement financial planning. Alessie, Rooij and Lusardi (2011), by studying the population of Netherlands both pre- and post-financial crises, concluded that there is an unplanned connection between the extent of knowledge of financial concepts and planning for retirement. Sabri and Juen (2014) stated that concepts like confidence at the time of retirement and level of financial literacy are linked to each other in a positive manner, and numerous factors like financial literacy, saving behaviour, and financial status are vital for predicting retirement planning.

H5: There is a significant association between financial literacy and retirement planning.

RESEARCH OBJECTIVES

On the basis of the previous work done by different researchers, the dimensions of financial literacy have been

defined using a modified scale. If all the dimensions are valid and reliable in measuring financial literacy, it may lead to retirement financial planning of working individuals. To test the proposed model, the following two models have been framed.

Model 1: This model tests the correlation/first-order CFA between level of financial literacy (FL) and retirement financial planning (RFP). If the assessment model gives positive results, then it could be applied to check the consequence of financial literacy on retirement financial planning.

Model 2: Financial literacy leads to retirement financial planning, i.e., application of second-order CFA. If the assessment model gives positive results, then the domain of financial literacy could be utilised by strategy makers for chalking out efficient retirement financial planning policies.

The main intent of this study was to determine the applicability of financial literacy on retirement financial planning among employed individuals. This was achieved by examining the reliability, validity, and component structures of the dimensions of financial literacy and their connection with retirement financial planning.

METHODOLOGICAL FRAMEWORK

Research Design and the Sample

To quantify the dimensions of financial literacy and their association with retirement financial planning, the current study was undertaken by involving office-going individuals in the city of Delhi, India. The present study is based on descriptive research design, where a structured online questionnaire based on a standardised scale was distributed among working individuals in Delhi for collecting the data. A convenience method of non-probability sampling approach was used for a sample size of 538 employees in Delhi, with different age groups, incomes, occupations, and gender. For the data collection, respondents from both public and private organisations, with different designations, working on a regular, contractual, or permanent basis were selected. Approximately, 637 questionnaires were distributed to different employees; however, for the final analysis, only 538 questionnaires were useful, after deleting incomplete records. Table 1 contains the demographic profile of respondents gathered for executing the study.

Table 1: Demographic Details of the Respondents

Demographic	N	%
Education		
Intermediate	123	22.86%
Graduate	145	26.95%
Post-graduate	186	34.57%
Other	84	15.61%
Gender		
Male	282	52.41%
Female	256	47.58%
Age		
Between 20-30	105	19.51%
30-40 years	221	41.07%
40-50 years	149	27.69%
Above 50 years	63	11.71%
Income (Per annum)		
Between 2-5 lakhs	112	20.81%
5-10 lakhs	206	38.28%
10-15 lakhs	129	23.97%
Above 15 lakhs	91	16.91%
Type of Organisation		
Public	218	40.52%
Private	320	59.47%
Nature of Work		
Contractual	154	28.62%
Regular	217	40.33%
Permanent	167	31.04%

Research Instruments

The present descriptive study relied on primary data collected with the help of a well-designed questionnaire, which was circulated online. Five different scales have been identified for both the dependent and independent variables.

- Dependent variable, i.e. retirement financial planning activity, has been analysed using a well-structured multi-dimensional survey questionnaire. This scale includes eight sets of modified questions adopted by Hershey, Jacobs-Lawson, McArdle and Hamagami (2007) and Noone, Stephens and Alpass (2010). Out of these eight questions, only four were found to be useful during data analysis as per their regression weights.
- Financial knowledge is an imperative aspect of the term financial literacy, for which the scale adopted by Oanea and Dornean (2012) and Hasler and Lusardi (2017) was used. In framing the questions, small modifications have been made due to the different levels of the respondents. The survey questionnaire included eight questions on a Likert scale, using a 5-point basis, ranging from strongly agree to strongly disagree. Questions related to risk and returns,

savings, investments, insurance, financial numeracy, borrowings, and so on were included in the designed questionnaire used in the study to measure financial knowledge.

- The scale designed by OECD (2015) and Shockey (2002) is used for measuring financial behaviour, which is a dimension of financial literacy. The instrument comprised of eight questions. The survey questionnaire included questions related to financial planning behaviour, invoice and mortgage repayment behaviour, savings behaviour, accountable investment behaviour, and so on.
- Financial attitude of respondents was measured using a scale developed by Shockey (2002) and OECD (2013). The questionnaire included 8 questions. The instrument consisted of questions related to financial stress handling, financial planning attitude, risk attitude, satisfaction with financial situation, and so on.
- Financial awareness is also an important dimension of financial literacy, which was accounted for by the use of a scale developed by Dam and Hotwani (2018). The questionnaire included eight questions. To quantify financial awareness, questions related to awareness of benefits of investment planning and awareness of basic financial concepts/products and mutual funds were included in the survey instrument.

Confirmatory Sample

For determining the measurement model, confirmatory factor analysis (CFA) was performed on the sample (n = 538) data using the AMOS (version 20) software. In total, 637 responses were summarised into SPSS version 18 for filtration and processing of data, wherein 538 responses were found useable for further analysis. First-order CFA was conducted to measure the correlation among all the factors, which resulted in an acceptable fit, with Chi-square = 511, df = 199, CMIN/df = 2.56, $p < .05$, goodness-of-fit index (GFI) = .92, comparative fit index (CFI) = .95, and Tucker-Lewis index (TLI) = .95; badness-of-fit indicated the results as root mean square error of approximation (RMSEA) = .054 and standardised root mean square residual (SRMR) = .039. The results are presented in Table 2.

Construct Validity and Reliability

All the factors were found reliable and valid during confirmatory factor analysis, as displayed in Table 2. The standardised factor loadings for all the statements used in the research are more than the suggested threshold of .70 (Hair et al., 2006) and AVE > .50, demonstrating strong indicator reliability. The convergent validity was also proved by t-values, which is more than 2.57 (Netemeyer et al., 2003) for

all the factor loadings; average variances extracted (AVEs) > .50 for all constructs. The square root of the AVE for each factor, which shows the discriminant validity, is more than its correlations with other factors (Fornell & Larcker, 1981) and maximum shared variance (MSV) is less than AVE, as presented in Table 3. Overall, different statistical tests specify that the dimension scales were valid and consistent for the latent constructs.

Table 2: Summary of Confirmatory Factor Analysis

Variables	Label	SL	R2	TV	CR	AVE	SMC
FK (Financial Knowledge)	FK1	.88	.77	17.67			.77
	FK2	.90	.81	18.01			.81
	FK3	.86	.74	17.38			.73
	FK4	.67	.44	N/A	.89	.69	.44
FB (Financial Behaviour)	FB1	.64	.41	15.57			.40
	FB2	.78	.60	20.38			.61
	FB3	.82	.67	21.38			.66
	FB4	.81	.65	21.22			.65
	FB5	.82	.67	N/A	.88	.60	.67
FAT (Financial Attitude)	FAT1	.85	.72	13.90			.73
	FAT2	.82	.67	13.59			.67
	FAT3	.81	.65	13.42			.64
	FAT4	.57	.32	N/A	.85	.59	.33
FAW (Financial Awareness)	FAW1	.79	.62	19.74			.62
	FAW2	.81	.65	20.43			.65
	FAW3	.80	.64	20.13			.64
	FAW4	.79	.62	N/A			.62
	FAW5	.74	.54	18.34	.89	.61	.55
RFP (Retirement Financial Planning)	RFP1	.81	.65	N/A			.65
	RFP2	.85	.72	20.54			.72
	RFP3	.71	.50	17.02			.50
	RFP4	.71	.50	17.01	.85	.59	.50

Note: Chi-square = 511; (p < .05, df = 199); CMIN/df = 2.56; goodness-of-fit index = .92; comparative fit index = .95; Tucker-Lewis index = .95; root mean square error of approximation = .054; standardised root mean square residual = .039; SL = Standardised Factor Loading; TV = t-value; CR = composite reliability; AVE = average variance extracted; SMC = squared multiple correlation; N/A = not applicable.

Table 3: Discriminant Validity Analysis from CFA

	AVE	MSV	ASV	FK	FAW	FAT	FB	RFP
FK	0.691	0.454	0.321	0.832				
FAW	0.622	0.462	0.389	0.674	0.789			
FAT	0.596	0.462	0.345	0.506	0.680	0.772		
FB	0.604	0.438	0.368	0.610	0.662	0.651	0.777	
RFP	0.598	0.239	0.219	0.447	0.447	0.489	0.486	0.774

Note: For discriminant validity, AVE > MSV and AVE > ASV; all the boldfaced values, which are the square roots of AVE for each factor, are more than their correlations with other factors.

Testing the Influence of the Level of Financial Literacy on the Retirement Financial Planning Activity

In the path analysis, first-order CFA was conducted from each of the four factors (FK, FAW, FAT, and FB) to RFP. The results indicated that when the dimensions of FL modelled straight to RFP, two of the four parameters (FB and FAW) were not substantial, as p > 0.05, supporting the second-order model to predict RFP (see Fig. 1). The path analysis results have been shown in Table 4, which indicates the critical ratio test and regression weight that signifies only FK (.04, p < 0.05) and FAT (***, p < 0.05) have a relationship with RFP of the working individuals in the Delhi region.

Before running second-order model, the discriminant validity analysis between FL and RFP in first-order revealed the positive results for second-order, where AVE (FL = .63) > MSV (.336) and AVE (RFP = .59) > MSV (.336) (see Fig. 2).

To assess the extent of predictive validity of financial literacy (FL), the researcher ran the second-order CFA to estimate a structural model in AMOS, with a path framed from FL to RFP (see Fig. 3). The model fit indices of the analysis indicated that the model is reasonably fit for FL to RFP (n = 538; Chi-square = 536, df = 204, CMIN/df = 2.63, p < .05, GFI = .91, CFI = .95, TLI = .94, RMSEA = .055, and SRMR = .042). The results indicated that financial literacy (FL) is a noteworthy forecaster of RFP (b = .58, t = 9.54, p < .001), explaining 34% (R²) of the variance in RFP of working individuals. The path analysis results have been shown in Table 5, which indicates the critical ratio test and regression weight that signifies a positive association of FL with RFP. Hence, the analysis provided a confirmation to propose that financial literacy can show a vital part in the successful retirement planning of individuals.

Table 4: Results of Structural Model

Path	Estimates	S.E.	C.R.	P
RFP <--- FK	.261	.090	2.896	.04
RFP <--- FB	.203	.074	2.753	.06
RFP <--- FAT	.432	.121	3.578	0.001
RFP <--- FAW	.024	.091	.269	.788

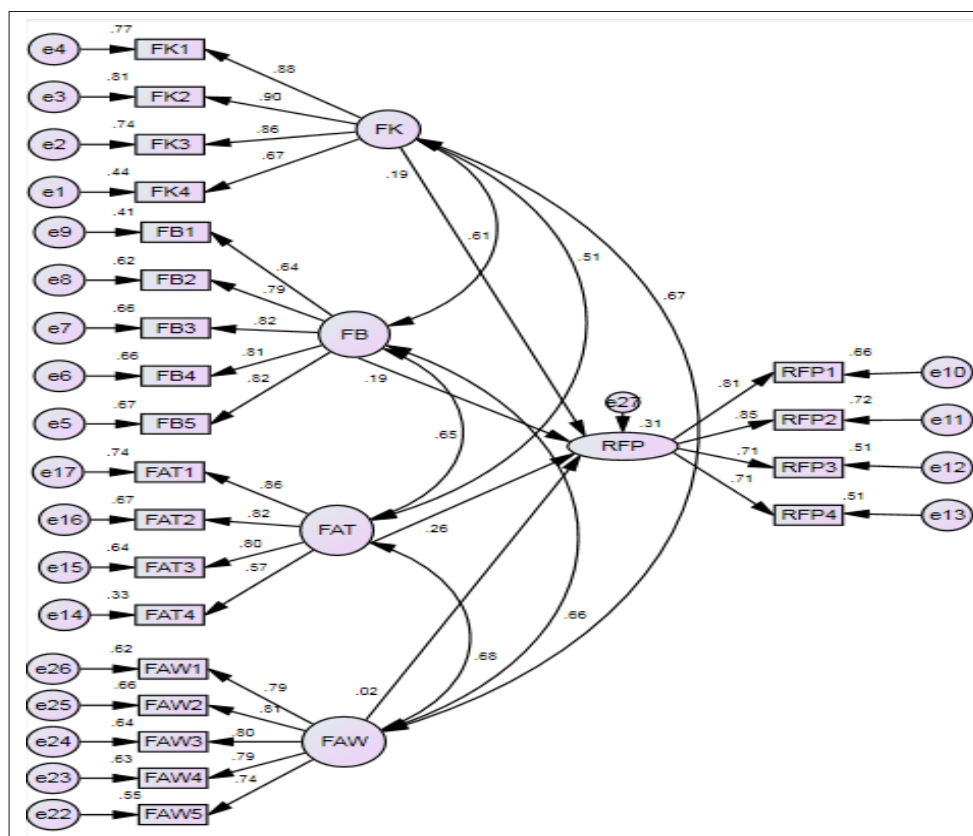


Fig. 1: Four Dimensions of FL Leads to RFP

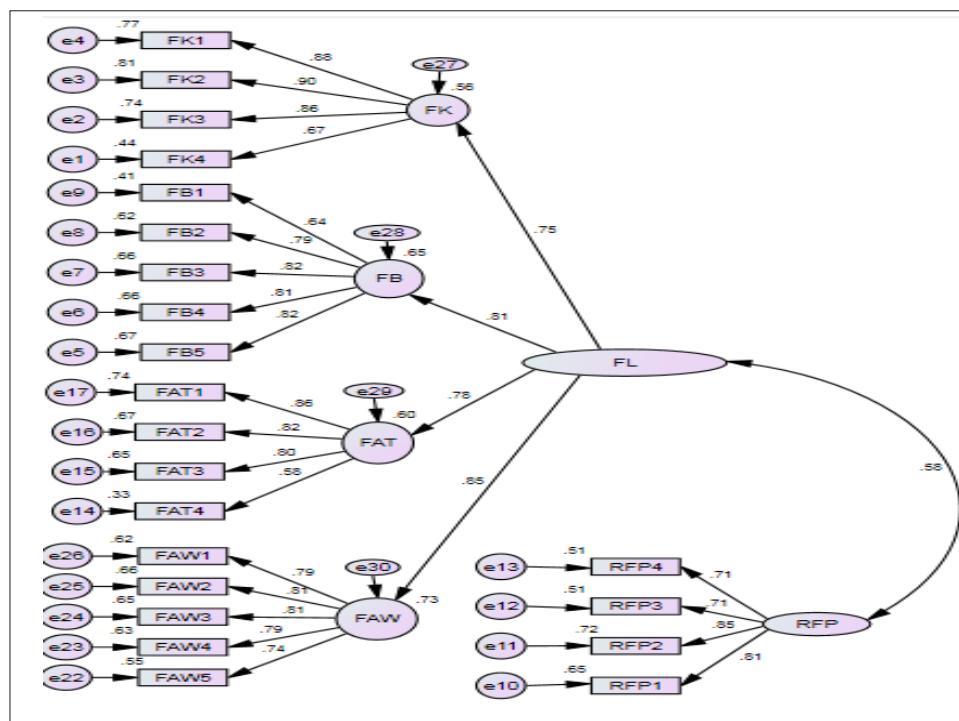


Fig. 2: Discriminant Validity Analysis between FL and RFP as First-Order CFA (Model 1)

Table 5: Results of Structural Model

Path	Estimate	S.E.	C.R.	P
RFP <--- FL	1.091	.114	9.548	0.001
FK <--- FL	1.000			
FB <--- FL	1.428	.121	11.752	0.001
FAT <--- FL	.864	.090	9.629	0.000
FAW <--- FL	1.380	.120	11.501	0.001

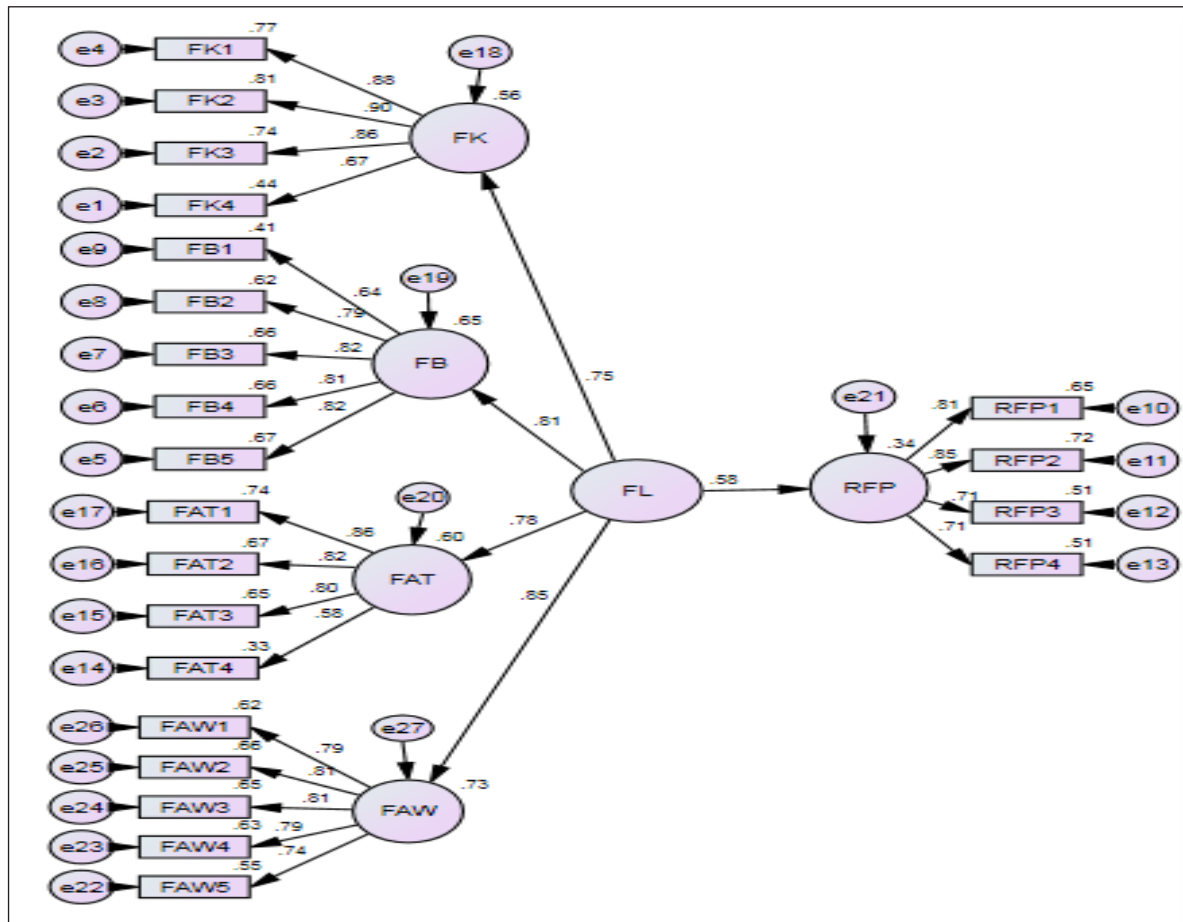


Fig. 3: Financial Literacy (FL) is a Significant Predictor of RFP (Model 2)

DISCUSSION AND IMPLICATIONS

The present study focuses on the conceptualisation of FL and recognises four underlying dimensions that establish an affiliation of FL with RFP. Through intensive literature review, the four main aspects of the level of financial literacy, like the level of financial awareness, extent of financial knowledge, measure of financial attitude, and the type of financial behaviour, were found useful to predict RFP. For all the factors, standardised scales were adopted, which

solved all the reliability and validity issues. The developed models supported the four dimensions of FL that obtain the superlative fit for the statistics, and acknowledged that financial literacy predicts retirement financial planning of working individuals. Financial literacy has been recognised as an important determinant of RFP of individuals (Lusardi, 2009; Agnew, Bateman & Thorp 2012; Palaci, Jiménez & Topa, 2017). The results of this research work demonstrated that financial literacy, made up of four factors, leads to RFP of working individuals. The result of this study, that is, FL is significantly associated with RFP, is consistent with various

past researches (Lusardi & Mitchell, 2007a & b; Howlett, Kees & Kemp, 2008; Van Rooij, Lusardi & Alessi, 2011; Yoong, See & Baronovich, 2012; Hsiao, Chen & Liao, 2016; Heuberger, Kasman & Hammond, 2018). This study demonstrates that, collectively, all four factors were found to be significant in defining FL. Firstly, all the dimensions of FL modelled directly with RFP of individuals yield an insignificant association of financial awareness and financial behaviour with RFP, which supported the second-order model to predict RFP. The second-order model showed that 34% of RFP was predicted by FL. However, this outcome does not annihilate the importance of financial awareness and financial behaviour, but rather provides evidence to consider these parameters as the most important elements of FL, which significantly influence the retirement financial planning. Moreover, these parameters are considered to have a moderate level of correlation with RFP. The results recommended that, while developing the FL level of working individuals, retirement policy makers should concentrate on the improvement of each of the 4 FL dimensions. In India, only few researches have been undertaken to explore the degree of association between levels of financial literacy of working professionals and their retirement financial planning; thus, this research would help in exploring the new insights to fill the previous research gaps. The findings proposed that retirement planning authorities and insurance companies must place an emphasis on strengthening the level of financial literacy of the individuals for ensuring a happy retirement life. Creating awareness of financial literacy has become very important today, as it will most likely abate the likelihood of being betrayed in their financial decision process. The research findings have several practical implications. Firstly, it helps the policy makers and insurance companies to understand the retirement financial planning activity of working individuals before launching any retirement policy. In addition, policy makers can explore the level of financial literacy level among the working professionals for efficacious advertising of any retirement schemes.

LIMITATIONS, FUTURE RESEARCH, AND CONCLUDING THOUGHTS

The proposed model of retirement financial planning (RFP) offers an important contribution for the policy makers in making strategies for launching any retirement planning scheme. A total of four variables were found to be important in defining FL, and the results were interpreted using SEM, providing evidence that FL leads to RFP. Topa et al. (2018) have concluded that financial literacy, made up of FK, FAW, FB, and FAT, have a combined effect on FPR. This article is very useful for the managers and policy makers

of financial institutions to identify an individual's financial literacy level for investing in retirement products. Financial institutions can thus concentrate on increasing financial literacy and financial education programmes to influence people towards efficient RFP. The present study is not free from inherent limitations. Firstly, the research design used in this study is cross-sectional, which in itself does not investigate causation among the variables; instead, it can only indicate the degree of association between FL and RFP in place of a causal relationship. Further, to study the dimensions of FL, a sample size of only 538 employees has been considered, whereas observations of business persons/professionals could also have been included in the sample size. In addition, the SEM analysis, through which the model has been developed, has its own limitations. In addition, only four dimensions of FL have been identified from literature reviews, whereas other demographic, social, and economic variables could also impact financial retirement planning decisions. Since the dimensions of FL have been measured through standard online instruments, there are chances of prejudices. Lastly, the current study focused only on the working professionals in the Delhi region. There is a chance that the same conditions are not fit for other regions of the nation. All of the above limitations provide a scope for further future study. The proposed model suggests that collectively, factors of FL positively affect the retirement financial planning activity of the working professionals.

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