Comparative analysis of financial literacy and behavioral control on the household wealth of Generation Y (with special reference to Uttar Pradesh)

Thesis

Submitted to

Babasaheb Bhimrao Ambedkar University

(A Central University)

For The Award of The Degree of

Doctor of Philosophy

in

Management

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2021

Dedicated to my Son

Declaration

Date: 11-10-2021

I hereby declare that the thesis entitled **"Comparative analysis of financial literacy and behavioral control on the household wealth of Generation Y (with special reference to Uttar Pradesh)"** submitted by me under the supervision of Prof. Kushendra Mishra, Head & Dean, Department of Rural Management, School for Management Studies, Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow for the award of the degree of **Doctor of Philosophy in Management.** No part of this thesis has previously been submitted in part or full for the award of any degree or diploma to this University or any other University. Further, I declare that the material embodied in the work is based on original research work and the indebtedness to others has been duly acknowledged at relevant places. I also declare that my Research Work is free from all essential plagiarism.

Ms. Swati Anand
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Certificate

This is to certify that the thesis entitled **"Comparative analysis of financial literacy and behavioral control on the household wealth of Generation Y (with special reference to Uttar Pradesh)"** submitted by **Ms. Swati Anand** is an original research work and has not been previously submitted in part or full for the award of other degree or diploma to this or any other university.

The thesis submitted to Babasaheb Bhimrao Ambedkar University (A Central University), Lucknow satisfies all the requirements as stipulated in the *Doctor of Philosophy (Ph.D.) regulations-1999 as amended in 2008/2010/2013/2016* and it is fit for submission and evaluation for the award of the degree of Doctor of Philosophy of the university.

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Document Information

Analyzed document	thesis.pdf (D114502997)
Submitted	2021-10-07 12:11:00
Submitted by	O. P. Saini
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Sources included in the report

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Acknowledgments

First and foremost, all praises and gratitude to the Almighty God for His showers of blessings throughout my research work for its timely and successful completion.

It is a profound pleasure to mention the name of my parent organization i.e., Bank of Baroda and **Dr. Dinesh Kumar**, (AGM, HR) for granting me No Objection Certificate and leave to pursue my doctoral research.

I would like to extend my deepest sense of gratitude and regards to my supervisor, **Prof. Kushendra Mishra**, Head & Dean, Department of Rural Management, School of Management & Commerce, Babasaheb Bhimrao Ambedkar University, Lucknow. He has been my mentor, philosopher and guide. His keen interest, timely advice, meticulous scrutiny, scientific approach and overwhelming attitude to help his students have been responsible for completing my work on time.

I am highly grateful to the Department of Rural Management, BBAU, Lucknow for admitting me to pursue my research. I am also thankful to all faculty members of the Department namely, **Prof. M.S. Khan, Dr Taruna, Dr Ramesh Chaturvedi** and **Dr. Lata Bajpai Singh** for their support and guidance.

I am also grateful to **Dr. Manoj Kumar**, Faculty of Department of Computer Science, BBAU, Lucknow for his exemplary guidance.

I owe my regards to **Dr. Dev Swarup**, First Founding Vice Chancellor of Dr. Bhimrao Ambedkar Law University, Jaipur & Former Additional Secretary, University Grants Commission, New Delhi and **Dr. Sunita Chandra**, Joint Registrar, Banaras Hindu University for their kind support, inspiration, enthusiasm and dynamism.

I wish to extend my heartfelt thanks to my son **Abeer Singh**, husband **Dheer Singh**, parents, in laws and siblings for their love, care, prayers, patience, understanding and continuing support to complete this research work.

I am extremely grateful to **Vishal Verma**, my fellow researcher for all the valuable suggestions and help in my research. I am also indebted to **Akash Kanojia**, a student of MCA, & **Ruchi Agarwal**, research scholar, Department of Computer science, BBAU, Lucknow for rendering me all technical aid.

I wish to mention my friends namely **Shrinkhala Dixit, Sushmita Anand, Yashi Mehrotra, Anoop Mishra, Agadh Mishra, Richa Mishra, Niharika Singh, Vandana Singh** and **Mallika** for their high spirited, enthusiastic support in data collection and morale upliftment.

Last but not the least, I extend my heartfelt gratitude to my domestic help **Sujata** and **Shareef** for sharing work at home and rendering me mental peace in order to concentrate on my research.

Ms. Swati Anand

Preface

The basis of this research originally stems from being the member of the Generation Y with a work experience of almost seven years in a renowned public sector bank of India. According to reports and personal experiences, members of Gen Y are facing immense financial distress. They share the common grievance that the financial institutions are not helping them to save and grow their money. They do not steer them to reach the financial goal and earn the additional income. Instead, they only hold the money. While serving the bank for these many years, it was realized that it is necessary to understand the personal goals and financial decisions of the Gen Y in order to serve and retain them as customers. The financial needs of Gen Y is rarely about products. It is more of a function of other dimensions like moments of financial pressure and life events. Life events which involves major finances include getting married, having a child, buying a home, children going to college, paying college tuition, job transition, relocation, job loss, death of a loved one and divorce etc., Moments of financial pressure includes bill payments, purchases, investments, managing debt and taxes etc.,

According to the available literature, the increasing number of people falling under Millennial generation cohort or Gen Y are facing financial distress and difficulties which is all set to further increase in the coming future. This is indeed worrisome as it is not limited to an individual but to an entire said generation. This will eventually incur huge costs for the entire financial system of the country as and when the generation multiplies. Thus it becomes a topic of pressing requirement.

Gen Y is popularly known as 'Millennial' and being the older millennial, all these dimensions and dissatisfaction from the financial institutions is being co-experienced. The financial institutions and policy makers should understand that Gen Y is a lucrative market micro segment. The generation can be helped in achieving their financial goals by understanding their behavior, pain points and interaction preferences.

Determining the financial literacy level amongst the Gen Y is important to assess their basic and advanced financial knowledge. Moreover, the behavioral understanding is also done to gauze an effect of the same on the accumulation of their household wealth. Therefore, it becomes vital that we understand exactly why people land into financial trouble. The reason can be either due to the lack of financial knowledge or due to their own inherent behavior. Focus was solely on improvising financial literacy levels among the people. It becomes important to deduce the correct underlying reason to de-

vise the solution for the same. Thus arises the need to analyse the comparative effects of financial literacy and behavioral control on the household wealth of Gen Y.

The present study is based on the generational cohort segmentation with special reference to Gen Y. The financial literacy level and the behavior of the said generation is studied with the help of literature review and observations which are exploratory in nature. The comparative analysis of both is done in a descriptive research design to find that Behavioral Control has full mediating effect whereas Financial literacy has partial mediating effect. Thus, behavioral control has stronger impact on the household wealth accumulation of Gen Y. Policies need to be made in order to control and motivate the behaviour of Gen Y for the desired household wealth accumulation.

Contents

List of Figures **xi**

List of Tables **xv**

1 Introduction **1**

1.1 **Generation Y** . . . 2
1.2 **Household wealth** . . . 15
1.3 **Financial Literacy** . . . 25
1.4 **Behavioral Control** . . . 34
1.5 **Rationale** . . . 43
1.6 **Significance of the study** . . . 44

2 Review of Literature **45**

2.1 **Research Gap** . . . 72

3 Research Methodology **73**

3.1 **Type of Research** . . . 73
3.2 **Research Design** . . . 74
3.3 **Research Problems** . . . 75
3.4 **Objectives** . . . 76
3.5 **Proposed Research Model** . . . 76
3.6 **Operationalization of constructs** . . . 77
3.7 **Formulation of Hypothesis** . . . 77
3.8 **Development of Questionnaire** . . . 78
3.9 **Research Instruments and Tools** . . . 78
3.10 **Population or Universe of the study** . . . 79
3.11 **Sampling Method** . . . 79
3.12 **Unit of Analysis** . . . 81

3.13 **Sample size** . . . 81
3.14 **Time Horizon of the Study** . . . 82
3.15 **Ethical Consent** . . . 82
3.16 **Data Editing and Coding** . . . 82
3.17 **Data Analysis Techniques** . . . 83
3.17.1 **Structural Equation Modelling (SEM)** . . . 84
3.18 **Pre- test** . . . 84
3.19 **Pilot Study** . . . 84
3.20 **Reliability and Validity Analysis** . . . 84
3.20.1 **Reliability testing** . . . 85
3.20.1.1 **Test-retest** . . . 85
3.20.1.2 **Inter-rater** . . . 86
3.20.1.3 **Internal consistency** . . . 86
3.20.2 **Content Validity** . . . 105

4 Data Analysis and Interpretation **106**
4.1 **Demographic Analysis** . . . 106
4.2 **Structural Equation Modelling** . . . 115
4.2.1 **Construct Validity** . . . 115
4.2.1.1 **Convergent Validity** . . . 116
4.2.1.2 **Discriminant Validity** . . . 117
4.2.2 **Confirmatory Factor Analysis** . . . 118
4.2.3 **Measurement model** . . . 125

5 Conclusions and Implications **164**
5.1 **Integration of results from exploratory and descriptive study.** . . . 164
5.2 **Suggestions and Managerial Implications** . . . 165
5.2.1 **The theory of 'The Carrot and Stick' for Behavioral Control** 165
5.2.2 **Financial Literacy awareness Campaigns** . . . 166
5.3 **Contribution to the existing literature** . . . 167
5.4 **Limitations & Future scope of the study** . . . 167

Appendices **193**

List of Publications **202**

List of Figures

1.1 Different generational cohort with year brackets From the book, Forgotten Respect, 2015, Dennis E Gilbert, Framework of workplace Generations #Year bracket positions may vary slightly with different experts. 2

1.2 Characterization of the specific properties of the millennial generation has been described in form of a narrative. 3

1.3 Savings attitude and habit formation by various factors Source : (Shaliza Alwi, Irma Zura Amir Hashim, 2015) 8

1.4 Illustrates the component of financial & non-financial asset amongst different countries. India can be seen with major part of its household wealth occupied as and by non-financial assets.Image Source (Malhotra,2020) 17

1.5 Illustrates the share percentage of various financial assets. Household assets are predominated by deposits which constitutes around 52.6% of the total financial assets followed by insurance, currency and mutual funds. Image source: RBI Bulletin, June' 2020 (Quarterly Estimates of Households' Financial Assets and Liabilities, 2020) 18

1.6 Illustrates the changes in the percentage share of various financial assets over the years. Alhough fluctuating, deposits with banks are predominant, followed by currency, pension and provident funds. Image source: RBI Bulletin, June' 2020 18

1.7 Illustrates the net household savings with the financial flow of household assets and liabilities for various quarters. It's been fluctuating subject to various internal and external conditions. Household savings reached at peak in the June'20 quarter as consumption was limited to only essentials under pandemic situations pan India. Image source: RBI Bulletin, June' 2020 20

1.8 Illustrates the acquisition of financial assets and incurrence of financial liabilities for various quarters. Image source: RBI Bulletin, June' 2020 20
1.9 Illustrates the percentage share of the various credit sources for household debt. It is evident that commercial banks are the most preferred credit institutions for Indian households. Image Source (Malhotra,2020) 21
1.10 Illustrates the per capita indebtedness of household and its effect on the growth rate of the sector Image Source (Malhotra,2020) 21
1.11 Illustrates the three financial ratios to measure and check the household health in terms of risks with debts Image Source (Malhotra,2020) . . . 22
1.12 Illustrates household debt as a percentage of gross wealth 22
1.13 Illustrates household debt as a percentage of liquid assets Image Source (Malhotra,2020) 23
1.14 Illustrates the household debt as a percentage of household disposable income. Image Source (Malhotra,2020) 23
1.15 Illustrates the position of India in terms of Financial Development Index Image Source (Malhotra,2020) 24
1.16 Image Source:RBI data 24
1.17 Illustrates the downfall in rate of wealth accumulation over the years. Image Source:(Malhotra,2020) 25
1.18 Financial behavior is constituted by both objective and subjective financial knowledge Image Source:Author 27
1.19 Step by step financial education Image Source:Author 28
1.20 General Nations Ranks (Most economically well-read, left to right) Image Source: (Barometer, 2012) 30
1.21 Image Source: (Kharchenko, 2011) 34
1.22 Various forms of behavioral control for exhibiting positive financial behavior Image Source: Author 36
1.23 Type of Materialism Image Source: Author 39
1.24 Theory of Planned behavior Image Source: (Ajzen, 2012) 41

3.1 The colour highlighted boxes are chosen for this study. Source: (Malhotra & Dash, 2019). 74
3.2 Proposed Research Model(First Case) 76
3.3 Proposed Research Model(Second Case) 77
3.4 Location of KAVAL cities Image Source : (Mishra & Anand, 2020) . 80

4.1 Age Bar Chart 107

4.2 Gender Bar Chart 108
4.3 Marital Bar Chart 109
4.4 Number of financially dependent children Bar Chart 110
4.5 Education Bar Chart 111
4.6 Employment Status Bar Chart 112
4.7 Monthly income in INR Bar Chart 113
4.8 Liability products taken 114
4.9 Buckets preferred while investing to create assets 114
4.10 I seek financial investment guidence from 115
4.11 Financial Literacy's Unstandardized Estimates 118
4.12 Financial Literacy's Standardised estimates 119
4.13 Behavioural Control's Unstandardized estimates 121
4.14 Behavioural Control's Standardised estimates 121
4.15 Household Wealth's Unstandardized estimates 123
4.16 Household Wealth's Standardised estimates 123
4.17 Unstandardized estimates of Measurement model 125
4.18 Standardised estimates of Measurement model 125
4.19 Analysis without mediation (Direct relationship between FL and HW)- Unstandardized Estimate output of AMOS 23.0 129
4.20 Analysis without mediation (Analysis without mediation (Direct relationship between FL and HW)- Standardized Estimate output of AMOS 23.0 129
4.21 Unstandardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between BC and HW) 132
4.22 Standardized Estimate output of AMOS 23.0–Analysis without mediation (Direct relationship between BC and HW) 133
4.23 Unstandardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between FL and BC) 135
4.24 Standardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between FL and BC) 136
4.25 The unstandardized estimates of BC mediating the relationship path of FL & HW 139
4.26 The standardized estimates of BC mediating the relationship path of FL & HW 139
4.27 The unstandardized estimates of FL mediating the relationship path of BC & HW 150

4.28 The standardized estimates of FL mediating the relationship path of BC & HW 151

List of Tables

1.1 Contribution by different authors towards the literature pertaining to Gen Y 12

3.1 Research Design 75
3.2 Research Instruments and Tools 79
3.3 Intraclass Correlation Coefficient (ICC)- First time testing 85
3.4 Intraclass Correlation Coefficient (ICC)- Second time testing 86
3.5 Case Processing Summary- Pilot Testing 87
3.6 Reliability -First stage- FL 87
3.7 Item-Total Statistics-FL-First Stage 88
3.8 Reliability- Second Stage-FL 89
3.9 Item-Total Statistics-FL-Second Stage 89
3.10 Reliability- Third Stage-FL 89
3.11 Item-Total Statistics-FL-Third Stage 90
3.12 Reliability- Fourth Stage-FL 90
3.13 Item-Total Statistics-FL-Fourth Stage 90
3.14 KMO and Bartlett's Test-FL 91
3.15 Total Variance Explained-FL 91
3.16 Component Matrix-FL 92
3.17 Reliability-First Stage-BC 92
3.18 Item-Total Statistics-BC-First Stage 93
3.19 Reliability-Second Stage-BC 93
3.20 Item-Total Statistics-BC-Second Stage 94
3.21 Reliability-BC-Third Stage 94
3.22 Item-Total Statistics-BC-Third Stage 95
3.23 Reliability-Fourth Stage- BC 95
3.24 Item-Total Statistics-Fourth Stage- BC 96
3.25 Reliability-BC-Fifth Stage 96

3.26 Item-Total Statistics-BC-Fifth Stage 96
3.27 KMO and Bartlett's Test- BC 97
3.28 Total Variance Explained- BC 97
3.29 Component Matrix-BC 98
3.30 Reliability- First Stage-HW 98
3.31 Item-Total Statistics-First Stage-HW 99
3.32 Reliability- Second Stage-HW 100
3.33 Item-Total Statistics-Second Stage-HW 100
3.34 Reliability Statistics-Third Stage-HW 100
3.35 Item-Total Statistics- Third Stage-HW 101
3.36 Reliability Statistics- Fourth Stage-HW 101
3.37 Item-Total Statistics-Fourth Stage-HW 102
3.38 Reliability Statistics- Fifth Stage-HW 102
3.39 Item-Total Statistics-Fifth Stage-HW 102
3.40 KMO and Bartlett's Test-HW 103
3.41 Total Variance Explained- HW 103
3.42 Component Matrix-HW 104
3.43 Reliability Analysis of Measurement Instrument 104
3.44 Factor Analysis of Measurement Instrument 104

4.1 AGE 107
4.2 GENDER 108
4.3 Marital status 109
4.4 Number of financially dependent children 110
4.5 Education 111
4.6 Employment Status 112
4.7 Monthly income in INR 113
4.8 Construct Validity 116
4.9 Convergent Validity 116
4.10 Covariances: (Group number 1 - Default model) 116
4.11 Correlations: (Group number 1 - Default model) 116
4.12 Discriminant Validity 117
4.13 Construct-item description 117
4.14 CMIN-FL 119
4.15 RMR, GFI-FL 119
4.17 RMSEA-FL 119
4.16 Baseline Comparisons-FL 120

4.18 Standardized Regression Weights: (Group number 1 - Default model of FL) . . . 120
4.19 CMIN-BC . . . 121
4.20 RMR, GFI-BC . . . 122
4.21 Baseline Comparisons-BC . . . 122
4.22 RMSEA-BC . . . 122
4.23 Standardized Regression Weights: (Group number 1 - Default model) 123
4.24 CMIN-HW . . . 124
4.25 RMR, GFI-HW . . . 124
4.26 Baseline Comparisons-HW . . . 124
4.28 Standardized Regression Weights: (Group number 1 - Default model-HW) . . . 124
4.27 RMSEA-HW . . . 125
4.29 CMIN- Measurement model . . . 126
4.30 RMR, GFI- Measurement model . . . 126
4.31 Baseline Comparisons- Measurement model . . . 126
4.32 RMSEA- Measurement model . . . 126
4.33 Regression Weights: (Group number 1 - Default model- Measurement model . . . 127
4.34 Standardized Regression Weights: (Group number 1 - Default model-Measurement model) . . . 128
4.35 Composite Reliability . . . 128
4.36 CMIN- Analysis without mediation (Direct relationship between FL and HW) . . . 130
4.37 RMR, GFI- Analysis without mediation (Direct relationship between FL and HW) . . . 130
4.38 Baseline Comparisons- Analysis without mediation (Direct relationship between FL and HW) . . . 131
4.39 RMSEA- Analysis without mediation (Direct relationship between FL and HW) . . . 131
4.40 Regression Weights: (Group number 1 - Default model) . . . 131
4.41 Standardized Regression Weights: (Group number 1 - Default model) 132
4.42 CMIN-Analysis without mediation (Direct relationship between BC and HW) . . . 133
4.43 RMR, GFI-Analysis without mediation (Direct relationship between BC and HW) . . . 133

4.44 Baseline Comparisons-Analysis without mediation (Direct relationship between BC and HW) 134
4.45 RMSEA-Analysis without mediation (Direct relationship between BC and HW) 134
4.46 Regression Weights: (Group number 1 - Default model) 134
4.47 Standardized Regression Weights: (Group number 1 - Default model) 135
4.48 CMIN -Analysis without mediation (Direct relationship between FL and BC) 136
4.49 RMR, GFI -Analysis without mediation (Direct relationship between FL and BC) 137
4.50 Baseline Comparisons-Analysis without mediation (Direct relationship between FL and BC) 137
4.51 RMSEA-Analysis without mediation (Direct relationship between FL and BC) 137
4.52 Regression Weights: (Group number 1 - Default model) 137
4.53 Standardized Regression Weights: (Group number 1 - Default model) 138
4.54 CMIN- BC mediating the relationship path of FL & HW 140
4.55 RMR, GFI- BC mediating the relationship path of FL & HW 140
4.56 Baseline Comparisons- BC mediating the relationship path of FL & HW 140
4.57 RMSEA -BC mediating the relationship path of FL & HW 140
4.58 Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 141
4.59 Standardized Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 141
4.60 Total Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 142
4.61 Standardized Total Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 143
4.62 Direct Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 143
4.63 Standardized Direct Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 144
4.64 Indirect Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 145
4.65 Standardized Indirect Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 146

4.66 Standardized Total Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 147
4.67 Standardized Direct Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 148
4.68 Standardized Indirect Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW 149
4.69 Final Results : On the introduction of BC in between FL and HW (Baron & Kenny's Method) 150
4.70 CMIN- FL mediating the relationship path of BC & HW 151
4.71 RMR, GFI- FL mediating the relationship path of BC & HW 151
4.72 Baseline Comparisons- FL mediating the relationship path of BC & HW 152
4.73 RMSEA- FL mediating the relationship path of BC & HW 152
4.74 Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 152
4.75 Standardized Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 153
4.76 Standardized Total Effects (Group number 1 - Default model) 154
4.77 Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 154
4.78 Standardized Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 155
4.79 Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 155
4.80 Standardized Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 156
4.81 Standardized Total Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 157
4.82 Standardized Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 158
4.83 Standardized Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 159
4.84 Standardized Total Effects - Two Tailed Significance (BC) (Group number 1 - Default model) -FL mediating the relationship path of BC & HW 160

4.85 Standardized Direct Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 161
4.86 Standardized Indirect Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- FL mediating the relationship path of BC & HW 162
4.87 Final Results : On the introduction of FL in between BC and HW (Baron & Kenny's Method) 162

LIST OF ABBREVIATIONS

AGFI	Adjusted Goodness of Fit
AIDIS	All India Debt and Investment Survey
ATM	Automated Teller Machine
AVE	Average Variance Extracted
BC	Behavioral Control
BLC	Behavioral Life Cycle
CFI	Comparative Fit Index
CIBIL	Credit Information Bureau India Limited
CITC	Corrected Item Total Correlation
CMIN/DF	Chi-square Mean/Degree of Freedom
CR	Critical Ratio
EMI	Equated Monthly Installments
FL	Financial Literacy
FOMO	Fear of Missing Out
GAFA	Google Apple Facebook Amazon
GFI	Goodness of Fit
HBS	Household Balance Sheet
HW	Household Wealth
ICC	Intraclass Correlation Coefficient
ICT	Information and Communications Technology
IOT	Internet of Things
KAVAL	Kanpur, Allahabad, Varanasi, Agra Lucknow
NCAER	National Council of Applied Economic Research
NFI	Normed Fit Index
NPAR	Number of Parameters
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PGFI	Parsimony Goodness of Fit Index
PPF	Public Provident Fund
RAI	Retailers Association of India
RBI	Reserve Bank of India
RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
SE	Standard Error

SEM	Structural Equation Modelling
SIP	Systematic Investment Planning
TLI	Tucker Lewis Index
TTM	Trans-theoretical Model
YOLO	You Only Live Once

1

Introduction

Age old proverb – 'Birds of same feather, flock together' has already been put to good business use. This proverbial diatribe is exhorted to decipher the spending pattern of different market segments. The quite popular, new-fangled way of market segmentation is grouping customers on the basis of generational cohort. Generational cohort segmentation is grouping customers on the basis of the year bracket in which they are born. It caters to all four forms of segmentation which is demographic, behavioral, psychographic and geographic. Demographic segmentation defines the generation in terms of age, sex, family size etc. Behavioral segmentation is based on decision-making and pattern of behavior displayed by the generation. Psychographic segmentation refers to the lifestyle preferred by the generation and geographic segmentation represents the generation in segments of different locations.

(Manheim, 1952) examined that the human resource development was followed by generational cohort grouping. He studied that generation is a social construction of people with the same age and experience. The age brackets in generational grouping is made up of almost 20 years. The people belonging to one generation have their birth year in the common twenty year bracket with similar social and historical dimensions. (Ryder, 1965) explained that the generation is nothing but an aggregate of individuals experiencing same thing at the same time. (Kupperschmidt, 2000) defined generation as a group of individuals that can be identified on the basis of birth year, age, location

and significant events influencing their growth.

The reason we do market segmentation taking a generation altogether, is to cater to millions of people at one go based on the generational commonalities. However, it is true that only the time period in which one is born cannot govern the personalities and choices of an individual but indeed one will be affected by the technology, political environment, socio-economic conditions, parenting styles and educational philosophies that the childhood witnessed at that time. Thus, these macro factors differentiate one generation from the other and demand distinct market strategies for every cohort. (Jackson, Stoel and Brantley, 2011) investigated that the social, political and economic conditions at the macro level, predominant in the pre adult age of any cohort will result in the specific personality shaped by the values, behaviour, beliefs and expectations. This very characteristic personality is carried throughout the life. (Figure:1.1)

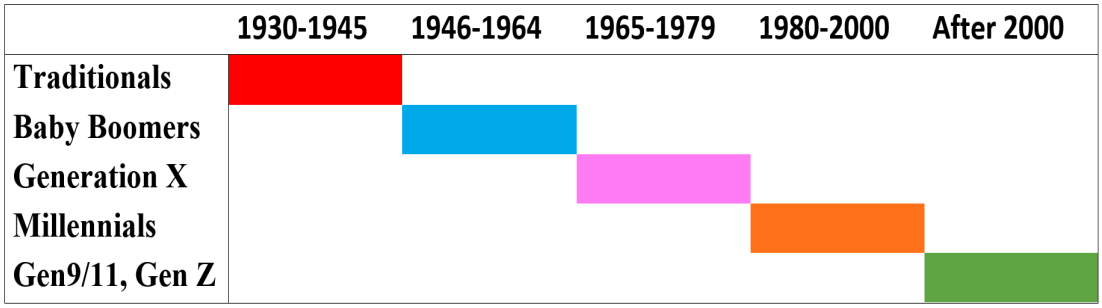

Figure 1.1: Different generational cohort with year brackets
From the book, Forgotten Respect, 2015, Dennis E Gilbert, Framework of workplace Generations
#Year bracket positions may vary slightly with different experts.

1.1 Generation Y

The subject of the research in context of this study is Generation Y, popularly known as Millennials. The term 'Millennial,' was minted and coined by William Strauss and Neil Howe in 1987. They introduced the terminology in their book entitled 'Generations' which had American History charted in the form of sequential cohort biographies. Much work was not done over generational study when the book was published. That is the reason why, no name was decided for the cohort to follow Baby Boomers, better known as Gen X. Howe took almost two decades to arrive on the name 'Millennial' as the oldest of the very bracket cohort would pass matriculation in the year 2000 which was called year of millennium. (David Foot,1998) used to denote the genera-

tion born between the years 1980-1995 as Baby Boom Echo as they were the offspring of Boomers. (Kotler and Armstrong, 2013) studied that the Gen Y'ers or Millennial were born between the year 1977-2000. They are the offspring of Baby Boomers who are born between the year 1936-1964. The author studied that the population of the Millennial has surpassed and eclipsed the population of Generation X, who were born between 1965 and 1976. Comprising the sizeable group of market dominating people, the millennial won themselves, the subject of intense study. As per the Morgan Stanley report, April 2017, India has already reached the population of over 410 million millennials in the year 2020 which is more than the total population of the US. (Stanimir, 2015) studied that the millennial generation age is between 20-40 years as they were born between the early 1980s to the 2000s. (O'Connor, 2009), identified people born in and after 1980s as millennials. There is no exact range for the generational cohort as it varies from author to author.(Figure:1.2)

Author	Birth period of Millennials
David Foot (1998)	1977 -1996
O'Connor (2009)	In & after 1980
Rainer & Rainer (2011)	1980-2000
Moore (2012)	1982-2000
Kotler and Armstrong (2013)	1977-2000
Valentine & Powers (2013)	1977-1996
Ordun (2015)	1981-2000
Stanimir (2015)	1980-2000
Lissitsa & Kol (2016)	1980-1999
Omar (2016)	1980-1990
Junker, walcher, & Blazek (2016)	1981-1995
Muda, Mohd, & Hassan (2016)	1980- early1990
Lee & Kotler (2016)	1980-2000
Howe & Strauss(2000)	1982-1988

Figure 1.2: Characterization of the specific properties of the millennial generation has been described in form of a narrative.

A Typical Indian Millennial Story

Ms. Ishika Mehra (name changed), 25, is not able to recollect when she last visited a bricks-and-mortar retail bank or a retail store in past one year. Hailing from Lucknow, she had to shift to Mumbai as she got an exciting job offer from one of the corporates. She opted for pocket friendly and convenient online shopping to buy everything from groceries to clothes to makeup.

She shares a 2BHK flat with an acquaintance in order to seek a company for social, financial and security reasons. She is health conscious, wears a smart watch, visits the gym regularly but also orders food online not less than two times a week in addition to dining out. She has a smart phone to access the net round the clock. She has no plans of buying a house or a car as she believes in enjoyment by experiencing life rather than collecting assets. She loves to travel for the same. She often goes for shared cab services like Ola and Uber for shuttling purposes. The 10% savings is invested in mutual funds as SIP (Systematic Investment Planning) by her.

Instead of owning a smart television, she watches her daily episodes, web series and flicks through Netflix and Amazon Prime on her laptop or mobile screen. She does not download, instead she does the streaming. She opens the bank account online and does all the app based payments. She generally goes to ATM (Automated Teller Machine) for emergency cash. A credit card is a must have. Before buying any product, she checks the brand online or goes by word of mouth.

Phone, Watch, TV and Home all have turned to Smart phone, Smart watch, Smart TV and Smart Home to cater to a Smart Millennial, which in the language of Computer Science, is called Internet of Things (IoT).

The U.S. Chamber of Commerce Foundation published a research review on the millennial generation in the year 2012. They provided a summary of all the research done since 2009. Millennials were reported most diverse, multi taskers, extraordinaire and other good adjectives. The research explained Millennial on five grounds for which five different summaries like Education summary, Entrepreneur summary, Marketplace summary, Professional association summary and Workplace summary have been given. When business profit is concerned, market place summary of Millennial has been giving a direction to all researchers and marketers. With large number of Millennials, comes big buying power. Buying power is further increased by the financial support of their baby boomer parents. Besides buying the product directly, Millennials also contribute as early adopters and vocal consumers to influence the purchasing behavior of others. Word of mouth is exchanged with ease and speed through constant connectedness on social media. Female millennials are equally empowered. The available literature proposed that there is strong belief that each generation is different from the last. (Bailey, 2014) proposed that Millennial have been the subject of intense scrutiny. The author also gave another name to this generation known as MeMeMe generation. The synonyms for Gen Y are Millennial, MeMeMe genera-

tion, Digital natives, Digital generation, Echo boomers, Net generation and the N-gen (Bhotia and Agarwal, 2014). Other authors gave different names to the Gen Y 'ers like "Nexters and Nexus Generation" (Barnard et al. 1998; Burke and Ng 2006; Zemke et al. 2000). (Valentine & Powers, 2013) denoted few other names like "Don't label us generation, Generation Tech, Generation Next, Generation.com, Generation 2000, Ego boom, Boom babies, Generation XX".

Amongst all these different names for the said generation, we have used the term Gen Y and Millennials more frequently to keep up with the popular literature. Millennials are already the largest population of the US and it is expected that they will also constitute the largest share of the labour market abroad. (Schawbel, 2012) studied and forecasted that by the end of the year 2025, three out of four workers will be millennials across the world. (Smith, 2011) investigated that millennials are studied more as compared to other generations because they are an impressive group in terms of their characteristics. (Orozpe, 2014) studied that 50% of the global consumption in 2017 was represented by millennial generation. (Weber, 2014) studied that the pool of investors who are accumulating wealth belong to the Generation Y. (Visa, 2011) studied that this very generation constitutes around 25% of the total population of the world. They are not only the largest population of the world but are also the largest consumer segment which dominates the labour force, post retirement of the Baby Boomers (AIF, 2015). When the market is studied by doing generational cohort segmentation, it is learned that every generation has its own way of influencing the economy of one's country and eventually the entire globe. But, Generation Y, in particular has got itself special positioning on the market segments. The generation is not only young but the most educated of all the preceding generations. (Fry and Parker, 2012). The generation is economically active despite of entering the workforce at the economically unstable times. (Bishop, 2006) called them as the "instant gratification generation" as he considered them to be highly impatient with huge expectations. (Eubanks, 2006) studied that the Gen Y individuals were born in the times where parents laid emphasis on the overall development of their kids. Schools also helped in motivating and uplifting the self-esteem of the children. Due to these factors, they emerged as a confident, well-educated and high self- worth individuals. Due to this very characteristic of the said generation, they used to burden themselves at both personal and professional front. Some researchers like (Taylor and Keeter, 2010), (Bresiger, 2011) examined the negative consequences of the overly high self-expectations which led to pushing oneself to unrealistic and hard to achieve financial and non-financial goals. This could be another reason why the Gen Y is dissatisfied with their salary package as it is not

letting them achieve the standard of living expected by them. Born and brought up amidst technological disruption, the net generation is apt in multi-tasking and learning but they learn only what they have to learn (Bauerlein, 2008). (Kohut & Taylor, 2010) denoted the generation Y as 'the generation of the spirit of the age'. (Rahman, 2015) applied the Theory of Uses and Gratuities to identify the motivational factors influencing the Generation Y to move from conventional media to the digital media of more value and scope. The generation is imbibed with social consciousness. The generation Y is known for its hedonism, extravagance and high connectivity (Cone Communications Inc. and AMP Agency, 2006). Millennials are famous for having high and individualistic expectations from their jobs in terms of salary and recognition (Ng et al., 2010). The author also studied that the advancement at the workplace is the top priority for the neophytes. The study proved their impatient, ambitious nature and elevated expectations for pay and promotions (Gaudelli, 2009).

The Generation Y spend their earnings faster than any generation because of their belief in YOLO . They believe in experiential living which helps them to do collective learning, rendering opinion, influencing their peers and collecting knowledge to be an expert. Their unique consumptive nature has reconfigured buying models and has broken many traditional paradigms. Their inclination towards the online shopping is encouraged by the navigation experiences on the web which positively influences their intention to buy. As they use their income for experiences and purchase of goods, it makes their incursion into the economic world very attractive. Their egocentric and extravagant behaviour influenced by the ICT and Web 2.0 makes their decision making also faster than the previous generation, making them more cosmopolitan than ever. The research has given the general characterization which has made possible for the researchers to particularize the profile of the generation of the members of the Generation Y.

According to Simon Sinek, a British - American author, organizational consultant and motivational speaker, Millennial are governed by following four factors which makes them uniquely distinct when compared to other generations.

1. **Parenting:** They are the offspring of Baby Boomers who are considered to be protective and structured in terms of parenting. The millennial kids were under constant pressure to score well in schools, get a decent job and to get married at a certain age. They had informed parents and had lesser number of siblings as compared to the earlier generations. Everything of their need were at their service before they can ask for it and sometimes more than they can ask for.

Schools also emphasized on extra co-curricular activities with studies and encouraged participation by giving away participation certificates and consolation prizes.

2. **Technology:** They have untaught, inborn talent to tool the technology. They are multi taskers of their own kind. They have been raised amidst net and texts and so they aren't foreign to them. Average weekly online screen time for Millennial is 17 hours, reported in a study namely Trend-setting Millennial: Redefining the Consumer Story, by the Retailers Association of India (RAI) and Deloitte. They are users and consumers of the technology. Connectivity is one of the major characteristics of Millennials. (Lyons, 2004) recognised the inclination of millennials towards push and instant messages, email and SMS as they were raised in the times of internet boom. They are into Facebook and Twitter all the time (Dwiyun et al., 2017). They don't know the world beyond internet, phones, tablets and social media. (Markus, 2017). Their lifestyle is governed by these new technologies (Syahira et al., 2013). He also added that they are fanatically influenced by technology and social media which makes them open and vocal in terms of both social and political front.

3. **Impatience:** As Ng, Schweitzer and Lyons have rightly quoted - Millennial are known for "want it all" and "want it now". They have everything but time. As they have been brought up with things before they could ask for, impatience have been built in their systems. A high speed internet advertisement on television has also said: "Impatience is the new generation". They seek instant or immediate gratification for almost everything.

4. **Environment:** Change is the only constant. Environment has become highly competitive and unforgiving in nature. In order to survive, they have to be highly educated and informed. Everything, being on their fingertips has made them lazy and self-interested. They are tough to manage and please.

The attempt has been made to develop the financial profile of the members of the Gen Y. The members of Gen Y generally invest in different financial buckets like bank accounts, fixed accounts, retirement accounts, insurance, stocks, mutual funds and bonds. The main liability products availed by the millennial are education loan and home loan. As millennial are highly educated and they enrich their curriculum vitae through various specialized professional certification, they end up taking education loans. As per the report of 'Federal Reserve Bank of New York' of FY 2013, the education loan is second most sought form of debt after home loans. Home loan is

also popular amongst the Gen Y. The reason behind jumping to the financial decision of buying a home after filing income tax return for the three consecutive years is mainly tax savings. There exists a gap between self-proclaimed and the actual level of the financial literacy amongst the said generation.

(Barnard et al.1998; Rubin, 2014) have studied that this generation has also witnessed the highest rate of unemployment than rest of the generations. The Great Recession from 2007-2011 was detrimental to the financial health, affecting the job opportunities with stagnant growth and income, increased debt and decreased net worth. This made the Gen Y'ers refrain from buying homes due to decline in equity of homes (Fry etal, 2012). (Bricker, 2014) also observed that the net worth of the millennials are 41% less than their preceding generations of Baby Boomers and Generation X'ers. Brain Honigman (2013) referred millennial as 'hyper social' in terms of their connection to the social media. He in his article "How Millennial are shopping" explained that their shopping behavior is influenced by word of mouth content like user generated data on the website.

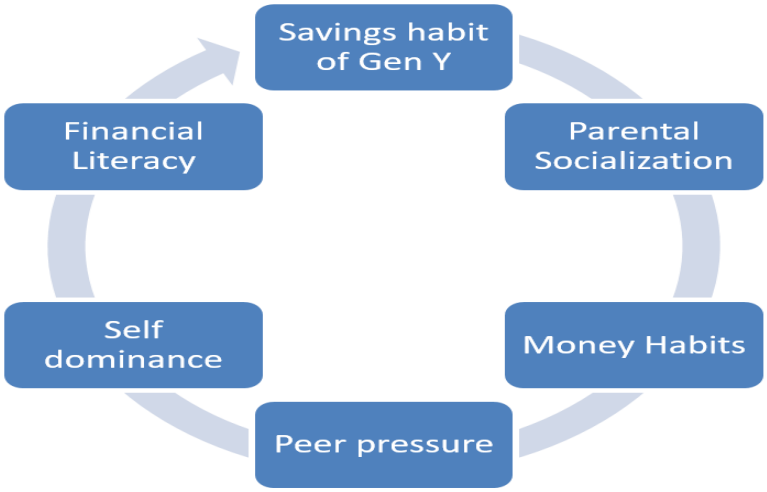

Figure 1.3: Savings attitude and habit formation by various factors
Source : (Shaliza Alwi, Irma Zura Amir Hashim, 2015)

(Shaliza Alwi, Irma Zura Amir Hashim, 2015) studied the different factors like "financial literacy, parental socialization, peer influences self-dominance and money habits which forms the savings attitude amongst the Gen Y'ers". Financial literacy can be encouraged with various drives, campaigns, online and offline courses including classroom programs as well as through financial institutions. Parental socialization can be explained as teachings by parents on how to manage money and the right amount of pocket money allowed to inculcate the positive financial awareness in the child (Centre

for Financial Security, 2012). The individuals falling under the Gen Y cohort are under continuous peer pressure (Montandon, 2014). They tend to learn things from peer group through direct and indirect ways (Vincent-Wayne Mitchell et al, 2015). Self-dominance in the form of asserting control on others by dominating them was studied in Gen Y by (William Andrews Tipper, 2014). They rely more on parents, friends and family rather than financial advisors alone for their investment decisions. Money habits of the millennial generation can be better understood with their spending habits. They undertook caution while taking their financial decisions. (Figure:1.3)

Here are some characteristics of Millennial which models their financial behaviour like how they spend, manage, and invest their money.

Savings

In India, social security schemes are not so lucrative. Moreover, pension plans in all government and public sector jobs were withdrawn post 2009. Corporate jobs are supposed to be insecure by nature and it hardly has had pension plans. All these conditions have made Millennial save for their retirement at an early age.

Following data has been taken from various sources as mentioned in brackets.

- According to Natixis Global Asset Management, Gen Y started savings 4 to 8 years before than the Gen X. **(CSMonitor, 2017)**
- In accordance with the survey by Transamerica in August 2016, 28% of millennials are not saving for their retirement. Every year they have seen a 40 % increase in the savings of the Gen Y. Median age of savers in Gen Y is 22 years.**(Nasdaq, 2017)**
- Millennials consider themselves as 25% spenders and 49% savers. **(Experian, 2016)**
- As per the survey conducted by AT Rowe Price 25% of the millennials are not monitoring their expenses.**(Forbes, 2015)**
- 33% of millennials are not preparing and following any budget. **(Forbes, 2015)**

Credit Cards

For most millennial, a credit card can be a boon and bane at the same time. It is very useful and convenient way to help them in any cash crunch or until the next paycheck arrives. The rewards points based on spending and EMI option are huge hit among the Gen Y. Bane arrives when they spend more than they can afford and are not disciplined

in paying the bills. It incurs high interest rate. Many lose on their credit score by attempting credit card defaults.

Following data has been taken from various sources as mentioned in brackets:

- Credit cards are possessed by 37% millennials whose age lies between 18-29 years. **(Bankrate, 2016)**
- Most swiped items on the credit card are related to food and utilities with almost 50% of the millennials. **(Investopedia, 2016)**
- 57% of millennials withdraw cash from their credit cards which attract high charges. **(Forbes, 2015)**
- Nearly 9% of millennials miss their credit card repayment and almost 12% were refused credit card from the companies. **(Experian, 2016)**

Investment

Self-financial literacy and instinct drives the millennials towards investments. Word of mouth also plays a vital role. They also expect and need advisory roles from their financial institutions rather than just doing transactional obligations for them.
Following data has been taken from various sources as mentioned in brackets:

- Only 20 % of millennials invest in stock market. **(CNBC, 2016)**
- In accordance with the survey of ShareBuilder, almost 40% millennials have no trust on the financial markets. **(CNN, 2015)**
- 26% millennials don't find investment attractive. **(Forbes, 2015)**
- Nearly, 25% of the income is allocated to investment buckets by millennials. **(Wall Street Survivor, 2015)**

Spending On Life Experiences

Experience economy, YOLO, FOMO movement are the buzz words these days as expenditures are allocated on real-world experiences or living and sharing happiness with family and friends. It's not only for uploading pictures on social media but to creating bonds and encash on happiness.
Following data has been taken from various sources as mentioned in brackets:

- According to the Harris Group study, 72% millennials spend money on experiential living rather than just splurging on materialistic things. **(CNBC, 2016)**

- 55% millennials are spending on events like live concerts, music festivals and fun runs. **(Eventbrite, 2014)**

Amongst all the evident behaviours of the millennials, low financial literacy and undesirable financial behaviour is the most worrisome. They lack the ability to effectively use their earnings. The main reasons is consumerism in terms of irrational buying with impulse and without thought. This consumptive nature is further aggravated by ease of online transactions for payments (Parmariza and Juniarti, 2017). Due to this very nature, they are not able to differentiate between their primary, secondary and tertiary needs. But they give attention to wealth and they are reactive to changes in the environment around them.

Bankruptcy amongst Millennial or Gen Y'ers has become a worldwide issue. Malaysian Department of Insolvency in the year 2020, reported 84,805 people bankrupt from the year 2015-2019. Out of which, 21,844 individuals were of millennial age group. The reasons behind these bankruptcies were loans mainly personal loans. (Chen-Chen et al, 2018) investigated that the financial institutions provide easy access to personal loans which allows the millennial to use the money for enjoying their life and doing impulse buying. (Koon & Nurazrin, 2015) denoted them as ambitious and money-oriented generation. Due to their negligence, the financial responsibility will pile up when the generation gets married and will also shift to the coming generations (Liezel & Chrizaan, 2015).

KPMG in the year 2015, carried out a research with focus groups of Australian citizens between the age group of 18 to 30. They found that the Generation Y wants to be empowered with their finances but most of them didn't have a financial planner. The said generation suffers with lack of financial security which can lead to deterioration in quality of life and social problems which will eventually may become a cause for inhibiting the national development (Idris, Krishnan and Azmi. 2013). Emotional buying leads to growth in private consumption which regresses the growth of the financial market of the nation. Private consumption means splurging money on consumer goods, debts from local pawns, investments in buckets other than financial markets where money gets blocked or of no use to the financial sector or other sectors for the development of the nation.

Accenture Financial Services Global Distribution & Marketing Consumer Study conducted a research survey with over 33000 people who are the customers of financial services of either a bank, NBFC or insurance companies at 18 different markets only

to find that Millennials are pulled towards GAFA model. It sounds as shingles but the barriers to entry for the integrated payment service are very low as compared to other times and would end up as a loss for retail banks holding a full-fledged banking license. Amazon Pay, Apple pay and Google pay have already initiated app based payment banking. Thus it can be said that Gen Y is drawn towards GAFA for every other services including banking and finance.

Table 1.1: Contribution by different authors towards the literature pertaining to Gen Y

S.No.	**Authors' name**	**Contribution towards the literature pertaining to Gen Y or Millennials in chronological order.**
1	(Smith, 2011)	Gen Y'ers consider the opinion of their peer group while buying any product. They are affected by the digital marketing campaigns like personalization, graphic use, etc. They are deal oriented in terms of coupons, promotional offers and other augmented benefits with the desired product or service.
2	(Weyland, 2011)	Technology has played an important role for the generation Y in communicating with ease and pace. The generation is inclined to brand and are attracted to companies with values and ethics.
3	(Moore 2012)	Internet is an intrinsic part of their research for any product buying. They check the details over internet, social media, blogs etc., for the product information as well as the user feedbacks. They also download various applications for the information, usage and feedback.

4	(Valentine & Powers 2013)	They look for self-expression in everything they do and buy. They should get associated with the brand in order to own it. Most frequent purchases of the said generation includes clothing, beauty, wellness, footwear, jewellery, sports, entertainment, health, food and wellness. Millennials are not very loyal to any specific brand. The said generation believes in word of mouth marketing more than any advertisement. Retailers can get the feedback from the millennial consumers through social media easily.
5	(Francis & Burgess 2015)	Gen Y'ers believe in show offs. Even if they cannot afford a particular product, they try to get the copy of the same which are almost similar looking but 'fake'. This act is called 'cool consumption'. They want the status of that very product but without paying the price. It shows their consumptive nature with a sense of cheat and rebel.
6	(Martin 2015)	Credibility, word of mouth from their friends and social networking content is important for them.
7	(Ordun 2015)	Millennials have this tendency of spending money as soon as they earn it. They identify themselves with the brands' name and reputation. But they are not loyal to the brands and if they are, their loyalty does not last for more than an year.
8	(Rahman 2015)	Pull strategy employed by the brands attracts the millennials as the brands allow them to engage with themselves and co- create them. This gives the millennials, a sense of accomplishment.

9	(Satinover, Raska, & Flint 2015)	Convenience shopping is always preferred by the millennials. They expect exchange of communication between the merchants and themselves.
10	(Weber 2015)	Millennials are the future leaders , largest population and pool of investors. They are creating altogether a new consumption model on the global business platform. They are inclined to healthy, fresh food with eco-friendly packaging from the restaurants.
11	(Bilgihan 2016)	Generation Y has already become the largest consumer segment for the hotels as they love to splurge on travelling and experiences. They love to book online due to the hedonic and utilitarian features which positively affect their customer loyalty. Consumer psychologist, Kit Yarrow denoted 'Internet as the third hand and second brain of the millennials'. E-commerce provides the shopping experience to the millennials which they use for buying purposes and for the enjoyment . They have grown up at the time when branding was everywhere . Thus, they possess an attitude towards the brand but are less loyal customers when compared to other generations.
12	(Junker et al. 2016)	Generation Y make emotional and momentary decisions.
13	(Lissitsa & Kol 2016)	The consumption of the millennial generation shows the quest for the status, wealth and the purchasing power. Their taste and loyalty changes with latest trends, fashion and popularity of the brand. They focus more on the quality and the style in comparison to the price.

14	(Muda et al. 2016)	Generation Y loves to buy online through social media platform as it gives them more confidence on the reputation of the online merchants.

Although the members of one generational cohort exhibit certain common characteristics but they are also subjected to different demographic factors. Research says that the millennials or Gen Y'ers may differ in their expectations and priorities within their cohort. This means that market segmentation under generational cohort is useful social categorization. One may encounter exception in generalizing the research outcomes for the entire generation beyond demographic boundaries. The authors have studied the significant heterogeneity with very little variance within the millennial generation. Thus, the commonalities among the Gen Y'ers qualify to get studied and scrutinized under the lens of social science research.

1.2 Household wealth

The population of India constitutes around one fifth of the entire world population. Moreover, India alone has 460 million millennials or Gen Y'ers which constitutes around 34 % of the population of India. Thus, it becomes imperative for the researchers to study the personal, household wealth of the Indian millennial population from a global point of view. Wealth is a non-exhaustive indicator of welfare. Household wealth supplies the financial resources to different sectors of the economy to do gross investments. The economy of a country grows with the movement of the financial assets and liabilities of households. Sixty percent of gross savings of the Indian economy is contributed by the households alone. Household wealth is the consistent and self-sustainable source to finance the India's economic structure.

There are two school of thoughts for the definition of household. According to Indian system of National Accounts (CSO, 2012), "Household sector includes individuals, unincorporated establishments like sole proprietorships and partnerships, non-profit organizations like educational institutes, trusts, NGOs, etc., and other non-government, non-corporate enterprises like farm and non-farm business." According to the UN System of National Accounts 2008, only those individuals sharing the common accommodation can be termed as household. It is a group of people living together under the same roof and sharing food from the same kitchen. Those individuals contribute money from their income or wealth and claim their rights on the resources of the household.

In this manner, the non-profit organizations get excluded on their own. The household sector, being an unorganized sector, does not have its direct estimates available on the record. Thus, various approaches are used in order to calculate the estimates of household balance sheet. The residual approach is one approach in which the estimate is derived from the accounting of the 'instruments held by public and private corporate sectors'. Secondly, by the data collected through surveys and thirdly in the form of financial flows through changes in assets & liabilities based on the secondary data from the financial institutions. The sectoral reports based on the rates and ratios along with the logical judgement of the RBI employees are also used to derive the estimates of the household balance sheet. The estimates of the following two instruments out of many financial assets can be calculated as the flow data is readily available through system.

Δ (P.F. & Pension Fund) = Contribution + Interest - Withdrawals

Δ (Life Insurance Funds) = Income - Expenditure

The household wealth level of any household can be described with its average level of asset holding and its unequal distribution.

W = μ (1-G);

μ is asset holding,

G is the Coefficient of unequal distribution of assets and

W is the measure of the distribution adjusted mean which interprets the level of wealth in terms of good and bad.

The value of W varies from urban to rural areas. The value of W is Rs. 3,94,111/- for Punjab which makes it best performing state in rural India. The worst performing state in rural India is Orissa with W-value of Rs. 41,055. Similarly, among urban regions, Kerala is the best performer with W- value of Rs. 3,51,374/- and Orissa is the worst performer with W- value of Rs. 85,475. Research has investigated that net worth is more accurate in calculating wealth of the household. Net worth can be explained as the difference between the assets and liabilities of any household. (Malhotra,2020) studied the sectoral household balance sheet of India from the year 1970-71 to 2017-18. Household balance sheet (HBS) are available with few high income countries. OECD (Organization for Economic Co-operation and Development)also provides data for its 38 member countries in the form of household financial assets and liabilities. Shorrocks et al. (2019), studied the importance of such data. In the country like India, more importance is given to GDP rather than wealth accumulation and income growth. That is why, there a dearth of data availability. Due to which, the indebtedness in the

household is so underestimated. The data for household wealth was collected by All India Debt and Investment Survey (AIDIS) for some time. Recently, RBI released the estimate pertaining to household balance sheet from the financial year 2012 to 2018 (Figure: 1.4).

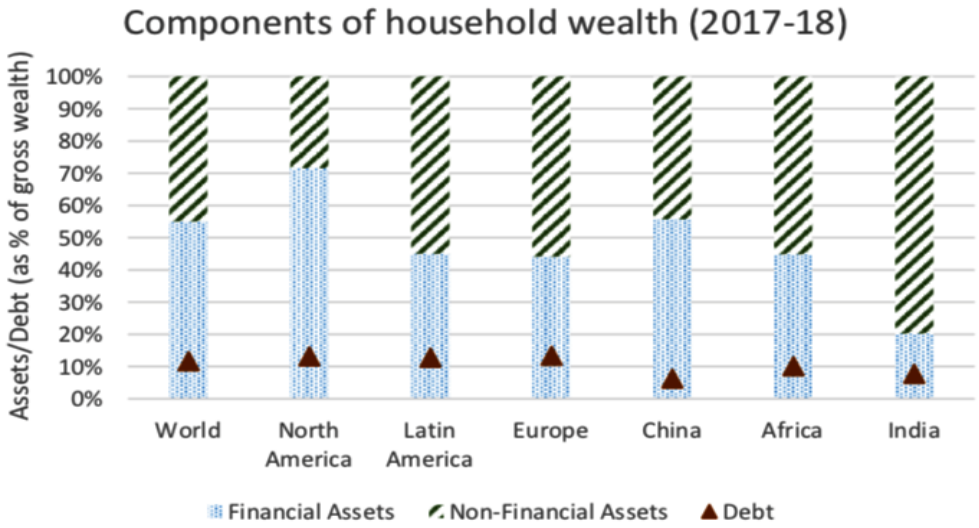

Figure 1.4: Illustrates the component of financial & non-financial asset amongst different countries. India can be seen with major part of its household wealth occupied as and by non-financial assets.Image Source (Malhotra,2020)

Household wealth comprises of eight types of assets which are items owned by the household possessing monetary value. These are land, building, farm and non-farm equipment, livestock, transport, durables and financial assets. In context of this research, only financial subset of the household wealth is taken into consideration. The investment in financial assets has always been low in the country like India. In the year 2002-2003, the share of financial assets was only 5.01% which accounts for twentieth part of all the assets (Brandolini et al., 2004). While investing into the financial assets, investors are more biased towards the deposits(Figure: 1.5). Around 92.3% of all assets are invested in deposits (Figure: 1.6). A countrywide household survey was conducted by NCAER (National Council of Applied Economic Research) in the year 2000. The study by (Subramanian & Jayaraj, 2009) showed that despite the economic liberalization and other developments, the percentage of the Indian household investing in equity shares and debentures is only 4.5%.

As per the AIDIS' (All India Debt and Investment Survey) data by RBI in the year 2017, the household investment of an average Indian ranges with "77 % in real estate, 11% in gold, other durable goods at 7% and mere 5% in financial market". In a country like India, the most common pattern of household investment includes 80% of the non-

financial assets and 20% of financial assets.

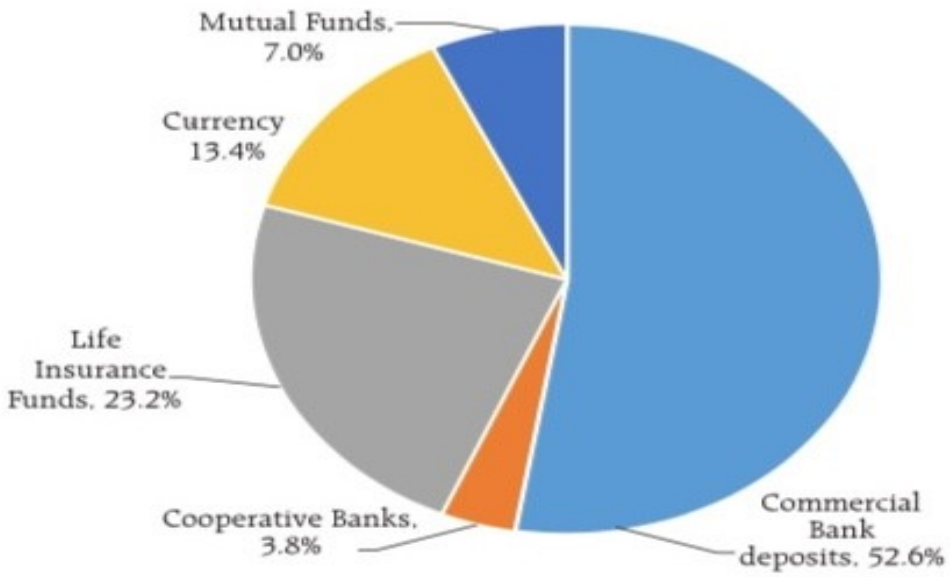

Figure 1.5: Illustrates the share percentage of various financial assets. Household assets are predominated by deposits which constitutes around 52.6% of the total financial assets followed by insurance, currency and mutual funds.
Image source: RBI Bulletin, June' 2020
(Quarterly Estimates of Households' Financial Assets and Liabilities, 2020)

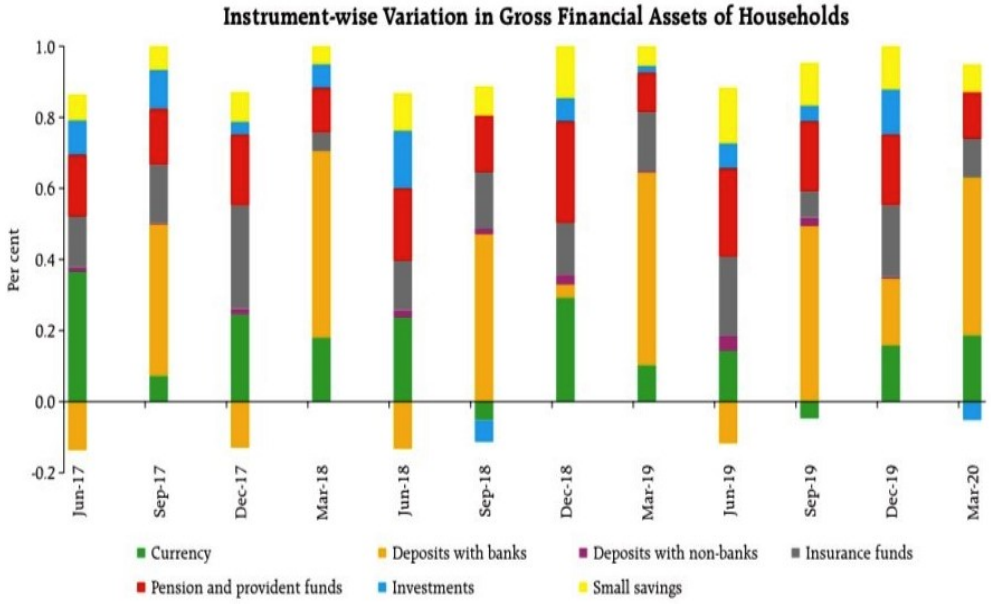

Figure 1.6: Illustrates the changes in the percentage share of various financial assets over the years. Alhough fluctuating, deposits with banks are predominant, followed by currency, pension and provident funds.
Image source: RBI Bulletin, June' 2020

Household in China invests 56% of their wealth in financial assets. Developed or industrialized countries invest almost 72% of their wealth in financial assets. Other developing countries like 'Latin America or Africa invest 45% of their wealth in financial assets'. Thus, it is evident and was also studied by IMF Financial Development Index that the financial development in a country is directly related and proportional to percentage share of investment in financial assets. (Shorrocks et al, 2019) studied that "the 37 % of the financial wealth of household is invested in liquid assets, 29% in equities and 34% in other financial assets on an international basis. Lesser inclination towards equities is associated to a systematic negative association between equities and other financial assets". Countries with private pension system are also cornering equities. Households possess portfolio which is spread instrument wise in form of financial assets and liabilities. The instruments vary in their degree of liquidity and risk. Some of the instruments pertaining to financial assets are currency notes, deposits, debt securities, mutual funds, insurance, pension funds etc. Similarly, the instruments related to financial liabilities are loans and borrowings. Amongst the various financial assets of the household, the currency and deposits are the most preferred financial bucket which dominates the financial market with almost 55% share and is continuing with the same for a long period of time. The share of life insurance funds has reached to 18.6% in the year 2017-18 from 8.1% in the year 1990-91. In contrast to it, the share of Provident funds and other retirement pension funds decreased from 18.1% in 1990-91 to 15.5% in the year 2017-18. The most affected bucket amongst the financial assets is shares and debentures. Their share was 7.3% in the year 1990-91. It further increased to 10.9% in the year 1995-96. But in the last five years, the market share has come down to mere 3% to 4%. The reports from RBI shows that "Currency and deposits are highly liquid in nature as they can be liquidated in case of any financial distress or emergency without any loss in their value. Whereas equities and debt securities are highly fluctuating and the pension and insurance funds have restrictions and lock in periods for liquidation. The money collected in Public Provident Fund and National Small Savings Fund are pooled in debt instruments, mostly securities issued by center and states or agencies like FCI, NHAI etc. Insurance funds are dominated by LIC, India which is a state-owned enterprise having market share of 70% or more. It is also considered safe financial product as explicit sovereign guarantee is provided to all the policyholders under section 37 of the life insurance corporation act of the parliament, passed in the year 1956". Product like these have crowding effect on the equity shares and debentures and cultivates preference towards other financial products like currency and deposits. (Figure: 1.7,Figure: 1.8)

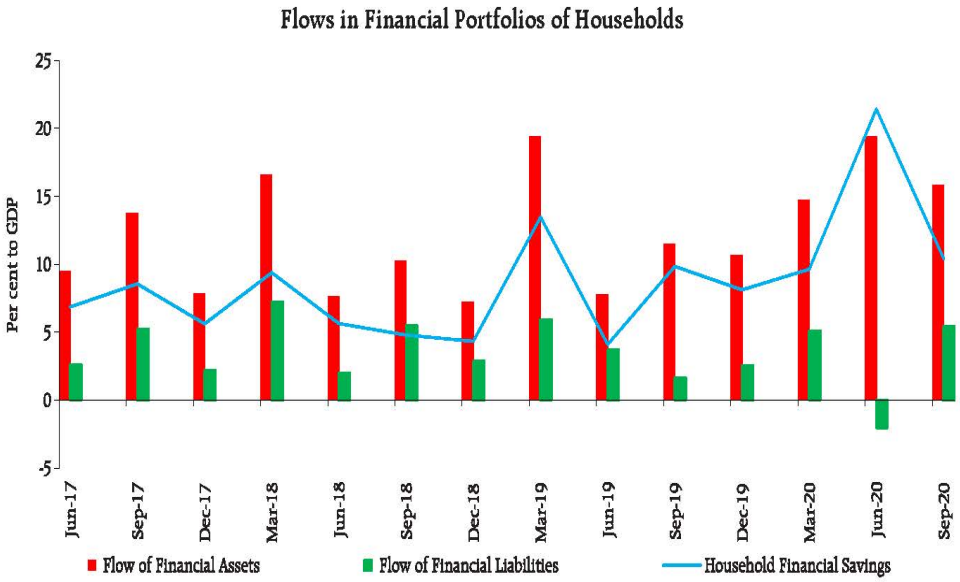

Figure 1.7: Illustrates the net household savings with the financial flow of household assets and liabilities for various quarters. It's been fluctuating subject to various internal and external conditions. Household savings reached at peak in the June'20 quarter as consumption was limited to only essentials under pandemic situations pan India.
Image source: RBI Bulletin, June' 2020

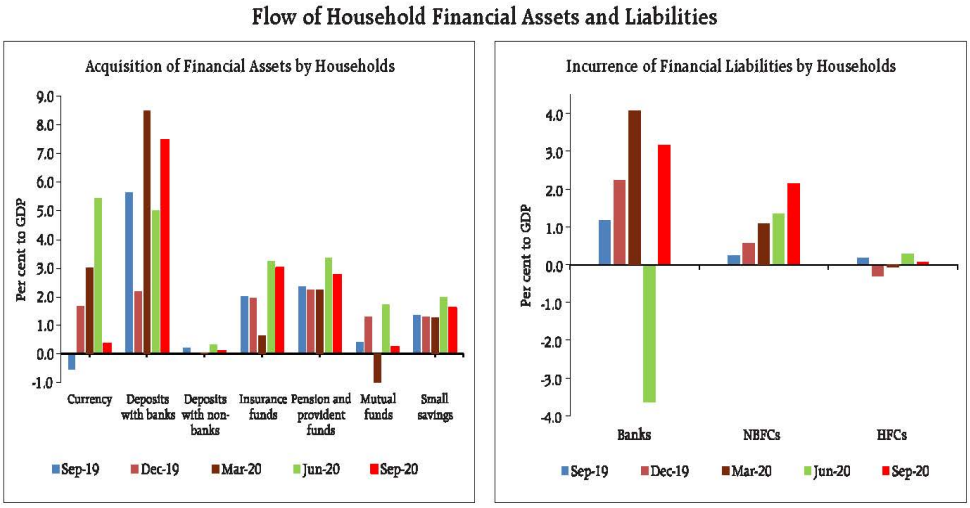

Figure 1.8: Illustrates the acquisition of financial assets and incurrence of financial liabilities for various quarters.
Image source: RBI Bulletin, June' 2020

The net total liabilities in 2017-18 was Rs.108 trillion whereas the household indebtedness was Rs. 1.4 trillion in the year 1990-91. In terms of per capita, it has grown from Rs. 9460/- in the year 1990-91 to Rs. 51,082/- in the year 2017-18. Commercial banks are the most preferred credit institutions for Indian households. They have

sanctioned almost 80-90% of the total household debt. NBFC (Non- banking financial corporation) have also increased their share from 7.6% in FY2014 to 16.4% in FY2018 (Figure: 1.9).

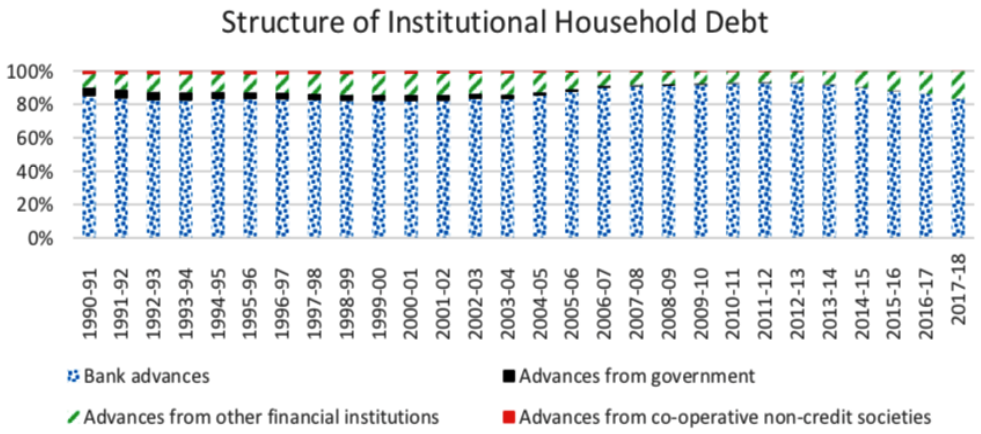

Figure 1.9: Illustrates the percentage share of the various credit sources for household debt. It is evident that commercial banks are the most preferred credit institutions for Indian households. Image Source (Malhotra,2020)

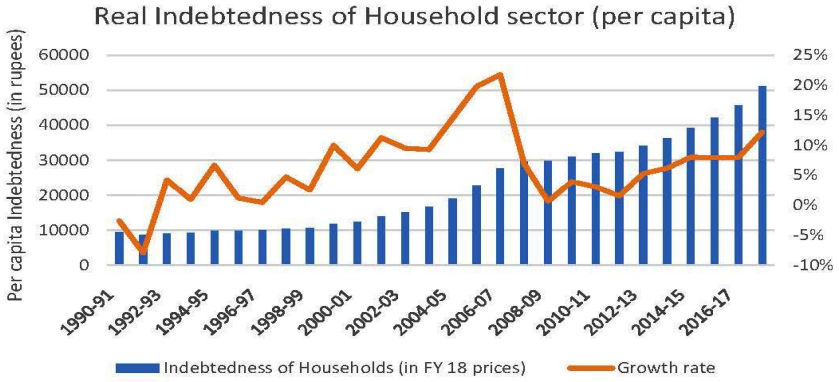

Figure 1.10: Illustrates the per capita indebtedness of household and its effect on the growth rate of the sector
Image Source (Malhotra,2020)

The financial soundness can be explained on the basis of three main indicators. First indicator is the liabilities to liquid assets ratio which checks for the solvency risks of the household sector. It measures liquidity adjusted risk associated with household debt. It raises concerns over the liquidity of various non-financial products like land, gold, vehicle and other durables. The liabilities to liquid assets ratio has risen 'from

49% in 2000-01 to 66% in the year 2017-18.' Another ratio is debt to household disposable income which calculates the debt service capacity of the household. The ratio of debt to household disposable income was 26% in the year 2000-01 and it rose up to 54% in the year 2017-18 which indicates a collapse in debt service capacity of Indian households. It is the cause of concern for the household debt sustainability as the end use of the debt may be consumptive in nature.(Figure: 1.10)

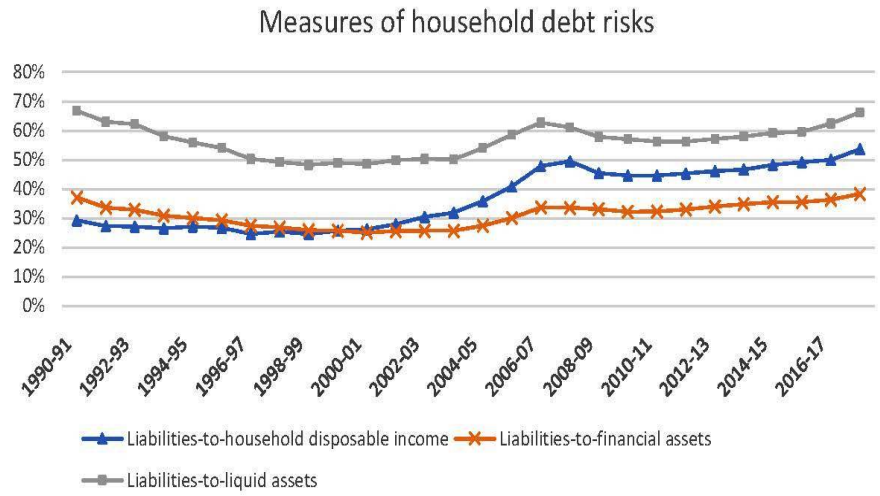

Figure 1.11: Illustrates the three financial ratios to measure and check the household health in terms of risks with debts Image Source (Malhotra,2020)

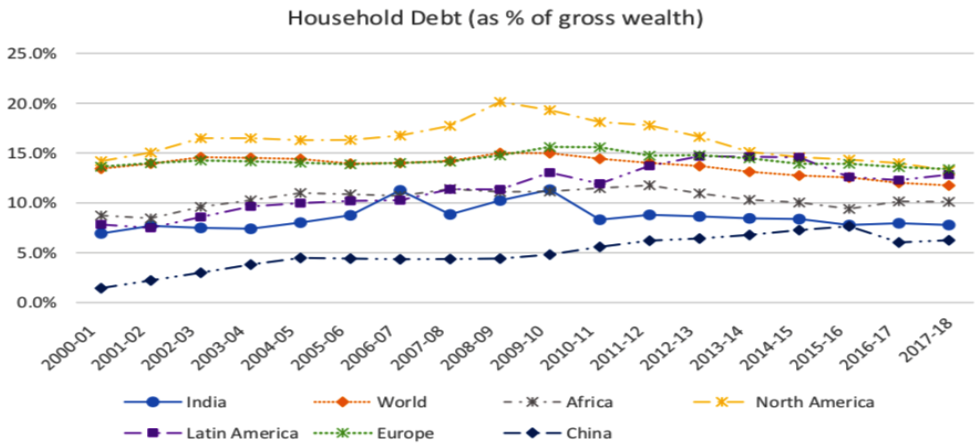

Figure 1.12: Illustrates household debt as a percentage of gross wealth

Li (2018), investigated the relationship between the default risk and solvency in the household sector. The third important ratio is liability to financial assets ratio which

measures the risk attached with the household assets being funded by the household debt which is also continually on the rise.(Figure: 1.11,Figure: 1.12,Figure: 1.13)

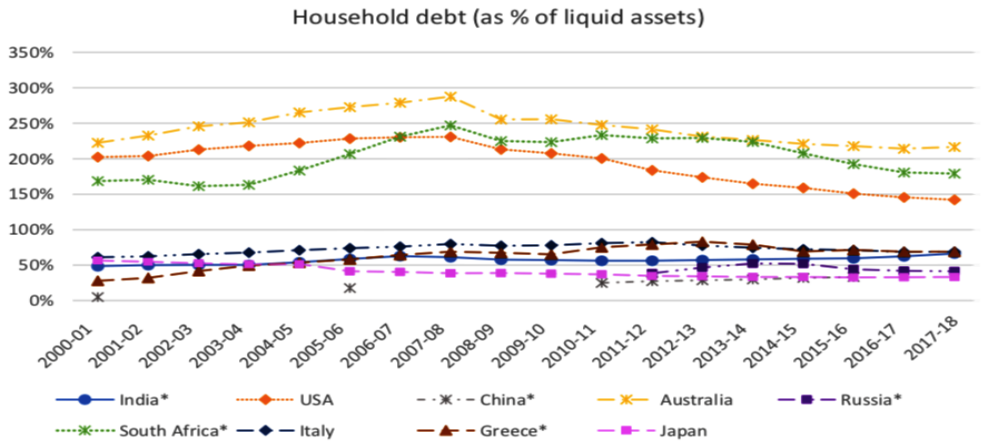

Figure 1.13: Illustrates household debt as a percentage of liquid assets
Image Source (Malhotra,2020)

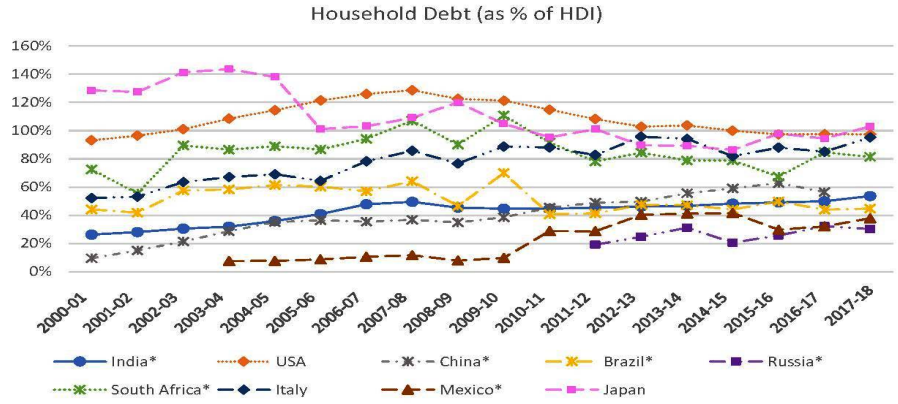

Figure 1.14: Illustrates the household debt as a percentage of household disposable income.
Image Source (Malhotra,2020)

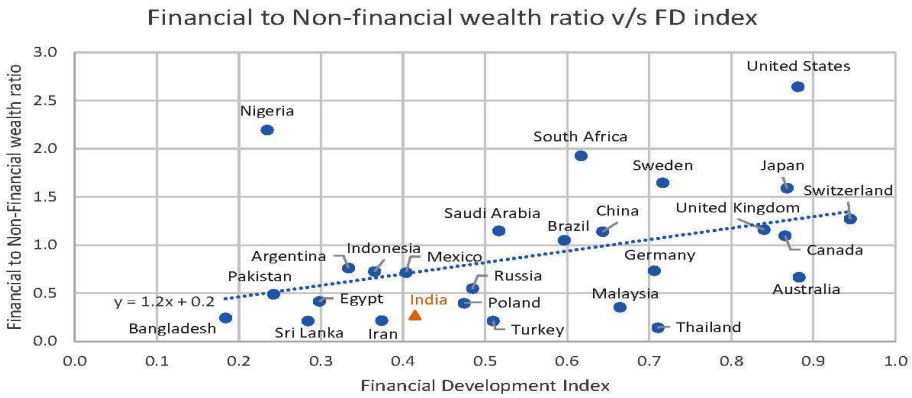

Figure 1.15: Illustrates the position of India in terms of Financial Development Index Image Source (Malhotra,2020)

Household debt

2013-14: Rs 3.59 lakh crore
2014-15: Rs 3.77 lakh crore
2015-16: Rs 3.91 lakh crore
2016-17: Rs 3.75 lakh crore
2017-18: Rs 6.74 lakh crore

BANK'S CREDIT PORTFOLIO	2013-14	2018-19
Consumer Durables	0.23%	0.04%
Home loans	9.47%	13.13%
Credit Cards	0.45%	1.05%
Education loan	1.09%	0.86%
Vehicle loan	1.92%	2.46%
Personal Loan	3.61%	6.90%

Figure 1.16: Image Source:RBI data

The increasing leveraging ratio is all set to pose threat towards the sustainability of the household debt in India. The level of development in the financial sector has halted and stagnated with the Financial Development index score of 0.42 in the year 2000. The same score was carried to the year 2017. (Figure: 1.14)

In the lending portfolio of the banks, there have been a substantial jump in the share of personal loans and credit cards. Both of them are unsecured loans with no collateral security. Any default in the repayment is detrimental for both the financial health of the household as well as for the economy. Household wealth has come down in a

significant manner after the financial crisis.(Figure: 1.15)

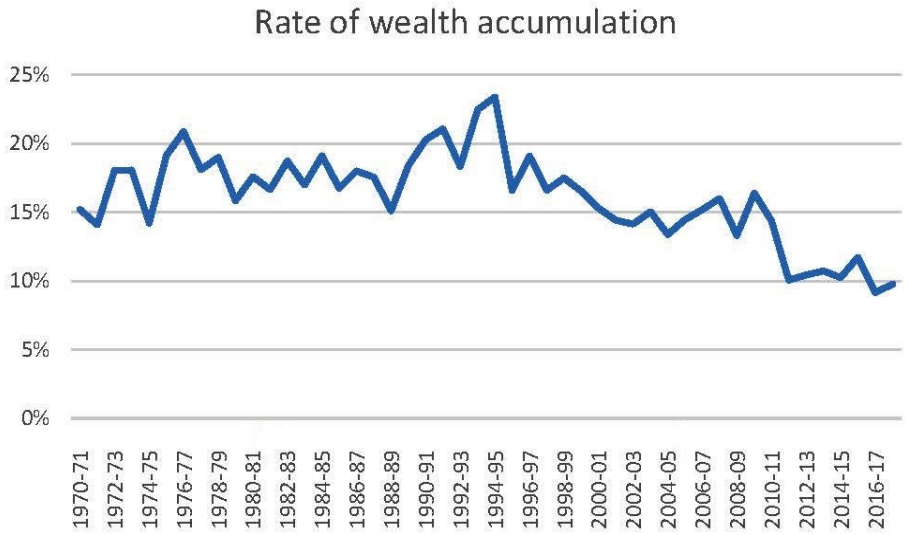

Figure 1.17: Illustrates the downfall in rate of wealth accumulation over the years. Image Source:(Malhotra,2020)

Indian household sector has always been in 'an upward leveraging cycle' with leverage ratios also at higher levels. Indebtedness in Indian household sector is continuously on the rise post-recession recovery period of the year 2010. The alarming increasing rate of these ratios especially debt to income ratio is due to high consumption which is more than the disposable income since the financial year 2010-11. In the year 2017, RBI investigated that the Indian household has been borrowing more frequently from non-institutional credit sources.(Figure: 1.16, Figure: 1.17)

1.3 Financial Literacy

Financial markets have evolved in the last one decade due to rapid economic and technological advancements. (Mooney, 2008) has examined the importance of consumer's education with the ever increasing array of complex financial products, services and providers. The relative inexperience of the consumers with the escalating complexity of financial products and services may prove detrimental to their financial judgement. Financial knowledge deficient individuals may harm their families as well as the community by taking poor financial decisions. This void and illiteracy pertaining to finance can be a function of lack of access and fear.

Financial literacy is important for youngsters as they are new to the world of personal finance. (Duguay, 2001) has studied that the financial literacy can help youngsters to avoid any financial loss. Fifty percent of the informal financial education is done at home. Very few people get the formal financial education at school or in higher education. Fortunate few have the opportunity to get acquainted with the complex financial products and services by their financial providers. Financial education courses are still optional elective courses in higher education. Most of the courses did not necessitate the presence of financial literacy programs in their course structure. Perhaps, the time has arrived when the financial institutions shall enhance their websites, mobile applications, infomercials, radio ads etc., with the informative offerings to cater to the need of financial knowledge of the consumers of all generations. This need identification gap can be filled by the financial institutions. Financial training can be explained as a form of action which enables the individual to gain full understanding of monetary or financial concepts, products and services. Financially educated individuals are more prepared for unforeseen situations like pandemic, recession and other volatile situations of the financial markets.

Continuous research is going on with respect to financial literacy. Although financial literacy is objective in nature but (Tang & Baker, 2016) examined that "the objective financial knowledge is important but insufficient driver in terms of exhibiting responsible financial behavior". The authors studied the importance of the subjective side of the financial literacy and proposed that the self-esteem is related to the financial behavior through subjective financial literacy in direct and indirect manner. Previous research have ignored the bi-dimensional nature of financial knowledge i.e., "what a person knows in actual is objective and what a person believes he knows is subjective. Two individuals with same objective financial knowledge shall hold different subjective evaluation of their knowledge". This leads to variation in the financial behavior. (Allgood & Walstad, 2013; Hadar et al., 2013) have examined that subjective financial knowledge is more effective in determining the financial behavior as compared to the objective financial knowledge. (Hadar et al, 2013) indicated that the "objective knowledge is more related to an individual's ability to make effective financial decisions for more responsible financial practice." (Figure: 1.18)

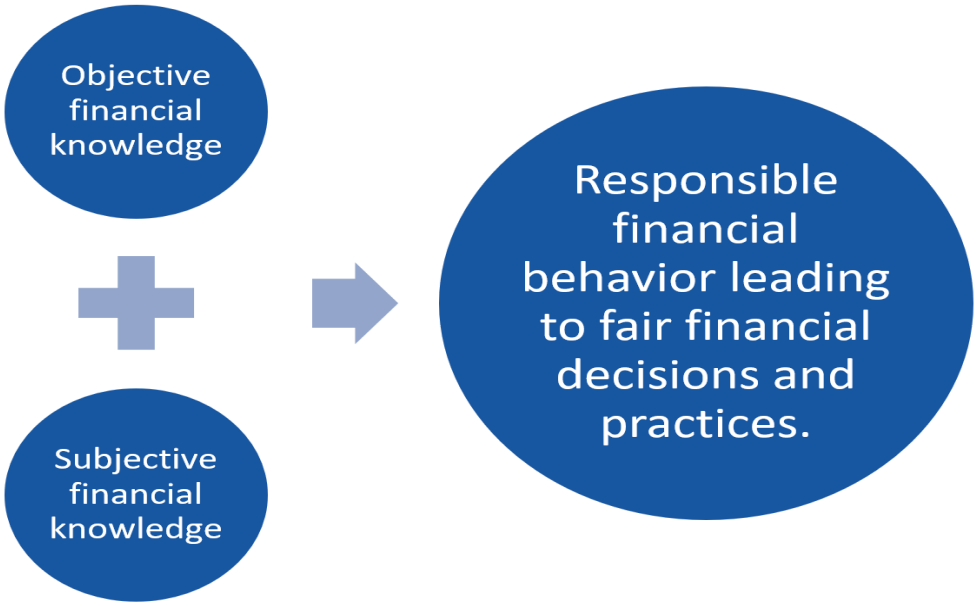

Figure 1.18: Financial behavior is constituted by both objective and subjective financial knowledge
Image Source:Author

(OECD, 2013) defined financial literacy "as a combination of awareness, knowledge, skill, attitude and behavior required to take financial decisions and ultimately achieve individual financial well-being." The modern economy has created a pressing need for the financial literacy and labelled it as an essential skill. The term financial literacy is often used as a synonym for financial education but there exists a difference between the two. (Huston, 2010) explained two dimension of the financial literacy i.e., understanding to educate oneself and application of such education in real world of personal finance management. (Savoia, Saito and Santana 2007), defined financial literacy as "the process of acquiring knowledge and skills enabling safer decisions thereby improving the personal finance management." Financial knowledge is not only an essential skill but also a kind of human capital learned and acquired throughout life. Learning happens from managing and facing issues from savings and expenditure (Delavande, Rohwedder & Willis, 2008). Financial literacy is also complex to measure. Measurement entails assessing the level of financial literacy which leads to measuring the degree to which a person understands the financial concepts and manage the personal finance. (Huston, 2010) has examined that there is no standardized instrument to measure the financial literacy. Different questionnaires are designed by various authors and researchers to measure and quantify the financial literacy level amongst individuals. Lusardi and Michelle developed questionnaire with the set of three questions

based on basic financial concepts like interest rates, inflation and risk diversification. The figure of the stepping ladder is formed starting with numeracy skills at the bottom to basic and advanced financial knowledge on the top of the former. (Figure: 1.19)

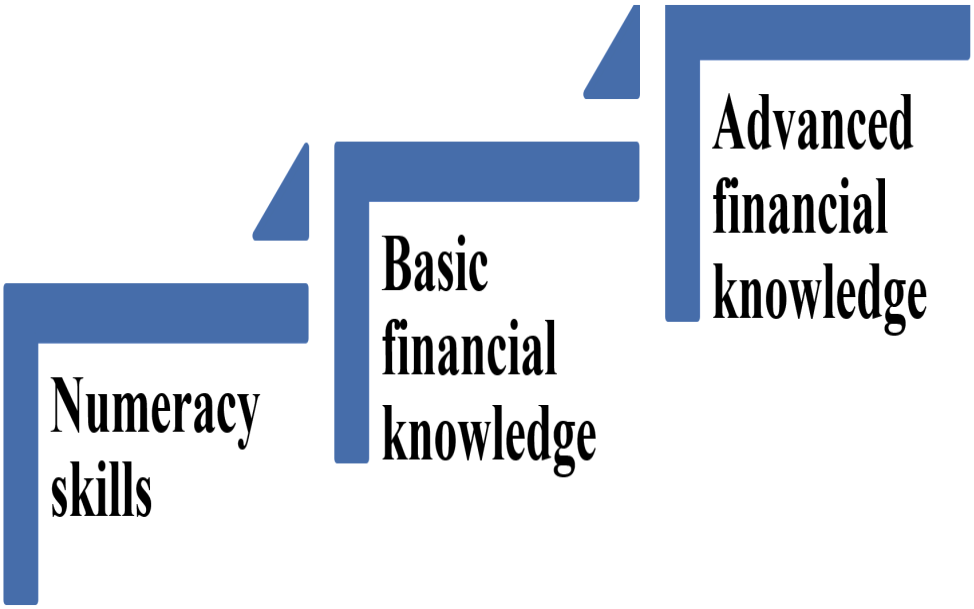

Figure 1.19: Step by step financial education
Image Source:Author

Need for financial literacy is just and must for everyone but it holds the special importance amongst the youngsters of the middle class in emerging economies like Asia. The economies like Asia are characterized to have rapid growth, emergence of larger middle class with huge structural changes as studied by (Kharas, 2010) and (Ravallion, 2010). The need for financial literacy increases as the increasing income favours higher savings and the availability of complex yet sophisticated financial products are continuously on the rise in the financial market. Moreover, longevity with increase in social individualization makes retirement planning a necessity. These changes are rapid in urban areas in almost all emergent markets. (Campbell, 2006) has studied "the importance of financial literacy for the individuals to be able to tackle these challenges". Government is concerned about the financial literacy of its citizens as the uninformed financial decisions are not only detrimental to their own financial health but also for the entire nation (Gerardi, Goette, & Meier, 2010).

Literature has indicated that the demographic and socioeconomic factors have a profound effect on the financial literacy. Gender is one of the many demographic factors surveyed for the comparison of the financial literacy levels of males and females. Many

studies have highlighted the lower financial literacy levels amongst the females. Despite of all these issues, no agreed indicators or widely accepted model for financial literacy has been modelled. Financial literacy is a multi- dimensional concept and it is not possible for a single construct to cover all the dimensions involved in measuring the financial literacy. The individuals are exposed to an array of complex financial products with an added responsibility of technological proficiency. To understand the risk and suitability attached with the financial products and services, one need to be financially literate. The financial literacy can be divided into basic and advanced form. With the advent of technology and availability of information at hand, there is a paradigm shift from advisory assistance to self-analysis of financial products. When a person is self-reliant for the investment analysis, better knowledge and information about the financial products is needed at the individual end (Marsden et al., 2011). Firstly, individuals must be well versed with the financial terminologies used in the market place. Secondly, the features and the risks involved with the products empowers the investors and increase their confidence and capability to select a particular product portfolio. Thirdly, they have to monitor the performance of the products in the financial market. The requisites of financial literacy is that the individual should be acquainted with the forms, functions and risks pertaining to the operations they wish to contemplate.

A survey was conducted by Visa in the year 2012 to calculate the ranking of countries in terms of financial literacy (Figure: 1.20). The survey was conducted in the month of February to April 2012 with 25,500 participants of 28 different countries. The survey comprised of five questions and the score was calculated out of 100. Brazil topped the list and Pakistan was at the bottom with 50.4 and 27.3 score out of 100 respectively. Standard & Poor's Global FinLit Survey was conducted in the year 2015 which concluded that only one third of the world's population is financially literate. This conclusion was drawn after interviewing more than 150000 adults randomly selected from more than 140 countries across the year of 2014.

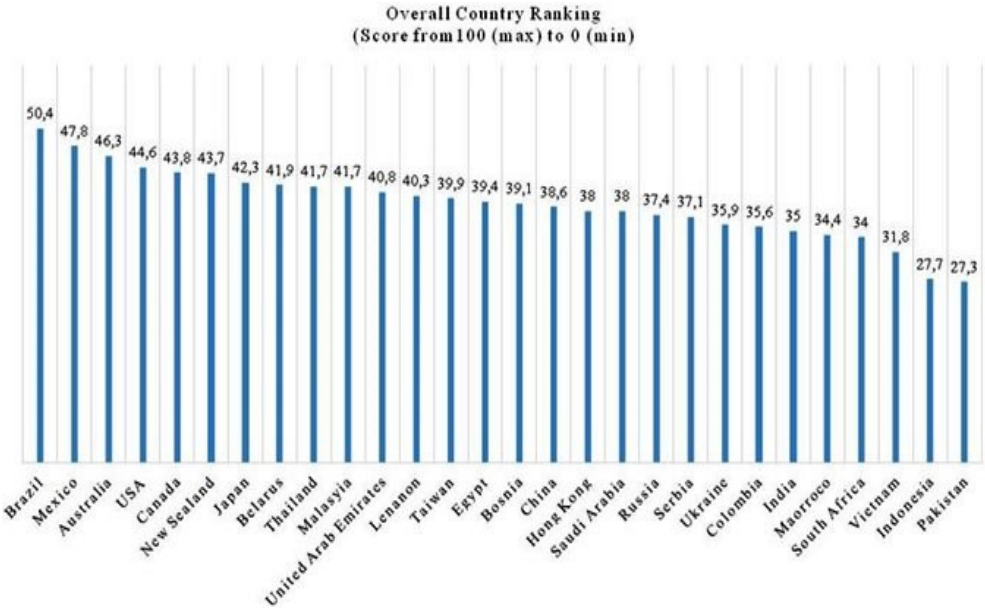

Figure 1.20: General Nations Ranks (Most economically well-read, left to right)
Image Source: (Barometer, 2012)

Special drives are employed from time to time to spread the awareness about the financial literacy. Games, quizzes etc., can prove to be powerful means of teaching, educating and evaluating knowledge tools (Guillen- Nieto & Aleson- Carbonell, 2012). These games or quizzes reduces the effort of cognitive learning (Lee & Hammer, 2011). Computer games can also prove to be beneficial in imparting financial literacy as the computer games are popular amongst young audiences. They are persuasive teaching tool (Paraskeva et al., 2010) and could be used to inspire people and make them learn strategy making skills (Vos et al., 2011). (Gee, 2003) has examined that the computer games engages the people that helps in addressing the lack of financial literacy. Thus, computer gaming that meets the pedagogical criteria should be made the integral part of the learning process (Divjak & Tomic, 2011). Similarly, the quiz can also be used as an influential evaluation used for learning and motivation (Wang, 2008). Thus, it can be said that the financial literacy software developed with appropriate game elements and mechanics act as an investor tool to learn, play and enjoy at the same time by enhancing the social and emotional growth of the personality (Hamari et al., 2014). Gaming has specific properties like points, feedback, leaderboard or challenge which motivates, inform, teach, persuade and influence the individuals to impart the financial education (Cheong et al., 2013; Figart, 2011).

Financial literacy is beyond financial education. It is the foundation to develop and

spread financial education. Financial literacy influences and get influenced by many factors. It is influenced by several factors like "money attitude, retirement plans, education level, faculty, personal income, influence of parents, parental income, parental knowledge, insurance factors etc.," (Nidar & Bestari, 2012). In contrast to it, financial literacy affects several factors like attitude, saving intention and saving behaviour.

(Kharchenko, 2011; Noctor, Stoney & Stradling, 1992; Servon & Kaestner, 2008) defined financial literacy as "the set of ability to read, analyze, understand, manage and communicate the financial terms and basic economic concepts that are used in personal financial decisions effectively". Zait & Bertea, 2015 explained the five dimensions of the financial literacy as "financial knowledge, financial communication ability, ability to use financial knowledge for decision taking, real use of financial instruments in terms of financial behavior and financial confidence". The dimensions were further divided into "four financial areas as personal budgeting, savings, credits and investments. The health insurance and the pension plans were considered under the investment area only".

Numerous academic papers, research and studies have been done to discover the 'importance of the financial literacy on the various aspects like household wellbeing, economic stability, wealth accumulation and portfolio choice' (Banks et al., 2009; McArdle et al., 2009; Guiso and Jappelli, 2008 and Alessie et al., 2008). Financial literacy also encourages the participation of investors in financial market and stock market (Hogarth et al., 1999; Christelis et al., 2010; Cole et al., 2008). The increased participation leads to more investments into the economy and raises returns. Thus, the financial literacy is driver for growth of the economy by inducing confidence in the same.

In the earlier days, the government and the employers were concerned about the management of the savings and investment on the behalf of their citizens and employees. But, due to change in recent reforms and policies pertaining to social support structure and financial markets like withdrawal of government pensions plans etc., the individuals' responsibility of managing their own finances and securing their financial future has heightened.

Moreover, the range and complexity of financial products offered by the financial institutions are increasing day by day. Consumers are expected to have nuance understanding of the risk and return attached with the various products. These collective abilities

of numeracy skills, basic and advanced financial concept clarity, general awareness, financial management skills, risk and return calculation abilities are referred to as 'financial literacy'. If an individual is not aware of the available choices and is unable to choose the optimum products which suits the need of an individual, it may be detrimental to one's health. One example is when a person is less financially literate, he or she may be involved in high interest rate borrowings, low participation in financial markets and poor retirement planning. This financial deficiency is found alarming and widespread. Many interesting patterns were studied by the (Agarwalla et al., 2012) regarding the awareness of the financial products. The study showed that even the most common product of fixed deposits was not universal. The authors studied that more than half of the employees they surveyed were not aware of the long term wealth creation products like PPF and pension fund. The awareness of savings vehicles like shares, bonds and mutual funds was also uncommon. The three most popular financial products in terms of customer awareness are savings account, fixed account and insurance. It should be noted that these products are only popular in terms of awareness and not penetration. This lack of awareness may lead to limiting the ability to diversify the risk across the various financial products in the portfolio. This is not the optimal behavior as it leads to inefficient allocation of capital at the macro level. The findings also showed that the basic principles of household finance like compound interest, impact of inflation on rates and prices and the role of diversification are not well comprehended by the people. As most of the financial decisions involves these concept clarity, the limited understanding of the same can have serious repercussions on the financial health of the household as well as the economy of the country. The poor numeracy skills are attributed to the poor performance of the Indian primary education system. The current generation is more prone to get effected by this financial illiteracy as they have to deal with the defined contribution plans rather than defined benefit plans that the earlier generations enjoyed. Rise in longevity and volatility in financial markets are also posing threats to their savings. The current generation is also facing job insecurity and income uncertainty. The credit consumption in the era of nuclear and sub nuclear family and increasing financial complexity is also creating the pressing need for financial literacy drives and programmes.

Current economic situations have raised the concerns about the financial security of the people who lack financial knowledge. The financial knowledge is required to withstand the market downswings and to take advantage of the market upswings. The two important financial decisions to be taken in one's life is financing one's home and planning for retirement as the choices to be made for them are complex in nature with much

at stake. (PACFL, 2008) defined financial literacy as "the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial wellbeing" and financial education as "the process by which people improve their understanding of financial products, services and concepts to get empowered to make informed choices, avoid pitfalls, know where to seek help and other actions to improve their present and long term financial wellbeing."

There are few terms like financial education, financial knowledge and financial attitude which are often confused with financial literacy. Financial education is only a process to gain financial knowledge. Financial literacy is only a concept which drives and promotes financial knowledge. Financial knowledge is central to financial literacy but it is different than general knowledge in specification context. Numeracy skills and general knowledge are general cognitive abilities. Financial attitude is the underlying belief in order to undertake financial decisions.

(Schagen and Lines, 1996) examined the characteristics of financially literate person with "an understanding of key concepts of money management, working knowledge of system and services in the financial institutions, range of analytical and synthetic skills both general and specific in nature and right attitude showing effective and responsible management".

Financial education equip and empower the consumers with the required knowledge and ability to undertake wise decision while choosing the right financial product for enhancing the financial status of their families. A myriad of financial service providers and an array of financial products are available. When they are financially literate, it enables them to buy goods and services at a lower price. Eventually, it also helps in maintaining their household budgets, consume in proportion, managing their debt, save and invest strategically for their child's education and retirement planning. Thus, the government should roll out policies and measures for improving the delivery of financial advices for enhancing the financial literacy as the knowledge deficits are easier to handle than the problems related to attitudes and behavior.

(Kharchenko, 2011) summed up "financial literacy as numerical skills and basic economic conceptual clarity needed for wise, educated and informed savings and borrowing decisions". (Houston, 2010) reviewed 71 papers pertaining to financial literacy and summarized eight definitions of the financial literacy prevalent at the time. (Figure: 1.21)

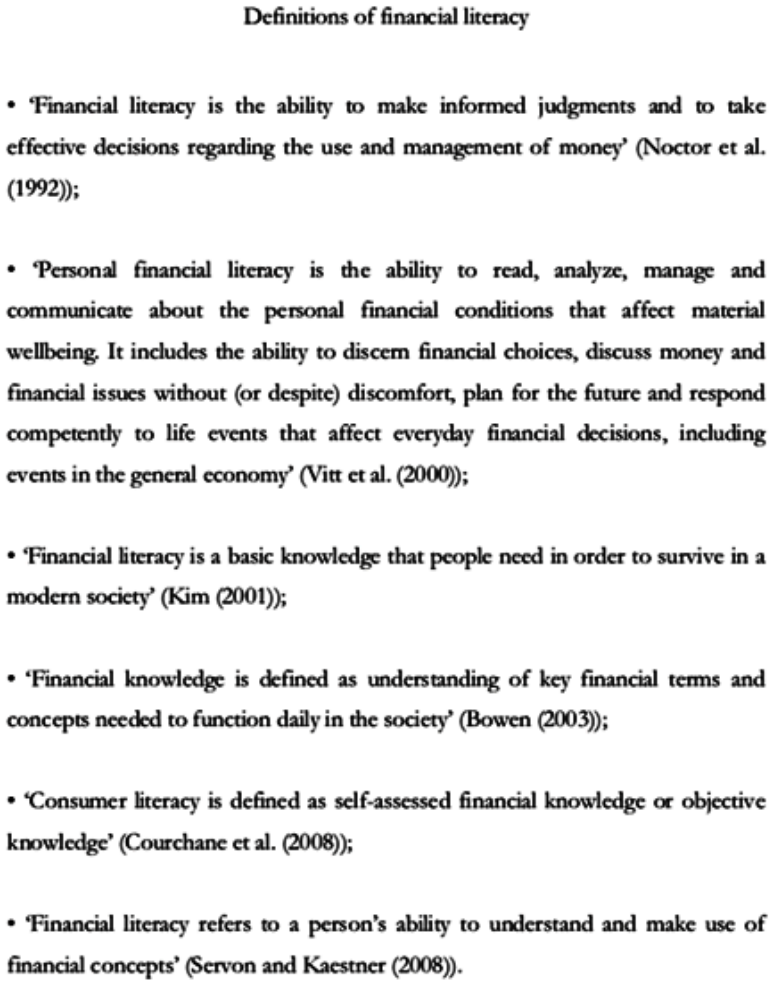

Figure 1.21: Image Source: (Kharchenko, 2011)

1.4 Behavioral Control

Much work has been done by the social scientists on finding the determinants of the financial wellbeing amongst the individuals of varied generation. They might not be successful in decomposing the completely exhaustive list of all the determinants but they have studied and understood the important role of financial knowledge and financial behavior. Financial behavior is subjective in nature. It is non -linear, non-parametric, irrational and time variant in nature. Thus, understanding the financial behavior is complex in nature.

Financial behavior is the behavior exhibited by the people while making financial transactions to create financial assets and liabilities for their household balance sheet. Financial transaction requires money that can be digital or non-digital. The financial

transaction is an action which involves decision making. The decision making is a complex procedure based on the psychological characteristics of an individual. Financial behavior can be both positive and negative in nature (Woodyard, 2013). "Positive financial behavior includes savings for retirement, emergencies, cash management, risk management through insurance, credit management, real estate plans, long term and short term goals." The wise decision making determines the positive financial behavior. The positive financial behavior influences the financial well-being. Negative financial behavior includes behavior like over and frequent spending, not voluntarily saving for retirement and to avoid financial discussion. Financial behavior is a learned behavior starting with young adulthood and carried through later in life (Eccles, Ward, Goldsmith & Arsal, 2013).

Spending Behavior

(Carrier and Maurice, 1998) defined spending behavior as the behavior which is learned from parents and other individuals who are influential in one's life. It can be learned from the study that the spending behavior often passes from one generation to another. But, many other researchers have studied that other environmental conditions like technological advancements etc., are responsible for the over spending behavior of the millennials. (Lim et al, 2014) have studied about many young consumers burdened with debt due to over spending. He has also observed the dramatic shift from the ideology of 'Save money first and spend later' to 'Spend now, think later' and 'Own now and pay later'. (Wiggins, 2008) investigated that the credit cards are acting as a huge enabler due to its convenience for the over spending amongst the Gen Y'ers.

Savings Habit

(Loibl, 2011) defined savings habit as 'a behavior which is often practiced with or without awareness for setting aside funds for increasing the assets or reducing the liability. It is seen and learn through parents and other influencers since childhood. Many studies have proved that there exists a linear correlation between the positive spending behavior or savings habit and the financial wellbeing of the individual.

Behavioral Control

Behavioral control is controlling, modifying and altering the behavior of self in a right direction to get the desired results. The various non cognitive factors which govern the financial behavior are self-control, optimism, planning, far-sightedness, deliberative

thinking etc. (Figure: 1.22)

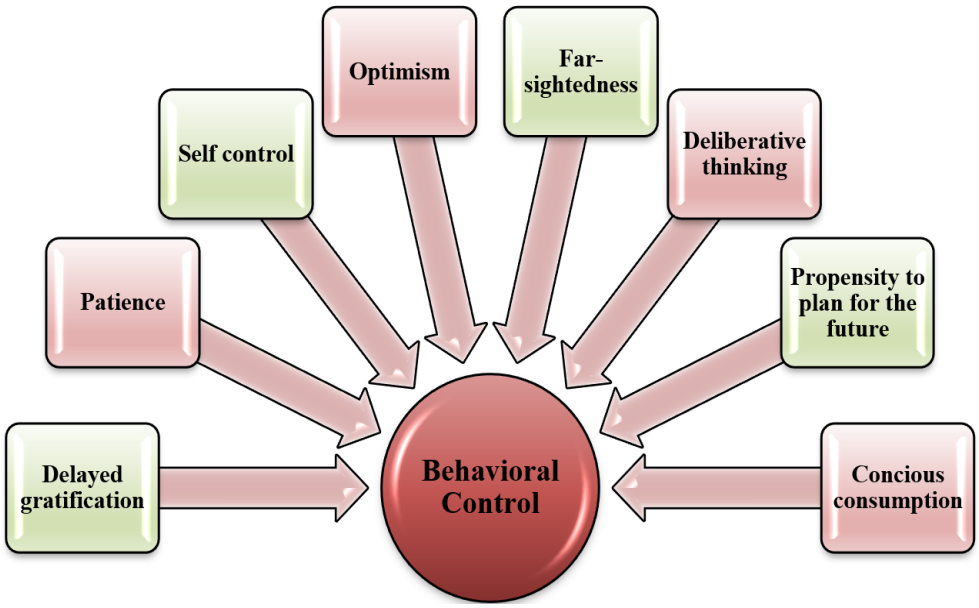

Figure 1.22: Various forms of behavioral control for exhibiting positive financial behavior
Image Source: Author

The individuals with better self-control, higher optimism and more deliberative thinking exhibit positive financial behavior. This leads to better financial well-being than the individuals with suppressed non cognitive factors. Taking unsuitable financial decisions is not uncommon. Saving less for retirement due to overspending, not paying bills on time and regretting for buying the things we don't need are all consequences of unsuitable financial decisions and behavior (Lusardi,1999; Sotiropoulos and d'Astous, 2013 & Abendroth and Diehl, 2006). Self-control was studied by Baumeister, 2002 and Fujita et al, 2006 as the ability of refraining from indulging into bad habits, overcoming impulsive activity and resisting the temptations. It is a measure to control current selves in order to form future selves. The failure in self-control leads to non-optimal behavior. It can be better understood with the behavioral life cycle (BLC) hypothesis by Shefrin and Thaler (1988). The said theory explains the individual behavior as the "ongoing conflict between the planner who is thinking about the long term and doer who is more inclined towards his current situation". The theory also understands the financial behavior over the course of life determined by the ability to exercise self-control and the cost connected with the same. The theory states that it is costly to save than to spend. The theory is an extension of the traditional life cycle model which is given by Modigliani and Brumberg, 1954. The traditional model

explains that people consider money as interchangeable. A rational person is usually farsighted and plans his consumption pattern, well in advance. Several studies have explored the link between self-control and financial decisions. A study by (Achtziger et al., 2015) showed that low self-control leads to compulsive buying behavior. (Gathergood, 2012) also studied that people with self-control issues attempt more credit withdrawals and indulge into shopping for durables which leads to over indebtedness. Another study by (Biljanovska and Palligkinis, 2015) showed that self-control issues lead to low household wealth accumulation. This happens because self-control issues lead to lack of planning and monitoring. (Choi et al, 2011) also found that people with lesser self-control are saving less for retirement. (Rha et al, 2006) investigated the effect of saving rules on the household wealth. The study found that the households with strict savings rules are more likely to save. (Miotto and Parente, 2015) studied that several characteristics of humans behavior like self-control, optimism, able to think deliberately, propensity to plan for the future etc., play an instrumental role towards the household savings. In other words, it can be said that there are various cognitive and non-cognitive factors which affects the financial decision making and models the financial outcomes. The behavioral control involving self-control and other cognitive, non-cognitive factors is strongly associated with the person's financial situation. (Strömbäck et al, 2017) evaluated the effects of various psychological factors on the financial behavior and wellbeing. The authors specified the effect with an equation which is a series of OLS (ordinary least square) regression.

$$Y_i = \beta_0 + \beta_1' X_i + \beta_2 SC_i + \beta_3 Opt_i + \beta_4 Del_i + u \tag{1.1}$$

where, Y is the savings behavior, SC is the self-control, Opt is the optimism measure, Del is the measure of deliberative decision making, and i is the index for the respondents. Vector X denotes the control variables like age, sex, education, etc. The findings of their study showed that the individuals with good self-control were more stable and secure in terms of their financial well-being. They were less anxious in nature. Optimism is also positively related to the financial well-being whereas deliberative thinking has a positive effect on the financial security.

Another study by (Biljanovska & Palligkinis, 2016) in the field of behavioral control was done to find the relationship between self-control and household wealth. The study was done at all conventional levels to find that the households which exhibited lower self-control had lower levels of net worth. The author also suggested that the individ-

uals should be aware of their self-control issues as the individuals who are not aware of their self-control problems will do conspicuous consumption which will lead to be depletion of their wealth. Individuals who are aware of their self-control problems will be accumulating more real wealth by being conscious and committed. (Gul and Pesendorfer, 2001;2004) defined self-control as the ability to "resist temptation" and avoid "conspicuous consumption". Three components of self-control were taken as planning, monitoring and commitment. Therefore, self-control can be defined as the ability to set goals, showing and monitoring the relevant behavior in order to achieve the said goals and ensuring the commitment for the same in spite of any temptation. The goal setting is planning for the future. The goals in the context of this research is financial goal like saving for a car, house or child's education. (Baumeister ,2002) has also examined the fact that the individuals with clarity of goals are less susceptible to fall prey to over spending. Financial monitoring is explained as the systematic way of allocating household financial resources. Temptation is related to impulsive buying of goods and services. The smoking or drinking behavior of individuals are not used for the measurement of self-control. Although, the habits of smoking and drinking are highly correlated to consumption or self-control failure, these are still arbitrary proxies which introduces measurement error and thus are termed as noisy proxies (Bertaut et al., 2009). McCarthy in the year 2011 reported that the impulsive behavior had a negative relationship with the financial well-being and positive relationship with various indicators of the financial distress.

Cognitive ability is an important trait of any personality to make financial plans and monitor the same. Individuals possessing low cognitive ability are not able to save much as it has a negative association with wealth due to financial mismanagement.

Research in social sciences has always been subjected to behavioral heterogeneity. The heterogeneous, non-cognitive process underlies the financial behavior and the financial well-being. The decision making differs from person to person in fundamental ways which leads to varied financial behavior. Different people exhibit different buying behavior. Some people tend to finance their spending at a high interest rate. The spending is at their discretion and the interest rate is as high as 400 % in case of pay day loans and 40% in case of credit cards with huge balance yet to be paid on it. These high interest rate satiate their consumerism but leads to financial burden in terms of high credit on the household balance sheet of the personal finance. There exists a huge impact of the consumerism, materialism and impulsive buying on the financial consequences of the household. The frequency of the purchases is also important in

determining the financial health of the household. With the today's generation, the materialism and the consumption of goods have become a source of happiness. They satisfy their instant gratification by indulging into impulsive purchases and frequent buying behavior. They ignore their financial health for the pleasure shopping which has become a frequent recreational activity. It gives them a feeling of self-worth and accomplishment (Schor, 1998). Materialism has been defined by Belk in 1984, as 'the importance given to the worldly possessions by a consumer'. Richins in 2004, define materialism as "the importance given to the ownership and acquisition of the material goods in order to achieve life goals and desired states". Richins and Dawson in 1992 examined materialism as "value which is driving the behavior and the decisions of life for the people who value the material possessions more than the interpersonal relations. Their life revolves around collectables and building possessions." (Barber, 2007; James, 2008) have studied that Americans are highly indebted because of their high materialistic nature.

(Cole & Sherrell, 1995) found a strong relationship between the materialism and impulsive buying. The authors further studied that the people who find happiness and personal gratification in the consumption of goods are susceptible to impulsive purchases which effects their financial health by further deteriorating it. Juliet Schor described this condition as retail therapy.

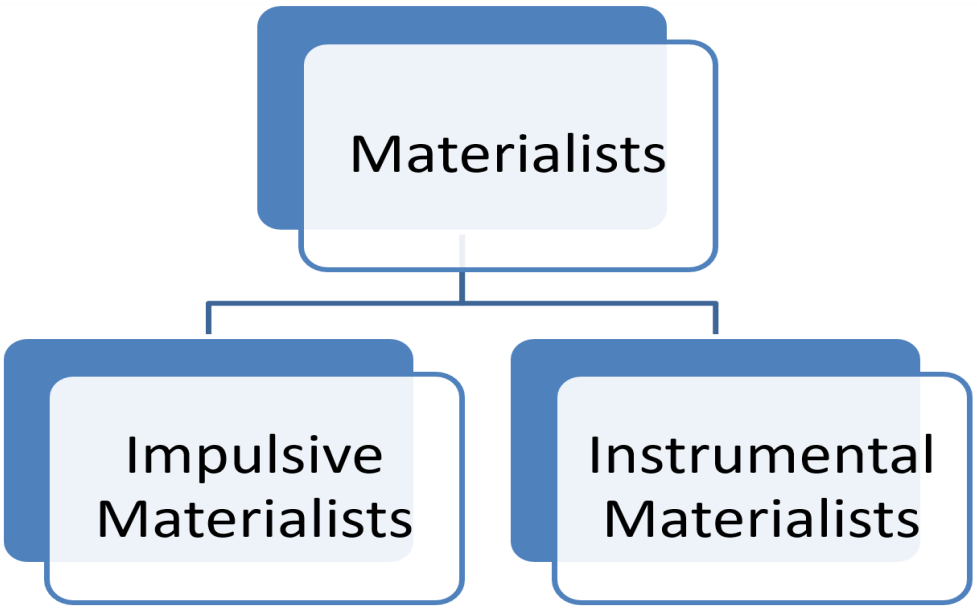

Figure 1.23: Type of Materialism
Image Source: Author

He further quoted that "Many Americans are consuming in order to fight the blues and savor a happy moment in order to reward themselves and enhance self-esteem or to escape from boredom". He found consumerism as a response to the mood, state of mind or any psychological problem for which retail therapy has become a tool in order to seek happiness. When this exceeds the normal consumption and becomes a form of addiction, it is called compulsive consumption. Compulsive buyers tend to disrupt their financial well-being as they find themselves unable to control their desire to spend . This eventually disturbs their lives and relationships also. The compulsive buyers are not able to acknowledge the financial consequences of the compulsive consumption and buy things they don't need and don't even use when bought (Faber et al, 1988). In contrast to it, there are instrumental materialist who are also quite materialistic but disciplined at the same time (Figure:1.23). They understand the opportunity cost involved in the impulsive spending and shop in a calculated manner.

Although the financial decision involving instant gratification favors the present over the future but eventually it does both the psychological and financial damage. Some researchers have examined that the poor financial status damages the psychological wellbeing of a person (Mirowsky and Ross, 2003; Mills et al, 1992). Researchers have also associated the higher workplace productivity and lesser health problems with the financial well-being of a person (Kim et al, 2003; Kim & Garman, 2003). Financial distress leads to emotional stress (Socyberty, 2006) which affects the performance at the workplace (Prawitz & Garman, 2009).

The financial behavior is difficult to understand in terms of its complexity. It means that it differs from individual to individual and varies with time. It is imperative to understand the individual differences in terms of undertaking financial decisions and exhibiting financial behavior. This heterogeneity in the financial behavior cannot be explained with 'one theoretical model fits all' approach. Some of the behavioral theories are discussed as follows:

Theoretical Underpinnings

Trans- theoretical model (TTM) developed by Prochaska and DiClemente in the late 1970s,for behavioral change is used to facilitate change in behavior by intervening and providing appropriate suggestions. It is a multi-stage theory that works step by step to control negative financial behavior and promote positive financial behavior.

(Bandura, 1969) introduced **Social Learning Theory** to understand the financial be-

havior of the individuals. The theory studied the role of cognitive factors and human development on the learning behavior. An individual learns from observing, mimicking and modelling the behavior of others who are close, important and influential to them.

The theory of Planned Behavior was introduced by Fishbein in the year 1967 which was further defined, developed and tested continuously from the year 1970 to 1975 by Fishbein and Ajzen. The theory attempted to understand the human behavior. According to this theory, a person's behavior is determined by his or her intentions. The continuous research on this theory explained that the theory of attitude is not able to predict behavior. Therefore, Ajzen in 1991 added perceived behavioral control (Figure: 1.24)

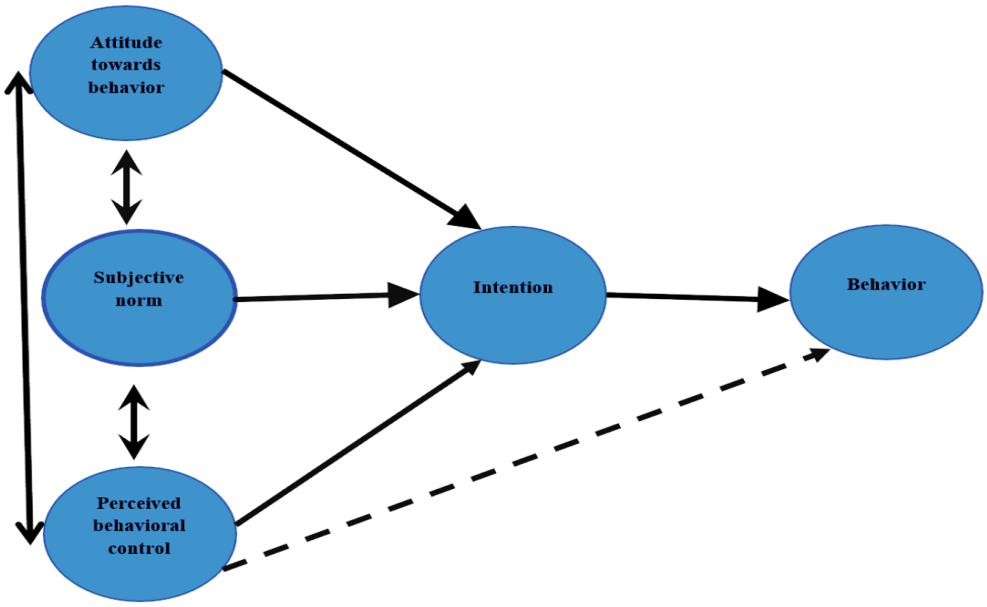

Figure 1.24: Theory of Planned behavior
Image Source: (Ajzen, 2012)

The theory of planned behavior is supported by empirical evidence, which is an extension of theory of reasoned action. This was elaborated by Icek Ajzen for improving the predictive power of the theory of reasoned action. Intentions are the pre cursor for any behavior. Intentions can be predicted with factors like attitude towards the behavior, subjective norms and perceived behavioral control. Attitude can be explained as the degree to which an individual evaluates the favorable and unfavorable results of the behavior of interest. The belief of a person in context to a particular behavior shapes the attitude of a person. When any particular behavior pertaining to spending, savings

or investment is perceived by an individual to the extent of getting influenced with the behavior and judgement of significant others like parents, spouse, friends and teachers is considered as subjective norms. In contrast to it, normative belief is a condition in which an individual creates a perception based on the social pressure of choosing the behavior whether to be performed or not. The role of perceived behavioral control in the theory of planned behavior is vital. It is derived from the Bandura's concept of Self- efficacy. Self-efficacy can be explained as the conviction that one has to successfully attain the desired goal. It shows the extent of easiness or difficulty encountered in the course of completion of the goal. It is associated with the control beliefs. Control beliefs are the belief of a person that the mere presence of few factors can hinder or facilitate a behavioral process.

Behavioral Intention : Motivational factors influencing a behavior can be termed as intention. Intention is directly proportional to the behavior . Stronger the intention to perform the behavior, higher is the probability of the behavior to be performed.

Behavior : It is the actual behavior or the end result and action which is performed.

It can be explained in the form of a mathematical equation, which is as follows:

$$BI = w_A A + w_{SN} SN + w_{PBC} PBC \tag{1.2}$$

Where, BI : Behavior intention
A: Attitude towards behavior
SN: Subjective Norm
PBC: Perceived behavioral control
$A \propto \sum b_i e_i$
$SN \propto \sum n_i m_i$
$PBC \propto \sum c_i p_i$
Where, b: the strength of each belief concerning an outcome or attribute
e: the evaluation of the outcome or attribute
n: the strength of each normative belief of each referent
m: the motivation to comply with the referent
c: the strength of each control belief
p: the perceived power of the control factor
w : empirically derived weight/coefficient

Limitations of the theory

- The theory assumes that an individual has already acquired the opportunity and resources necessary to perform the behavior regardless of the intention.
- Other factors like fear, threat, mood or past experience etc., are not accounted.
- Environmental and economic factors which influences the intention of a person to perform a behavior is not accounted.
- The theory assumes that behavioral result is a linear decision making process and it is not time variant.
- The time frame between the intention and behavioral action is not addressed.

Thus, behavioral control encompasses self-control, patience, far sightedness, delayed gratification etc., which should be inculcated either through financial education amongst the individuals or through various other control and checks by the financial institutions or the policy makers. The millennials which are the subject of the study are more prone to issues related to self-control due to various reasons discussed before. Thus, the behavioral control becomes the topic of intense study in addition to mere financial literacy programs for the financial well-being of the millennial generation.

1.5 Rationale

According to the available literature, the increasing number of people falling under Millennial generation cohort or Gen Y are facing financial distress and difficulties which is all set to further increase in the coming future. This is indeed worrisome as it is not limited to an individual but to an entire said generation. This will eventually incur huge costs for the entire financial system of the country as and when the generation multiplies. Thus it becomes a topic of pressing requirement.

Therefore, it becomes vital that we understand exactly why people land into financial trouble. The reason can be either due to the lack of financial knowledge or due to their own inherent behavior. Focus was solely on improvising financial literacy levels among the people. It becomes important to deduce the correct underlying reason to devise the solution for the same. Here comes the need to study behavioral factors such as

an individual's perceived behavioral control capacity like discipline, self-control, patience, instant vs delayed gratification, planning, far sightedness etc., subjective norms like parent's influence, peer pressure and attitude. These factors also matter along with financial literacy and other demographics. Thus arises the need to analyze the comparative effects of financial literacy and behavioral control on the household wealth of Gen Y.

1.6 Significance of the study

The findings of the study will redound to the benefit of individuals pertaining to Gen Y, society and the economy of one's country by fostering the need of savings and investment by measuring the statistical significance of the financial literacy and the behavioral control on the household wealth. There is a need to understand the personal characteristics and the personal finance of the Gen Y'ers. The increasing financial distress amongst the said generation is detrimental for their growth as well as for the nation. The study will be significant as

- It will help the members of the said generation to save and invest for increasing their household wealth or asset and reducing their household debt.
- It will help in increased savings for the rainy days.
- It will help in understanding and preventing the financial distress.
- It will help the economy of the nation as household savings and investments will contribute towards the growth of financial institutions and the financial market.
- It will contribute towards the literature of financial literacy and behavioral control.

2

Review of Literature

An extensive review of previous research and scholarship on the said topic has been done. It is a synthesis of 100 different available literature in regard with the topic from the last 32 years. It includes the related research work as old as year 1989 and as latest as the year 2021 in a chronological order from recent to past. It is an attempt to merge the abstract and conclusive findings of many different work done in order to explain the overall understanding of the topic. The literature review helped in laying the foundation for research questions as well as the primary research. We have cited the sources with their credibility in an annotated bibliographic manner. The review of the related literature helped in establishing oneself as an informed researcher, illustrating the importance of a particular topic, defining the key words used, explaining the research methods employed with their shortcomings, identifying the research gap and directing towards the right direction of achieving the research objectives. It also gives flow, direction and readability to the readers.

(Zulkarnain & Ramli, 2021) observed that the millennial generation dreams for luxurious marriage and for that they need huge savings which is a major challenge faced by the couples heading for marriage. The study identified that whether the generation has saved enough money for marriage. They also identified if they have the expenditure estimate and also the source of the finance for their wedding. The data was collected by questionnaire through purposive sampling technique and the descriptive

statistics was applied for the findings. It showed that the millennial generation depends on savings, loans and family contributions to accomplish their wedding dreams. Male respondents had more savings as compared to the females. The findings also suggested that they should be more competent in savings if they dream for the special weddings like destination wedding, pre-wedding shoot etc.

(Dewi et al., 2020) examined the co-relation of various factors like financial knowledge, financial attitude and financial skills with the financial behavior. "Financial knowledge was grouped into three categories of low, moderate and high." The financial attitude, skills and behavior were grouped into poor, fair and good. Chi square analysis was used to find that there exists a significant relationship between financial attitude and financial behavior. Fair amount of significance was found between the financial skills and financial behavior. But the relationship of financial knowledge and financial behavior is not significant enough. Thus, the authors suggested an enhanced financial knowledge for fostering desired financial behavior.

(Rosdiana, 2020) observed the significant difference between the two generations namely generation Y and Generation Z in terms of various factors like "investment interest, motivation, social environment and the level of financial literacy." A sample size of around 100 respondents was collected and analyzed for the independent sample t-test. The findings suggested that there is a significant difference between the investment interest of both the generations. There is no significant difference between the level of motivation and social environment for both the generations.

(Ananda, 2020) observed that the Generation Z is very consumptive in nature which showed their bent towards consumerism. Thus, author aimed to study the said generation in terms of financial literacy. The sample size of 200 respondents was collected through questionnaire. The data was analyzed with the technique of Structural Equation Modelling, Partial Least Square to find that the financial literacy affects financial behavior through financial attitude. In other words, it can be said that the financial attitude mediates the relationship between the financial literacy and behavior.

(Rodrigues et al., 2019) Financial literacy has always been an important topic in the arena of financial research. The need for the research in this area becomes necessary due to many reasons like presence of many financial products in the market with different suitability needs and various risks. This study investigated the measurable financial education level amongst the 1597 customers of bank. The survey involved

the quiz game which tested the basic and advanced knowledge of the individuals in terms of financial literacy. The findings showed that almost all individuals had basic financial knowledge but they were not well versed with the more advanced knowledge. The findings showed the importance of financial literacy amongst the individual investors when dealing with high risk complex financial products and contributed to the research by curating standard measures to distinguish the basic and advanced financial knowledge.

(Feng et al., 2019) proposed a Bayesian two part latent variable model to study the effect of financial literacy on both the asset and liability side of the household balance sheet using the data from China's household finance survey. Asset side included both housing assets and non-housing financial assets whereas liability side included both secured debt and unsecured debt. Bayesian two part latent variable model is a joint modelling approach integrating factor analysis and a two part model which evaluates patterns of latent and observable variables. The findings showed that the level of financial literacy was low in Chinese households and the financial literacy affects household finances as it guides them to take wise decisions.

(Cucinelli et al., 2019) examined that there existed an effect of local factors on the financial literacy of the Italian individuals. The local factors here meant the regional factors of the place, where the individuals live. A sample survey of 945 Italian adults was taken. A multi-level regression model was made with the socioeconomic, sociodemographic and the environmental variables at the local level. The author analyzed the three indexes of the financial literacy like "financial attitude index (FAI), financial knowledge index (FKI) and financial behavior index (FBI)." The findings showed that the financial knowledge index and the financial attitude index were related to the environmental variables or local factors while financial behavior index was not. Thus, the author concluded that the regional factors of where the individuals live, had an impact on financial literacy in addition to the social demographic and socio economic factors.

(Hanson & Olson, 2018) conducted a web based survey on the volunteering students to find out that kids from a conversant family who discuss about money matters, budgeting and investments are more financially aware and literate than kids from a conformity oriented family. They also concluded that financial literacy is an important tool in personal finance and can even affect financial behavior in a positive manner.

(Biljanovska & Palligkinis, 2018) studied the relationship between self-control as-

pect of the buying behavior and the household wealth. Data was collected from the Health and Retirement Survey, a dataset of US Household, which is open for public. Three factors namely planning, monitoring and commitment, given by (Baumeister and Heatherton and co- authors 1996, 2002) determined the strength of the self- control. The findings showed the positive relationship between the self-control and household wealth.

(Mette F.M.B., et al., 2018) investigated the role of materialism, impulsivity and financial knowledge on the credit buying decision. The type of product also plays a role in deciding whether to buy on credit or not. The intention to buy on credit varies with the fact that whether the product is more hedonic or utilitarian. Two experiments on 409 sample size were carried out to check the effect of type of product (hedonic or utilitarian) on the propensity to buy on credit with the moderating effect of impulse, materialism and financial knowledge. MANOVA test was applied to find that the more materialistic and impulsive, the person is, the more propensity is to buy on credit. There exists a negative relationship between the financial knowledge and the propensity to buy on credit. The more financially literate a person is, the lesser probability is of buying on credit.

(Grohmann, 2018) studied the effect of financial literacy and behavior of people pertaining to urban middle class of Bangkok, Asia. The author observed that the financial knowledge of the basic concepts is still comparable with other developed countries but observed a huge lacuna in terms of advanced financial knowledge. A sample survey of almost 500 respondents was collected over a period of ten days in form of face to face interview. The questionnaire was designed in collaboration with a market research company based in Bangkok. The findings showed that almost every respondent held a savings bank account but they were less acquainted with more sophisticated and advanced financial products like mutual funds, stocks and bonds etc. Two step regression was carried out to conclude that indeed the financial literacy is the most important factor for the financial development and eventual growth.

(Lajuni et al., 2018) observed the influence of various factors like "religiosity, financial knowledge and financial behavior on the financial distress among the Millennials of the Malaysia." Social learning theory was applied with Partial Least Squares - Structural Equation Modelling to compare the effects of the said factors on the financial distress. 400 questionnaire were distributed, out of which 304 instruments were completely filled and usable. They concluded their study with the findings that the

financial behavior has the maximum impact on the financial distress as compared to the financial knowledge and religiosity. Thus, policy makers should work towards improving the personal habits and behavior of the individuals in order to mitigate the risk of it on the personal finances.

(Yong et al., 2018) proposed a model based on the "theory of planned behavior to investigate about the relationship between financial knowledge, attitude, behavior and financial literacy amongst young working adults in Malaysia." A sample size of 1915 working adults was taken. Structural equation modelling was used to analyze that the attitude mediated the effect of knowledge on behavior. Authors also studied that the non-impulsiveness was a significant item of financial behavior while expenditure monitoring remained critical for the financial behavior. They suggested policy makers to intervene both with financial education initiatives as well as programs for gradual change in attitude.

(Strömbäck et al., 2017) studied the psychological factors affecting the financial behavior of the individuals. The psychological factors included self-control, instant and delayed gratification, optimism and other demographic factors. One of the factors, mainly studied in this research paper, is self- control. A survey sample size of 2063 individuals representing the Swedish population was taken. Out of the sample size of 2063 respondents of the adult age between 20-75 years, the number of females were 1048 and the number of males were 1015. They applied the behavioral life cycle hypothesis with the savings behavior to study the financial behavior. The relationship between self- control and the financial behavior is modelled using OLS (ordinarily least square) regression. Findings suggested that the self- control has a positive effect on the financial behavior which explains that the people having self- control and delayed gratification while spending, have lesser anxiety in financial matters making them feel more secure and confident.

(Putri & Rahyuda, 2017) studied the effect of financial literacy levels and socio demographic factors on the individual investment decision behavior. The findings showed that the financial literacy level has a positive effect on individual investment decision behavior when compared with other socio demographic factors.

(Loke, 2017) explained the influence of socio demographic factors and financial knowledge on the individual's financial management practices. The author explained the significant effect of income, gender, education, age, financial knowledge and ethnicity on

the individual financial management behavior.

(Clark et al., 2017) examined the financial literacy of the employees and its effect on the retirement plan behavior. The authors used the administrative data of the employees of the Federal Reserve System by examining their contributions to the thrift savings plan which was a defined contribution plan of the system. The survey studied the economic and demographic factors with financial literacy of the employees. The findings showed that the Federal Reserve employees were more financially literate when compared to the population at large. The workers who were sophisticated, contributed more to their equity in their pension account of the DC plan by 3%, when compared to the employees with lesser knowledge. The authors also conducted a pre post survey by making the same employees complete a learning module about retirement planning. After one year the effect of the learning module was examined to find that the employees who completed the module were more financially savvy and started contributing to the DC plan. Thus, the author concluded that the learning programs had a significant effect on the decisions and the retirement planning of the employees.

(Lusardi & Mitchell, 2017) investigated about the skills required for economic and financial decision making. The author studied the causal relationship between the financial knowledge acquired in the school and the retirement planning. Linear multivariate regression modelling resulted with the findings that the people with more financial knowledge had better retirement planning. It was also found that the older, more educated and male respondents had better financial knowledge and proved to be better retirement planners.

(Khan et al., 2017) studied the financial knowledge gap to understand the financial behavior of the individuals. The authors defined knowledge gap "as the distance between objective and subjective financial knowledge of the individuals." The financial knowledge gap was studied across the different age groups with the help of the national data available. Multivariate regression model was used to investigate the size and nature of the financial knowledge gap in terms of the different age groups of the individuals. The findings of the study showed that the older adults overestimated their financial knowledge. Socio-demographic factors like education and income moderated the relationship between the age and financial knowledge gap. The authors suggested that the social workers along with the financial institutions should educate the older adults in order to protect them from different financial risks.

(Yıldırım et al., 2017) studied the influence of economic factors on the financial decisions and behavior of the individuals. They studied that financial literacy not only helps them to take right financial decisions but also helps the entire nation. Thus, the purpose of their study was to investigate the financial literacy level of the individuals and examine the relationship between the demographic variables and financial literacy. The respondents were the residents of Karabuk, Turkey who were working in iron and steel industry. A sample survey of 304 employees was taken. The survey questionnaire was divided into two parts of basic and advanced financial literacy. The basic section included five items of financial literacy and advanced section included eleven items of the financial literacy. Income and education were statistically significant demographic variables.

(Sivaramakrishnan et al., 2017) explored how financial literacy, well-being, regulatory perception, risk avoidance, social influence and hassles involved affect the investment in stock market. They studied about the low penetration of equity products in India. They also examined the effect of objective and subjective financial literacy on the investment intention and equity holding. The theory of Planned Behavior and the Consumer Socialization Theory was also studied. In this study, three vertices of the theory of planned behavior namely attitude towards behavior, subjective norms and perceived behavioral control were explained in terms of stock market investment. The study was carried out in two phases. First phase included in depth and expert interviews followed by survey. The findings showed that there existed a positive correlation between knowledge and intention. Subjective knowledge proved to be more influential than the objective knowledge of the individuals. Hassle factor like complexity in procedure to invest, expense and time was an important factor. Financial well-being showed a negative relationship with intention but a positive relationship with equity holding. The theory of Consumer Socialization Theory suggested that communication amongst consumers affects attitude and thereby builds intention.

(Moreno et al., 2017) studied the characteristics of the millennials and their buying behavior. Various literature were reviewed in order to find that the millennials are the most attractive cohort because they exhibit certain desirable characteristics for the marketers like instant gratification, technology savvy, experiential living etc. The study gave description about the very segment with their buying behavior. Their decision making were found to be faster than the previous generations. Reviews of their peers were considered reliable for any product or services by them. They are more prone to the social networking sites and were less loyal to brands. The study helped the

marketers to target the said segment carefully in order to derive maximum profits.

(Mindra & Moya, 2017) investigated the relationship between the financial attitude and financial literacy on the financial inclusion. They also studied the mediating role of financial self-efficacy between the financial attitude and financial inclusion and also between the financial literacy and financial inclusion amongst the individuals in Uganda. The study was a cross sectional design with a sample survey of 400 individual respondents. A multi stage stratified sampling method was employed. It was studied that there existed a strong and positive correlation between the financial attitude, financial literacy, financial self-efficacy and financial inclusion. The findings showed that the financial attitude of the individual was not statistically significant with the financial inclusion but the financial literacy showed a positive relationship with the financial inclusion. It was also studied that the financial self-efficacy partially mediates the relationship between the financial literacy and financial inclusion. In addition to that, the financial self-efficacy fully mediates the relationship between the financial attitude and financial inclusion. Thus, the author concluded that the financial self-efficacy is a fully mediating variable between the relationship of the financial attitude and financial inclusion as it stimulates a feeling of empowerment and right judgment while taking the financial decisions.

(Fiksenbaum et al., 2017) investigated the mediating effect of the financial threat on the relationship between the economic situational predictors and the willingness to change the financial behavior. The sample was collected from 418 undergraduates who were the students of Introduction to Psychology course of a Canadian University. The financial threats included various factors like personal debt, anxiety, economic hardships etc. Economic situational predictors included quality of life and health, condition of the labor market, unemployment etc. The structural equation modelling was used to determine the mediating effect. The findings of the study showed that "the total debt, economic hardship and anxiety were positively related to financial threat. The financial threat was also related positively to willingness to change." The robust relationship between the economic situational hardship and behavioral outcomes of financial distress was mediated by financial threat.

(Edirisinghe et al., 2017) studied the financial literacy and financial behavior of the management undergraduates to find the relationship between the two factors. A total of 223 management graduates were selected from the three government universities in Sri Lanka for data collection. The results showed that the financial literacy of majority

of the undergraduates were at moderate level. Multiple regression analysis was used to find that the financial literacy level has a positive effect on the overall behavior of an individual.

(Potrich et al ,2017) developed an indicator to examine the financial literacy level and the gender differences for the same. A sample survey of 2,485 individuals was carried out in Brazil. A statistically significant relationship was found between the financial literacy and the gender. The findings showed that the low level of financial literacy was found in both genders but the males displayed the bigger proportion of high level of financial literacy. The authors suggested that sincere efforts should be taken to financially literate the women specially the single women and those with low level of education and income.

(Widyastuti et al., 2016) studies "the impact of attitude, financial literacy and subjective norms on the intent of savings and the behaviors of teachers and students of a university in Jakarta, Indonesia." Indonesia was ranked the lowest in the whole Asia specific region in terms of financial knowledge. Subjective norm refers to the thought process, expectations and decision-making process of a person based on the important people in his or her life. Financial knowledge ultimately affects savings intentions and behaviors.

(Das, 2016) studied the Indian Millennial generation and measured their level of financial literacy. Survey on 210 post graduate management students was done to study the causal effect of financial literacy on financial behavior and attitude. Findings showed that management students with finance and accounting as specialization were more financially literate than marketing and HR millennials. The author also observed the role of parents' education especially mother's on the level of financial literacy of millennials and the significant effect of financial literacy on the behavior and attitude of the generation was also measured.

(Tang & Baker, 2016) studied that financial knowledge is crucial but not completely sufficient for responsible financial behavior. There exists the contribution of psychological and cognitive factors also which defines and governs individual financial behavior. They studied the difference between objective financial knowledge and subjective financial knowledge. They also proposed that the self-esteem which is related to the financial behavior can be both directly and indirectly through subjective financial knowledge. The data was collected through the national representative data set of US

adults which showed that psychological factors like self-esteem is directly related to the financial behavior.

(Ikeobi & Arinze, 2016) examined the impact of the demographic factors on the individual investors in Nigerian capital market. The findings showed that the income and education has a significant effect on the investments made. Employment also had a significant effect. Demographic factors such as gender, age, marital status did not hold any significant influence on the investment objectives of the retail investors.

(Mohd et al., 2016) measured financial intelligence in terms of financial behavior, trust, attitude and knowledge. Rasch analysis technique was used when 30 respondents' data was collected from few companies in Klang Valley, Malaysia. The analysis of the goodness fit of the data was followed by Person Item Map output for identifying groups of Gen Y. The working class of generation Y was classified into three groups namely moderate financial intelligence, low financial intelligence and very low financial intelligence. All three groups were reported to have different level of knowledge and education. Also, their financial literacy was proportional to the level of education they had received in their life. The findings showed that the level of education and financial knowledge has an impact on the financial behavior of generation Y.

(Te'eni-Harari, 2016) investigated the level of financial literacy amongst the children in Israel and the role of involving them in saving money for a household. The sample survey of 103 children were collected on the basis of one to one interview. The findings suggested that there existed a relationship between the child's involvement in saving money and the financial outcome of a family. The study also showed that the children with higher level of involvement in saving money are having positive attitude towards savings and also display the positive financial behavior. The importance of parental and peer attitude were statistically significant while investigating the level of involvement of saving money amongst children.

(Sekar and Gowri, 2015) did a research on financial literacy levels amongst the Gen Y employees. The survey found that financial awareness in the Coimbatore city people especially youngsters was not much. They also studied the impact of gender, age, income and education on financial literacy levels and suggested adopting strategies might help the younger generation in being more financially aware.

(Ambarkhane et al, 2015) in their study, raised very valid point that financial literacy level in India is low in India because of the poor education system in India. They also

studied that the country constitutes a large number of people who don't even hold a bank account for which financial literacy will prove to be helpful in converting the unbanked population into banking one. It will not only do the economic upliftment of individuals but also the social upliftment.

(Shaliza Alwi, Irma Zura Amir Hashim, 2015) observed the important factors behind saving habits of millennials in Malaysia. Department of statistics in Malaysia raised a concern about rising household debt to nearly 86.8% of the GDP in 2013 as compared to 80.5% in the year 2012. The findings showed that the millennial generation had a very poor financial planning. Pearson correlation coefficient model was used to identify the factors influencing the saving attitude. Various factors like parental socialization, peer influences and self-dominance were studied for the effect on the financial literacy. Out of which self- dominance was considered as the weakest factor and parental socialization as the strongest factor. The study was cross sectional causal study using the descriptive analysis.

(Arif, 2015) observed the influence of financial literacy and other factors on the investment decision of the investors of the Karachi Stock Exchange. The study was carried out in a developing economy of the country of Pakistan. Data was collected through a questionnaire from 154 respondents. The findings showed that the level of financial literacy was not up to the desired level among the individuals. The evidence showed that the score for the financial literacy came out to be less than 50%. The level also varied with the different demographic variables like age, gender, marital status and work activity. It also showed that "the financial literacy level has a negative effect on the number of investment decisions at 90% significance level." For the investors of the Karachi Stock Exchange, the more important factor is industry's status in terms of its financial statements.

(Fedorova et al, 2015) studied the impact of financial literacy on the Russian population to gauge the effect of the same on their behavior in the financial market. The findings showed that the Russians had low level of financial literacy. Only 39% of the Russian population was having the basic financial knowledge. 29% of them were having the advanced knowledge and only 13% understood the Russian stock market. Findings also showed that the level of financial literacy also impacts the amount of participation of an individual in the financial market. Thus, it can be concluded that the more financially educated a person is, the more active he is in the stock market.

(Foo Yu & Jupri, 2015) examined and explicated the factors responsible for the financial distress of Generation Y in Malaysia. The research revolved around the internal factors of the respondents rather than the external factors. The internal factors included spending behavior, saving habit, financial management and financial literacy. A sample survey of 150 respondents of Generation Y was taken. SPSS was used for the analysis. The co relation was calculated by the Pearson Correlation Coefficient to explain the direction and strength of the linear relationship between the independent and dependent variable. Finding showed that there existed a weak linear correlation between the financial literacy and financial distress. The internal factor which showed the maximum strength was financial management followed by savings habit and savings behavior.

(Alsemgeest & Grobbelaar, 2015) examined a common reason related to money matters between the married couples which leads to divorce. The authors investigated about the gender specific roles of financial management in a marriage. Many factors like financial illiteracy, financial phobia, low income, indebtedness and compulsive buying leads to financial problems in a married life which were studied by the authors. Questionnaire were filled by 75 newly married couples. T- Test was used to examine the difference in perception of the male and female as respective spouses in terms of their financial conduct and management. Findings showed that the men's financial ability was more than women and men had lower perception of the same from their wives. Women also showed less confidence than men regarding money matters.

(Agarwalla et al., 2015) studied that the young working adults of urban India had lesser financial knowledge and financial attitude when compared with the other counterparts in different countries. In spite of inferior financial knowledge and attitude, they exhibited superior financial behavior. The authors studied the effect of social demographic variables on three dimensions of financial literacy namely "financial knowledge, financial behavior and financial attitude using multinomial logistic regression." The findings suggested that the income and education had a positive effect on all the dimensions of financial literacy. Women showed low level of financial literacy when compared to men. Both men and women required intervention to improve upon their financial attitude and behavior. The authors also studied that joint family had a negative impact on the financial literacy while 'consultative decision making' impacted the financial literacy in a positive manner. The authors also recommended that a curriculum must be devised on the modules of financial literacy in high school onwards for promoting the financial education of the youngsters.

(Aggarwal and Gupta, 2014) described the importance of education and discipline in developing and affecting financial literacy among youths. They also observed from the survey that males were more financially literate than women.

(Singh, 2014) studied that greater financial literacy can prove beneficial to poor and vulnerable by providing them financial products with high savings rates and lesser lending rates. They concluded with the fact that the lower financial literacy is linked to lower household savings as well as over indebtedness.

(Xiao et al., 2014) studied the effect of financial literacy on the subject and objective behavior of university students. Risky paying and borrowing was studied from the data collected. The findings showed that subjective knowledge had more effect on the financial behavior.

(Vyvyan et al., 2014) studied the factors bringing financial distress among individuals of UK and Ireland with the help of a national survey. Financial literacy and Behavioral traits like patience, self-control, planning etc., were studied along with other demographic and socio-economic factors by applying probit modelling technique. The findings showed that controlling the behavioral traits is more important in preventing financial distress as compared to only financial education. Managerial implications of the research also suggested the policymakers to work towards improving the financial behavior of the individuals for better personal finances.

(Scheresberg, 2014) studied the data obtained from National Financial Capability Study, US to analyze the millennials' financial capability and the challenges faced in their short term and long term investments. They observed that their financial engagements are not at par with the level of their financial literacy. The findings showed that there was a great need to promote the financial capability amongst the said generation for which the financial programs should be rolled out which will increase the financial literacy level and in turn enhance their financial security. Multivariate analysis of the four variables namely indebtedness, high cost borrowings, financial fragility and financial advices was undertaken to find the importance of financial advices.

(Aminatuzzahra, 2014) studied the impact of financial knowledge, financial attitudes, social demographics on the financial behavior when they have to take investment decision. The findings showed that the "financial literacy has a significant effect on the investment decision with a significance value of 0.003, financial attitude has an effect on the investment decision making with a significance level of 0.001 whereas, the

social demography has the effect on the same with the significance level of 0.019."

(Lusardi & Mitchell, 2014) investigated the economic importance of financial literacy. The financial knowledge is considered as a form of investment in human capital. The authors did a survey to identify the subgroups with least financial knowledge from the desired population in US. The authors measured the financial literacy in terms of three concepts of simplicity, relevance and brevity. Simplicity means the numeracy skills and basic fundamental knowledge. Relevance means the question should be relevant over the time with the increasing rate of inflation. Brevity means the financial questions should allow the comparisons across the respondents thereby increasing the capacity to differentiate. They also studied the risk diversification part of the financial knowledge as an important component. Financial knowledge was disintegrated into differential patterns by age, differential pattern by sex, differences by education and ability etc. Demographic factors were found statistically significant in terms of financial knowledge. The author also studied the repercussion of the financial ignorance, both pre-retirement and post retirement. The authors suggested methods for enhancing the people performance by outsourcing the financial advice through experts. The gaps can be filled by policymakers and program advisors for the people with less financial decision making abilities.

(Nicolini et al., 2013) compared the financial literacy levels amongst the four countries of Canada, Italy, the UK and the US. Financial literacy index was calculated on the basis of the number of right answers from the four multiple choice questions. The index serve the purpose of understanding whether the financial literacy of one country can be generalized to another or it is unique and refrained to the same country. The results showed that there existed a difference between the financial literacy level due to the cultural and social differences of the household and their respective knowledge about the personal finances. The managerial implication of the paper demands the policymakers to consider these national differences in terms of culture and knowledge while devising the tools for assessing the financial literacy of the individuals of the said country.

(Jalil et al., 2013) examined the factors which influenced financial planning post retirement. The study was carried out in Malaysia. Sample survey of 170 individuals were taken and the structural equation modelling was used to analyze the data. The findings showed that the salary was the most important factor which influenced financial planning. Attitude and culture also influenced the financial planning.

(De Bassa Scheresberg, 2013) studied the secondary data available with the National Financial Capability Study in the year 2009. The sample included 4500 individuals with age bracket of 25 to 34 years. Multivariate analysis was used to find the result. The findings should that the most of the people lacked financial knowledge especially women, minorities, lower income and less educated people. The author also examined that the respondents with higher confidence in arithmetic and personal finance arena showed better financial outcomes in terms of savings for emergency and retirement.

(Nye & Hillyard, 2013) studied the effect of quantitative literacy and material values on the personal financial behavior. Some financial products like pay day loans and credit cards attract very high interest rates which has the long term consequences on the financial well-being of the individuals. A sample survey of 267 consumers was carried out to find that the confidence of the consumers in quantitative literacy and subjective numeracy is positively related to the financial behavior. Subjective numeracy discourages the impulsive buying. Thus, it was studied that quantitative literacy is positively related and materialism is negatively co- related to the financial behavior and outcomes.

(Atkinson and Messy, 2012) measured the financial literacy from the findings of the OECD INFE (International network on Financial Education) pilot study on 14 countries. They observed that each country surveyed, had a sizeable number of people lacking financial knowledge. The study focused on financial knowledge as well as the behavior and attitude of the individuals. The findings showed some concern towards people lacking basic knowledge of compound interest and diversification. Right attitude was also considered necessary with financial knowledge as there exists positive relation between the both. Demographic variable like gender was studied and low financial literacy levels among females were also observed. They also found over confidence in various individuals. Thus, they concluded with the finding that right attitude with right financial knowledge should be encouraged through various literacy drives by many countries under study.

(Agarwalla et al., 2012) compared financial literacy and financial behavior of Indians with international standards. They found that although financial literacy level among Indians was lower but financial attitude and behavior came out to be very positive on the international standards also.

(Gathergood, 2012) studied the effect of self-control, financial literacy and over in-

debtedness on credit debt of consumers of United Kingdom. They initially took a whole size of 3041 households. Out of which 1234 households had positive balance on at least one credit item like credit cards, store cards and payday loans etc. Thus, their sample size came out to be 1234 households only. After examining the data representing the population of UK through econometric modelling, they observed the positive relationship between financial illiteracy and self-control issues on over indebtedness. Self-control issues also lead to income shocks. The author also observed that financial literacy can be taught but one cannot be educated on self-control. Thus finding the self-control issues more liable for over indebtedness than the financial illiteracy.

(Jain & Mandot, 2012) observed the impact of demographic factors on the individual investment decisions in Rajasthan. The findings showed that "there exists a positive relationship between the financial knowledge and the city of residence which means that the people residing in bigger cities were found more financially knowledgeable."

(Knoll & Houts, 2012) developed a profound measure of financial literacy through psychometric analysis. The item response theory was used to analyze items with the help of three national surveys which resulted in a twenty itemed financial knowledge scale. The instrument for measurement was prepared, keeping the focus on both the financial knowledge as well as skills and behavior. Bivariate correlation for the demographic variables like gender, age and income showed that the demographic factors are statistically significant with the financial knowledge. Authors studied that the financial knowledge increases with age and income and was found at a higher level in males. Analysis of variance was done to find that the education is a significant predictor of financial knowledge. The financial knowledge scale developed by the authors enabled the researchers to compare differential financial knowledge across population, studies and time. It also helped policymakers to intervene in order to improve the financial knowledge of the population.

(Robb, 2011) studied the credit card abuse and mismanagement by the college students. The author studied both the immediate and long term consequences of the credit card mishandling. The author also investigated the relationship between the financial knowledge of the college student and their credit card behavior. The sample size of 1354 students from South-eastern University was taken. The findings showed that the students who secured high in the measurement of personal financial knowledge showed more responsible credit card usage.

(Kharchenko Olga ,2011) studied the determinants of financial literacy and its effect on the financial behavior with respect to savings in Ukraine. "The major factors influencing financial literacy are gender, level of education, occupation, region and wealth." The findings showed that age and region were not prominent determinants of financial literacy. The author also observed an indirect relationship between financial literacy and savings by influencing wealth.

(Van Rooij et al., 2011) curated two modules for De Nederlandsche Bank (DNB) as they wanted to conduct a household survey to establish a relationship between financial literacy and stock market participation. The findings showed that very few respondents had advanced knowledge about personal finance. Most of them had the basic knowledge of compound interest, inflation and time value of money. Most of them did not know the difference between bonds and stocks and were less aware of the basics of the risk diversification. Very few respondents were aware of the relationship between bond prices and interest rate. Thus, the authors concluded that the respondents with low literacy rate are averse to stock investment.

(Lusardi & Mitchell, 2011) studied the importance of a well-informed financial decision. They investigated that the financial illiteracy is very prominent in rapidly changing markets. The authors piloted the questions with the help of Dutch Central Bank Household Survey (DHS).The findings showed that the women were less financially literate when compared to men. Similarly the younger generation and the older generation were found to be less financially literate than the middle aged. Education also had a positive effect on the financial knowledge. The authors also studied that the financial literacy is important for retirement security.

(Falahati et al., 2011) examined the financial management skills of the students of the universities in Malaysia and also assessed their educational needs. Data was collected from both the public and private universities. A sample survey size of 350 questionnaires were collected and multi stage stratified sampling technique was used. Various management skills like daily expenses, debt, future needs, time, savings, use of education loan, social interaction, stress, decision making, problem solving and career planning were computed to find the results. The findings showed that the Chinese students scored lowest amongst the various ethnic groups. The students from public universities revealed higher financial management skills than the private universities. Thus, the authors suggested a need of training of career and financial management skills for the students of the university.

(Cudmore & Patton, 2010) studied the "Millennial generation, was targeted for creation of debt by financial institutions for which there was an urgent requirement of financial literacy for the said generation in order to protect and enhance their financial health. The paper also highlighted that this generation would be helped by the financial services enterprises through a tailor-made investment product. This would make the people loyal towards the industry."

(Gerardi et al., 2010) investigated the reasons of the defaults in the US subprime crisis. They examined the role of financial literacy, cognitive and numeric ability and other socio-demographic variables of the borrowers on the defaults and delinquencies in the crisis. The data collected was secondary in nature and was taken from the LP group and war in Group. Cold calling was done to the majority of cases to conduct an interview. The authors found negative correlation between the numeric and cognitive ability and default and delinquencies with other socio-demographic variables controlled.

(Remund, 2010) studied the different definitions and measures of financial literacy for the clear understanding to promote further research. More than hundred different resources were investigated which included academic journals, government resources , industry materials, different websites and other research materials over the last one decade. The definitions of financial literacy were divided into two parts. First being the conceptual definition and other being the operational definition. Conceptual definition studied about the abstract concepts whereas operational definitions studied the measurable criteria. Based on the extensive review of the definitions of financial literacy since the year 2000, five categories were conceptualized like "knowledge of financial concepts, ability to communicate about financial concepts, aptitude in managing personal finances and skill in making appropriate financial decision and confidence in planning effectively." Similarly for operational definition, survey was designed by the Jumpstart coalition and US government to measure the financial literacy. In this way they developed and tested a national benchmark survey for an acceptable level of financial literacy.

(Huston, 2010) reviewed the various ways to measure financial literacy in order to understand the impact and the barrier of the same in taking efficient financial decision. 52 data sets were identified, out of which 71 individual studies were drawn for the analysis. Literature review was done for the last one decade which covered four areas like money basics, borrowing, investing and protecting resources. The money basics

included the time value of money, purchasing power and personal financial accounting concepts. The borrowing and investing was related to intertemporal transfer of resources between the two different time periods. The protecting resources included the insurance and other risk management products and techniques. The author investigated three barriers in developing a standard financial literacy measuring tool. "The three main barriers were the lack of conceptualization and definition of the financial literacy as a construct, content of the instrument and interpretation of the instrument." Financial literacy was measured through rating method or ranking method only to find that the financial education when measured is called financial literacy. Financial literacy measurement can be used to predict financial behavior and can help policymakers and educators for devising schemes for effective financial decision.

(Walstad et al., 2010) studied the effect of financial education on the financial knowledge of the high school students. The scores achieved in the pre-test and post-test was compared before and after exposing the students to 'Financing Your Future Curriculum' curated for them. The scores were compared with the pairwise t test. The findings of the regression results showed that because of the course to which the curriculum was introduced, the financial knowledge of the students was increased. The authors concluded that a well- structured program with its proper implementation can affect the financial knowledge in terms of their personal finance in a positive manner.

(Ng et al., 2010) studied about the expectations of the millennial generation from the career perspective in terms of salary, work life balance and growth. They also studied the effect of demographic factors and academic performance on the same. A nation-wide sample survey of 23,413 millennial undergraduate students from different universities across Canada was collected. The data analysis was done using various multivariate techniques to find that the said generation seek rapid advancement and development of new skills with a satisfying work life balance.

(Choi, 2009) investigated that whether the students holding the bank account were having more financial knowledge as compared to those who did not. To study this relationship, the author collected the national data of the Jumpstart Coalition for personal finance. This data is collected every two years by the Jumpstart Coalition. Multiple regression was used to find that students with bank account scored higher in terms of financial knowledge. Other demographic factors like race, gender, education and parent education etc., were controlled to calculate the scores for financial knowledge. Although the study was not causal in nature, the results were informative that the fi-

nancial education increases with the ownership opportunity of the financial products, thereby proving a relationship between education and experience.

(Kempson, 2009) established the need of financial literacy survey which was internationally comparable as it may help the policymakers who do not have any experience of survey design. The survey was of nationwide basis. Respondents taken were above the age limit of 18 years but had no upper age limit. The survey was done through personal interview and telephonic interview. The questionnaire used, had five criteria which included day to day money management, financial planning, choosing appropriate products, financial knowledge and understanding. Individuals were surveyed rather than the entire household. The replies to individual questions were coded using factor analysis and the data was analyzed with cross tabulation and exploratory analysis. Respondents were divided into different clusters using cluster analysis. Report aimed for drafting a national financial literacy survey to act as a set of good practice questions for national service.

(Schuchardt et al., 2009) summarized the findings and recommendations from a comprehensive report submitted by the US Department of the Treasury on the basis of a symposium on financial literacy and education held in Washington DC. The purpose of the symposium was to form research questions that could generate financial education with relevant outcomes like effective public policy and personal literacy. Discussions were made on four different topics like behavior theory application, consumer economic socialization, financial education and financial risk assessment. The behavior theory application studied the financial behavior formation and modification for desirable financial management. Consumer economic socialization studied how individuals accumulated knowledge in the area of personal finance. Individuals cognitive competence which is developed by their own attitude, aspiration, experiences, etc., mold their financial decisions. Consumer economic socialization also studied about the influence of the major agents of economic socialization like family, peer, schools, workplace, media etc., on their financial behavior and decisions. The financial education and program evaluation affected the financial behavior and socialization of the household. The various financial education resources and programs were discussed. The financial risk management was about risk tolerance and its effect on wealth accumulation.

(Willis, 2009) reviewed the effectiveness of financial literacy education by setting forth the model for the same which showed that financial education affected financial literacy thereby affecting good financial decisions and behavior. The author also identi-

fied certain limitations in existing research like data reliability issues, unrepresentative samples, barrier to better data collection methods and research design issues. The author also recommended the alternative public policies for better effectiveness of the financial literacy programs.

(ANZ, 2008) carried out a survey in Australia to measure the level of financial literacy through telephonic interview amongst various age groups above 18 years. Several findings were made under the heading of savings, budgeting and planning. 68% of the respondents comprised of the household with only one person responsible for the financial management. Females scored low in financial literacy when compared to men. 74% of the respondents experienced no problem in budgeting while 24% confirmed that they had issues in setting aside money for savings and investments. The author also studied the attitude required for financial planning of both long term and short term. The financial literacy was studied in detail in terms of numerical literacy, standard literacy, financial understanding, financial competence and financial responsibility.

(Borden et al., 2008) investigated the effect of financial tutorial called Credit Wise Cats through a pilot study on the knowledge, attitude and intention towards the financial responsibility. A sample size of 93 college students were taken. A pre-test and a post-test were carried out in order to examine the effect of the seminar on the audience. Findings showed that the financial behavior of the students' post-test was more effective due to enhanced financial knowledge, responsible and risk averse attitude. Thus, the findings suggested that such seminars can help people at a larger scale thereby making the longitudinal research mandatory.

(Servon & Kaestner, 2008) analyzed a demonstration program rolled out by a bank to understand the combined training of financial literacy and internet usage for low- and moderate-income individuals. The study was based on both formative and summative evaluation using both qualitative and quantitative data methods. Quantitative data was collected from telephonic and baseline surveys whereas the qualitative data was taken through interviews and focus group discussion. Findings showed the existence of a relation between communication technologies and financial literacy. Moreover, the low- and moderate-income group individuals of urban area were interested in financial literacy programs to become financially literate and technologically able to reach their financial goals. Findings suggested that IT enables the access of the customers for greater financial freedom with increased financial literacy and alternate delivery

channels of the banking and other financial institutions.

(Lusardi, 2008) studied the effect of low level of financial literacy on the retirement planning and lack of wealth. The author also suggested financial education programs which can help in sound financial decision making. The study focused on how individuals plan for their retirement by assessing their level of financial knowledge and numeracy skills.

(Lusardi and Mitchell, 2007) carried out the longitudinal research on the collective effect of planning and financial literacy on the savings of two cohorts of the same age bracket of 51-56 years nearing retirement. It was done first in the year 1992 and then again in the year 2004. They found that indeed the individuals with good planning possess more wealth. They concluded with the fact that planning continued to remain an important factor in the presence of different socio-demographic factors.

(Danes & Haberman, 2007) examined the different perspective of the male and female gender on the financial knowledge, self-efficacy and behavior. A financial planning curriculum was given to 5329 high school students to carry out a pre-post-test. The findings showed that the females believed managing money is more important for their future. While males were reported to achieve greater number of financial aims than the opposite sex. The females were reported using budgets, debating financial matters with family and comparing prices more frequently than men.

(Johnson & Sherraden, 2007) studied that the youth in the US lacked financial knowledge and had limited access to the financial institutions. The authors favored financial capability over financial literacy as financial capability happens when individual has the financial knowledge and also the access to the financial institutions. The managerial implications of the research article talk about the lacuna in financial institutions. Financial institutions have created the curriculum as there is a growing interest in financial education amongst the youth but they are not encouraged to access the financial institutions. The authors encourage youth to access the financial institution and gain the financial knowledge simultaneously so that their financial capability and financial literacy increases simultaneously.

(Peng et al., 2007) examined the impact of personal finance education on the students of high school and college. The investment knowledge and savings rate of the household were measured after few years of the financial education delivery in high school and colleges. A sample survey of 1039 alumni from a midwestern university was taken

to carry out the study. The findings showed that the personal finance course at the college level was positively related to the investment knowledge. The high school course did not prove to be statistically significant in terms of investment knowledge. It was also studied that the financial experience is positively related to the savings rate.

(Cude et al., 2006) investigated about the variation in risk taking behavior amongst the college students in terms of their practices pertaining to financial management. Both quantitative and qualitative data were used to study the behavior and the financial knowledge of the college students. Focus group discussion was done to calculate the financial fitness score of the respondents. The two focus groups included the respondents who were at financial risk and the other two included those who were not. The findings showed that the children's financial socialization was governed by their parents. Financial education is also influenced by the students' campus administrators and other financial educators or professionals. The authors advised that the graduation course curriculum should include a personal finance course or a financial life skills course for covering the basics of financial management to ensure better financial behavior.

(Fox et al., 2005) investigated the need of the evaluation of the financial education programs for the Americans due to the increasing rate of bankruptcy, high debt and low savings etc. The author also studied the need to promote the financial management and financial literacy. A five- tiered approach was used to evaluate the program. The 5 tier steps were pre implementation, accountability, program clarification, progress towards objectives and impact of the financial program by sharing best practices. This 5 tier approach helped the policy makers for the improvement of the existing programs to achieve the desired financial outcomes.

(Joo & Grable, 2004) described the determinants of financial satisfaction in a study with a sample size of 220 white collar clerical workers. Path analysis method was used to determine that the financial satisfaction is related with financial behavior, financial stress, income, financial knowledge, financial solvency, risk and education. The findings of the study suggested that education, financial knowledge, risk tolerance, solvency, and behavior had a direct effect on financial satisfaction. If the consumers receive proper education in the area of basic personal finance, they will be able to manage their financial behavior in a better manner which will lead to enhanced financial satisfaction.

(Masud Jariah, 2004) studied the need for financial education amongst the students of the University as many students get over indebted with education loans which delay their other financial goals after completion of the degree and onset of a job. The authors suggested the educators for offering a course which teaches them basic financial skills necessary for effective financial management.

(Ameriks et al., 2003) did a survey to study the differences in wealth accumulation by different households of the same social status. They observed that the behavioral attitude plays an important role in order to promote propensity to plan. They studied that those with high propensity to plan, spend more time in financial planning for wealth accumulation. They studied and realized the importance of planning in the due course of accumulation of wealth.

(Beal & Delpachitra, 2003) conducted research among the students of the University of Southern Queensland in Australia. Survey questionnaire of 837 respondents was collected to check the basic financial concepts of planning and financial market in the form of 25 multiple choice questions. Moreover, nine questions of demographic information and one question of risk tolerance was asked. The findings divided the respondents into two groups of high achievers and low achievers . Logistic regression modelling was used to find that the financial literacy scored better with students in business studies than other faculties. They concluded that financial education is important for individuals and the economy.

(Hogarth & Anguelov, 2003) studied that the savings of the poor and the low income household is significantly associated with socioeconomic, demographic factors, motivation, access to resources and the institutional environment. The data was collected from the Federal Reserve board 1998's survey of consumer finances. Their study called all those people, 'savers' who had lesser spending than income. They also explored the determinants of savings by multivariate empirical model. Revenue, teaching, race, hopes, incentives, planning horizon, children's presence, access to well-being coverage, vehicle proprietorship, region, credit history and bank account ownership were studied as noteworthy elements of household savings.

(Faulcon Bowen, 2002) examined the financial knowledge of the teens of high school juniors and seniors along with their parents. The author also examined the relationship between the financial knowledge of the teens and the parents. The findings showed that the teens had the knowledge about income whereas parents were knowledgeable

on almost all areas except credit card liability, annual percentage rates, auto collision coverage etc. The author explained a significant relationship between the teens and parents in terms of financial knowledge.

(Chen & Volpe, 2002) examined the difference of financial literacy level amongst the male and female gender. The sample was collected from 1800 college students constituting both male and female gender from 14 different college and universities in California, Florida, Kentucky, and Pennsylvania. The other demographic variables like age, class rank, work experience etc., were controlled to calculate the gender differences in terms of financial literacy. Cross tabulation and chi square test were used to examine the difference of the financial literacy level in the male and female participants. The findings showed that the women had lesser inclination towards personal finance than men. Women scored low in numerical questions and had lesser knowledge in finance.

(Tennyson & Nguyen, 2001) examined the relationship between the scores of a test pertaining to personal financial literacy of high school students and their state's personal finance curriculum mandate. Multivariate analysis was employed to find the positive relationship between the personal finance curriculum and the test scores. The more specific the curriculum mandate was, higher was the positive impact on the students. Thus, the findings showed that the scores were high for the students who had specific financial education coursework rather than those with general or no mandate.

(Boheim and Taylor, 2000) studied the household finance problems like repossession post eviction in Britain, between the years 1991-1997. They used the data from British Household Panel Survey. They understood that when a person goes through such unpleasant experiences, it prepares the person and motivates him towards savings for wealth creation and accumulation. They also studied the importance of positive structural and financial status of a family in meeting the household costs. The household with working head of the family earning high income with big assets have positive financial status are more efficient in meeting household costs.

(Hayhoe et al., 2000) examined the differences in spending habits and the credit use amongst the college students. Attitude towards credit and the gender differences in credit purchase were also investigated. The credit purchases by females included clothing while electronics, entertainment, travel, gasoline and food take away were the major purchases by the males. Path analysis model was employed to show that the gender

difference was more significant factor than the attitude.

(Fox, 1999) investigated the academic performance of 419 undergraduates in the class of financial management on the grounds of learning style, demographic background, academic history and time allocation. The objective of investigating the relationship between student learning style and academic results in the course of personal finance was to find the ways to guide the personal finance educators. Ordinary least square regression was used to analyze the relationship between dependent variable and independent variable to find that the academic history and time usage were statistically significant factors. Employed students performed better. Student learning style was not statistically significant factor for the academics results in the course of personal finance.

(Danes et al., 1999) investigated the impact of the financial planning curriculum on teenagers. A post-test was carried out on 4107 teenagers to find that the financial knowledge, behavior and self-efficacy were all increased after three month of completing the curriculum. There was 50% increase in knowledge, 1/3 gain in behavior and 40% increase in the confidence of the teenagers in managing their money.

(Chen & Volpe, 1998) studied the personal financial literacy level amongst the college students. The sample survey included 924 college students. Logistic regression modelling was used for the study. The findings showed that only half of the questions were answered in a correct manner. Students belonging to non-business courses , women, student with little work experience and students under 30 years of age displayed lower levels of financial knowledge which led to incorrect decision making in terms of personal finance.

(Parrotta & Johnson, 1998) studied the effect of financial attitude on the financial management and satisfaction of the recently married people. Deacon and Firebaugh Family Resource Management Model was used to investigate the same. A sample size of 194 recently married individuals was taken to run different regression models. The findings showed that the financial knowledge did not moderate the relationship of financial attitude and the practices. Attitude rather than financial knowledge proved to be more important for the financial satisfaction amongst the couples.

(Bernheim et al., 1997) examined the effects of high school curriculum on the household financial decision making. The topics included savings, investment, credit management, budgeting etc. About 2000 household surveys across different states were

done to identify the effect of the curriculum. The findings showed that there is a significant relationship between the financial curriculum and the asset accumulated by the students in their adulthood. The finding suggested that financial education is necessary for the financial planning and wealth accumulation and it can be started as early as in high school.

(HIRA, 1997) studied the perception of the current financial situation and the financial decision making patterns in the family. They also studied the relationship between the age and financial activities undertaken with the relative importance of socializing agents. A sample survey of 2000 individuals was taken to find that the financial decision making varies with different age groups. Amongst the socializing agent, parents were identified as the most important influencers on the respondents' financial attitudes and beliefs. Impulsive and compulsive buying habits were reported amongst the younger respondents. The study showed that the abnormal buying behavior were mostly governed by their personalities.

(Livingstone and Lunt, 1992) did a survey on 279 respondents in Oxford, England in September 1989 to examine the various factors like social, economic and psychological influencing individuals to take debt. They further studied the amount of debt taken and the time taken in repayment. The study revealed that psychological factors were the important precursor over other factors for a person to get into the debt. They divided the respondents into two classes namely pro-credit and anti-debt.

(d'Astous, Maltais & Roberge, 1990) studied the compulsive buying behavior of the 394 adolescents. Multiple regression analysis was carried out in a cross sectional study and found that their compulsive buying tendency is influenced by both personal and environmental factors.

(Holland & Healy, 1989) investigated about the loan recipients amongst the students of a university in terms of their origin, total debt level and knowledge about the loan repayment. The students of the Iowa State University were interviewed to find that there was lack of knowledge for loan repayment. Females experienced more difficulty in repayment as compared to males. The findings suggested that the students were in need of financial counselling.

2.1 Research Gap

While there is a growing literature on the financial literacy and its effect on the financial behavior of the individual, the literature takes little account of inherent behavior or psychological factors of the Generation Y. Very limited papers study the collective effect of demographic factors, financial literacy and behavior on the financial outcomes of the millennial household and hardly any compares them all. There exists a paucity of studies explaining the behavioral aspect of the wealth accumulation in the household. Therefore, this study in relation to the existing literature, intents to use the representative data set of the said generation to offer new insights on the key causes of widening household wealth gap of the Gen Y. Thus, this gap in literature motivates to study the phenomenon with a belief that the findings of the study will contribute towards the literature and academia by bridging the gap to supplement the study. The study will also have profound managerial implications for the policy makers and the industry preferably the BFSI (Banking, Finance services and Insurance) sector.

3

Research Methodology

This chapter discusses the research methodology employed in the study in order to reach its objectives. It explains the scientific and systematic use of various methods and techniques to solve the research problem in terms of their relevance to the study. It is an answer to 'how' the research is done scientifically and logically.

This chapter begins with the type of research with its research design. It further explains the universe, population, sampling frame, unit of analysis, sample size and the time horizon of the study. It is followed by the development of the questionnaire, data collection procedures, data analysis techniques for the measurement of the variables and pilot testing.

3.1 Type of Research

The mixed method or the integrated research model entailing exploratory and conclusive/descriptive type of research is employed for the study. Descriptive research comprises of fact finding surveys of different kinds. In social science, it is also called ex post facto research in which there is no control on the variables. Things are reported the way they happened like frequency of shopping, preference of people. Exploratory

research promotes development of hypothesis rather than testing.

3.2 Research Design

A research design is a blue print or master plan of action, specifying the methods and procedures for collecting and analysing the required data to convert it into information in order to carry out a research (Figure:3.1).

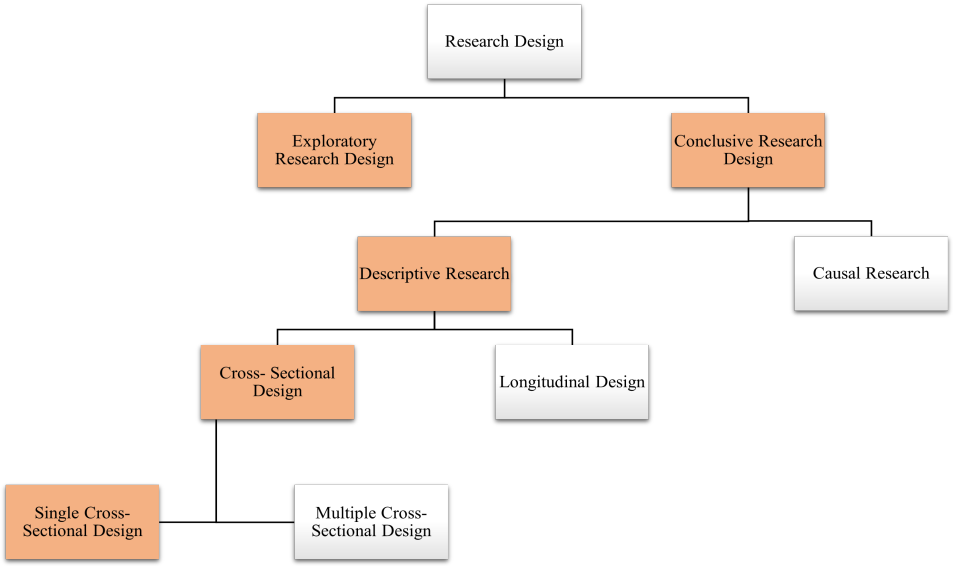

Figure 3.1: The colour highlighted boxes are chosen for this study.
Source: (Malhotra & Dash, 2019).

The first part of the mixed method or the integrated research is qualitative in nature The exploratory research design is used for the exploration of information in the field of financial literacy, behavioural control, and household wealth related with Generation Y. Research design in case of Exploratory research studies involves extensive literature review, observations, discourse analysis of interaction with people, unstructured interviews for experience survey and analysis of insight stimulating examples. Exploratory research design also helps in the formulation of hypothesis.

The second part of the mixed method or the integrated research is quantitative in nature to generalize the result of the study. Descriptive research design is used to test the formulated hypothesis. Research design in case of Descriptive research studies includes formulating the objective of the study, sample selection, designing the method of data collection, data analysis and report of findings.

Table 3.1: Research Design

Research Design	**Type of Study**	
	Exploratory	**Descriptive**
Objective	To give insights and formulate hypothesis	To test hypothesis and examine relationships
Flexibility of Design	Flexible and unstructured in nature	Rigid, defined, formal and structured in aspects
Sampling Design	Non probability sampling with small and non-representative sample	Non-Probability/Probability random sampling with large and representative sample
Statistical Design	Not required	Pre-planned design for analysis is required
Observational Design	Unstructured instruments for data collection	Structured instruments for data collection
Analysis	Qualitative	Quantitative
Findings	Tentative	Conclusive
Outcome	Findings are followed by further exploratory or descriptive / conclusive research	Findings are followed by decision making.

3.3 Research Problems

1. What are the different characteristics of the Gen Y or Millennials that model their financial behaviour?

2. What is the level of financial literacy among the generation which empowers the generation to take the complex financial decision for their household wealth?

3. Which factor among the behavioural control and financial literacy has a stronger impact on the household wealth?

3.4 Objectives

1. To understand the behavioral characteristics and control of the Gen Y through extant literature.
2. To assess and approximate the financial literacy level amongst the Gen Y through mixed method of qualitative and quantitative research component.
3. To compare and contrast the effect of behavioral control and financial literacy level on the household wealth of Gen Y in a statistically significant manner.

3.5 Proposed Research Model

The comparative research model is used in this study. The two cases to be compared are explained as below:

First case: The effect of one independent variable i.e., Behavioural Control is studied on the dependent variable of Household wealth on its direct path. Another independent variable i.e., financial literacy, when introduced on the direct path, exhibits a mediating effect and thereby alters the effect of the Behavioural Control on the Household Wealth. The mediating effect may be partial or full (Figure:3.2).

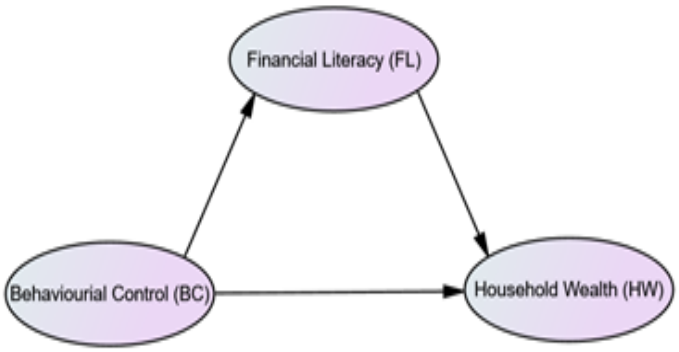

Figure 3.2: Proposed Research Model(First Case)

Second Case: The effect of one independent variable i.e., Financial Literacy is studied on the dependent variable of Household wealth on its direct path. Another independent variable i.e., Behavioural Control, when introduced on the direct path, exhibits a mediating effect and thereby alters the effect of the Financial Literacy on the Household Wealth. The mediating effect may be partial or full (Figure:3.3).

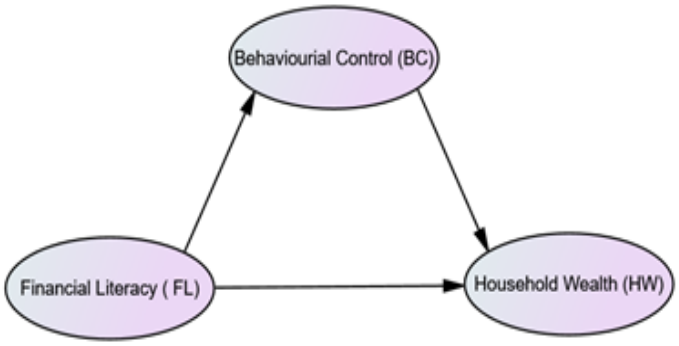

Figure 3.3: Proposed Research Model(Second Case)

Thus, in the first case Financial Literacy Construct acts as a mediating variable and in the second case, the Behavioural Control Construct acts as a mediating variable. The aim of the research is to compare the mediating effect of both the constructs to know which construct of the two is more significant in influencing the dependent variable in partial or whole. The construct with more mediating effect will prove to be more significant in terms of accumulation of household wealth.

3.6 Operationalization of constructs

For measuring different constructs of the proposed research model, scale of measurement of similar constructs were reviewed in related literature. To increase the suitability of the constructs with respect to the context of the study, little rephrasing of items were done. After finalizing the best suited scale measuring the construct of the context, the validation was carried out with the help of suggestions of academicians and other research scholars.

3.7 Formulation of Hypothesis

$H0_1$: There is no significant effect of Financial Literacy on the Household Wealth.

$H1_1$: There is a significant effect of Financial Literacy on the Household Wealth

$H0_2$: There is no significant effect of Behavioural Control on the Household Wealth.

$H1_2$: There is a significant effect of Behavioural Control on the Household Wealth.

$H0_3$: There is no significant effect of Financial Literacy on the Behavioural Control.

$H1_3$: There is a significant effect of Financial Literacy on the Behavioural Control.

$H0_4$: Behavioural Control does not mediate the relationship between Financial Literacy and Household Wealth.

$H1_4$: Behavioural Control mediates the relationship between Financial Literacy and Household Wealth.

$H0_5$: Financial Literacy does not mediate the relationship between Behavioural Control and Household Wealth.

$H1_5$: Financial Literacy mediates the relationship between Behavioural Control and Household Wealth.

$H0_6$: Financial Literacy has more mediating effect on Household Wealth in comparison to Behavioural Control.

$H1_6$: Behavioural Control has more mediating effect on Household Wealth in comparison to Financial Literacy.

3.8 Development of Questionnaire

A structured questionnaire is developed and employed to collect primary data. A questionnaire can be defined as "a list of carefully structured questions chosen after considerable testing with a view to elicit reliable responses from a chosen sample" (Hussey & Hussey, 1997). The questionnaire design was guided significantly with the help of literature review, theoretical framework and the research hypothesis. (Sekaran, 2003) suggests that "administering questionnaires to large numbers of individuals is less expensive and less time consuming than interviewing".

3.9 Research Instruments and Tools

Research instruments and tools are shown in table: 3.2.

Table 3.2: Research Instruments and Tools

Variables to be Measured	**Variable Type**	**Data Collection Method**	**Tools**	**Scale to be Used**
Financial Literacy	Independent	Quantitative	8 items	A five-point Likert-type scale with anchors (1) strongly disagree to (5) strongly agree.
Behavioural Control	Independent	Quantitative	8 items	A five-point Likert-type scale with anchors (1) strongly disagree to (5) strongly agree.
Household Wealth	Dependent	Quantitative	8 items	A five-point Likert-type scale with anchors (1) strongly disagree to (5) strongly agree.

3.10 Population or Universe of the study

It consists of all the elements which qualify for inclusion in the research study. "The population of research is the entire group of people that the researcher wishes to investigate" (Sekaran, 2003). In this study, the universe of the study are all individuals belonging to the Gen Y with special reference to Uttar Pradesh. The age bracket of Gen Y is the sample frame of the study as it characterises individuals to get selected for inclusion to the universe of the study.

3.11 Sampling Method

Snowball sampling with **Criterion Sampling strategy** suggested by (Palys, 2008) was employed for the study. It involves searching for the subjects who meet certain criteria like belonging-ness to the defined age bracket, location, educated, employed, urban etc. "Snowball sampling is a type of non-probability, chain-referral sampling

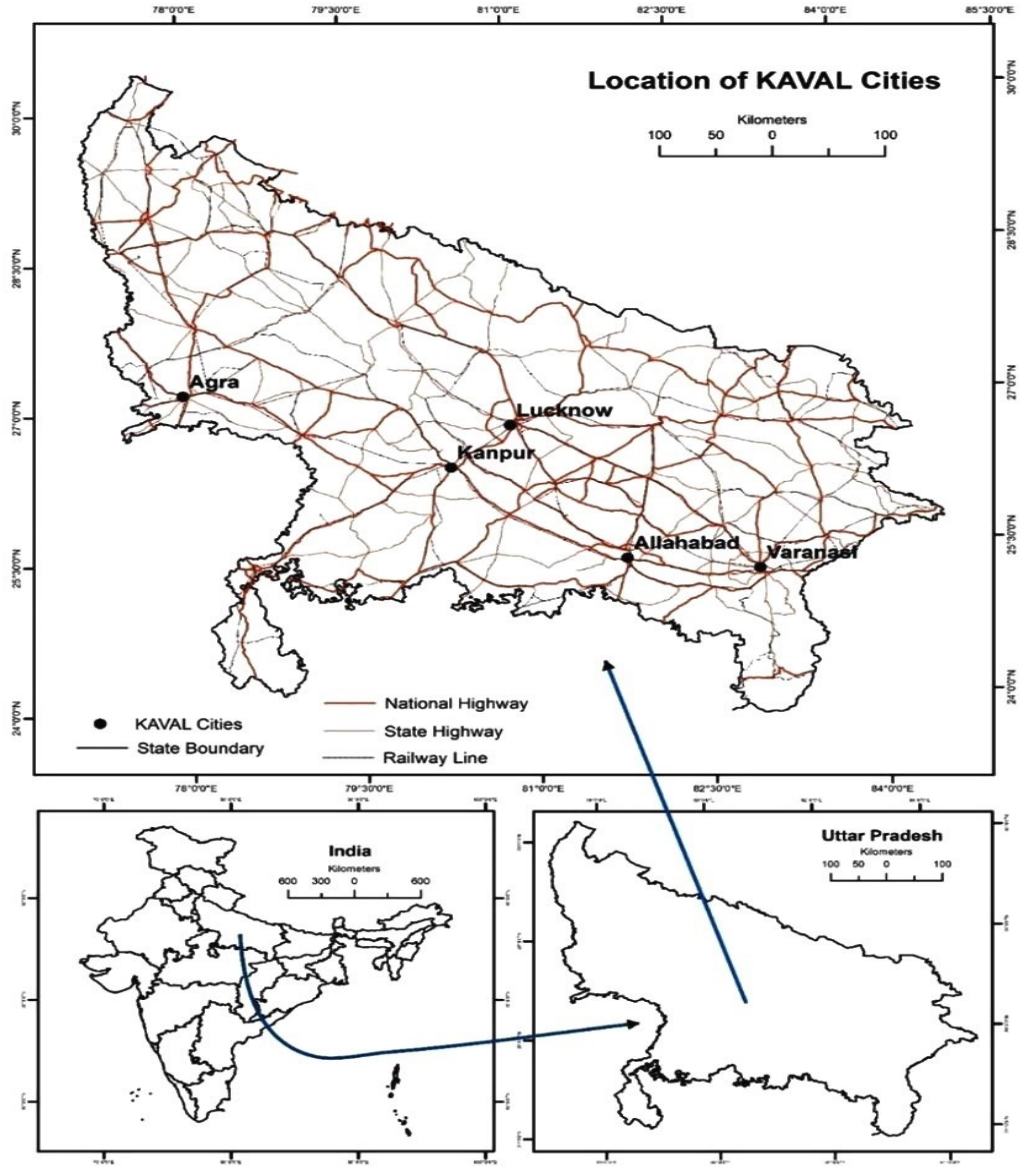

Figure 3.4: Location of KAVAL cities
Image Source : (Mishra & Anand, 2020)

technique where existing study subjects recruit future subjects from among their acquaintances" (Anand et al., 2020). As the study is limited to the state of Uttar Pradesh only, the state was divided into KAVAL cities (Kanpur, Allahabad, Varanasi, Agra and Lucknow) for data collection. These cities were identified for data collection as they came out as winners for future smart cities in a national competition by Ministry of Housing and Urban Affairs, Government of India (Press Information Bureau, 2015). Moreover, these cities of UP have the regional and head offices of various government, public and private companies. They also act as business hubs. Thus, finding financially independent Gen Y was easy in KAVAL cities. 'The survey started with a small pool, comprising of initial respondents from our social groups and acquaintances who belonged to KAVAL cities of UP and were financially independent. They were invited to participate with a 'formal message or mail with due consent in the form of an explicit disclaimer to participate in the survey questionnaire'. They further nominated others who meet the eligibility criteria and who could potentially contribute to our study through their official and social networks. The inclusion criteria was financial independence. The initial data was received on 27.03.2021. The final data of 450 records was collected on 31.05.2020 with Google forms. The further data cleaning led to the final data collection of 408 respondents (Figure:3.4).

3.12 Unit of Analysis

The unit of analysis is individual respondent belonging to the Generation Y.

3.13 Sample size

This study collected its own data because the required data was not available. The size of the population of this research was not identified. Therefore, to determine the sample size, Slovin's formula with error standard of 5% was used. We have supposed that around 2000-3000 urban and financially independent individuals need to be surveyed from five KAVAL cities of Uttar Pradesh. 500 respondents were expected from each of the KAVAL cities. Thus, N is taken as 500*5 = 2500. A margin of sampling error of 0.05 was considered for the survey. Using Slovin's formula, we arrived at the required web sample survey size which is as follows:

'n = N / (1 + Ne^2);
where, *n* = sample size,

N = Total population
e = Error tolerance.
n = 2500/ (1+2500*0.05^2)
= 344.8

Thus, post rounding off the figure, we decided the sample size to be nearing 350 but we successfully received 408 responses.'

3.14 Time Horizon of the Study

It is a cross sectional study as the responses were collected only once, over a period of time from March 2021 to May 2021.

3.15 Ethical Consent

Ethical consent has become a mandatory requirement in research to protect the interest and privacy of the human subjects. Ethical consent is a form of informed consent entailing the process of informing the potential research participants about their role and involvement in the research. In case of this research, "the questionnaire began with a disclaimer, stating the purpose of the research to be solely academic and informing participants that all the data in form of their responses would be anonymised." Anyone who proceeds with the questionnaire in order to complete the same was considered to imply with the consent for participation.

3.16 Data Editing and Coding

Data collection through web based survey was followed by data cleaning, editing and coding to make the data compatible and eligible to be stored in SPSS software version 23.0. Data editing includes checking and adjusting for errors, omissions, illegibility, biasness and inconsistency to ensure error free complete data.

Method bias is one of the serious problem encountered in the survey based study. The reason for these biases are generated by either the measurement items themselves or by using the same method or single source to measure the independent or dependent variables in a relationship (Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Craighead, Ketchen, Dunn & Hult, 2011). There are various procedural and statistical remedies to

control these biases. Procedural remedies like informing the prospect subjects about the fact that there is no right or wrong answers for the survey questions of the instrument, the anonymity and the voluntary participation. Another bias which is usually encountered in the survey study is Non response bias. It was ensured that all the fields are mandatory in the google form to avoid non response in our case. Making all fields mandatory will not allow the respondents to submit the google form questionnaire before completion.

The review and revision of survey items based on the feedback of experts from academia, financial institutions and fellow research scholars is an iterative process till the biases and errors are reduced to minimum.

The total 450 responses were received and the validation process was employed to identify invalid responses and few outliers. Invalid responses are the responses with extreme values. Outliers were the responses from students and unemployed who have the characteristics falling out of the inclusion criteria of the study. (Hair, Hult, Ringle and Sarstedt, 2014) have suggested that the missing values should be less than 15%. This study has almost nil missing values. Finally, 408 responses were found valid for further analysis.

3.17 Data Analysis Techniques

For reliability and factor analysis (Exploratory Factor Analysis), SPSS 23.0 version software is used whereas for the Construct validity, Confirmatory Factor Analysis, Measurement Model and Structural Equation Model, the add on feature of SPSS, that is AMOS 23.0 version is used. The confirmatory factor analysis is done for the finalization of each construct under the scale development and tool standardization. The nominal scale is used for demographics variables whereas the Likert 5 point is used for three constructs as Financial Literacy (FL), Behavioural Control (BC), and Household Wealth (HW). Model fit analysis and hypothesis testing involved the proposed research model being tested and modified by considering the goodness of fit of the model to the data. Hypothesis testing involved testing the direct path hypothesis and mediating hypothesis.

3.17.1 Structural Equation Modelling (SEM)

"SEM is the combination of factor analysis and multiple regression analysis which is used to analyse the structural relationship between measured variables and latent constructs" (Tenenhaus et al. 2005). "It is a multivariate technique which combines aspect of multiple regression (examining dependence relationships) and factor analysis (representing unmeasured factors with multiple variables) to estimate a series of inter-related dependence relationships simultaneously" (Hair et al. 2006; Schumacker & Lomax 1996). "SEM is also known as path analysis with latent variables and is now a regularly used method for representing dependency relations or the causal relations in multivariate data in behavioural and social sciences" (McDonald & Ringo Ho 2002).

3.18 Pre- test

The guiding principles of (Dillman, 2000) were followed for questionnaire development. The online questionnaire was made using Google Forms. The paper version of the survey instrument was created in Latex. The Google form was tested with varied browsers like Internet Explorer, Chrome, Firefox, Microsoft Edge and Safari etc to check its consistency for the appearance of the questionnaire. Other principles of (Dillman, 2000) like welcome note, easy to answer, consistent format, limited usage of colours etc were followed.

3.19 Pilot Study

Pilot study is used to test the instrument for its reliability and validity. The instrument is also checked for its relevance, relatedness, flow, readability and layout. It should be easy to understand, comprehend and respond. The pilot study was conducted with 40 respondents. Coding was done post data collection. Reverse coding was also done for the negative statements or items related to a construct.

3.20 Reliability and Validity Analysis

The instrument is tested for its reliability and validity to check the robustness.

3.20.1 Reliability testing

"Reliability refers to the precision of measurement scores or how accurately such scores will be reproduced with repeated measurement" (Dillon, Madden, & Firtle, 1994). It denotes the goodness of measure and accuracy in the instrument (Sekaran, 2003).

3.20.1.1 Test-retest

Test-retest is used to check the consistency of the instrument over time. For test-retest reliability ,the correlation score of the items in context to the construct is calculated. The ICC (Intraclass Correlation Coefficient) value should be above 0.7 or near to 1 and the significant value should be less than 0.05 at 95% confidence interval. The questionnaire was tested at different time interval to find that there was no significant difference in the correlation score. Both the times, the value of ICC came out to be 0.848. Thus, the instrument tested high for the test-retest reliability.

Table 3.3: Intraclass Correlation Coefficient (ICC)- First time testing

Intraclass Correlation Coefficient (ICC)							
	Intraclass Correlation[b]	95\% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.736[a]	.479	.876	6.408	23	23	.000
Average Measures	.848[c]	.648	.934	6.408	23	23	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.
where,
a= The estimator is the same, whether the interaction effect is present or not.
b= Type A intraclass correlation coefficients using an absolute agreement definition.
c= This estimate is computed assuming the interaction effect is absent, because it is

not estimable otherwise.

Table 3.4: Intraclass Correlation Coefficient (ICC)- Second time testing

Intraclass Correlation Coefficient (ICC)							
	Intraclass Correlation [b]	95\% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.758 [a]	.522	.887	7.261	23	23	.000
Average Measures	.862 [c]	.686	.940	7.261	23	23	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.
where,
a= The estimator is the same, whether the interaction effect is present or not.
b= Type A intraclass correlation coefficients using an absolute agreement definition.
c= This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

3.20.1.2 Inter-rater

The reliability and consistency of the instrument was also tested by different researchers to prevent any biasness. It is also called as inter observer reliability testing. For Inter-rater reliability, the ICC value should be above 0.7 or near to 1 and the significant value should be less than 0.05 at 95% confidence interval. The value of ICC remained 0.862 with different researchers. Thus, there was no significant difference in the correlation results with different researchers. Hence, the instrument proved and scored high on the inter-rater reliability.

3.20.1.3 Internal consistency

Internal consistency is a test of the consistency in the way the respondents answer to all the items of the questionnaire. It also measures the degree to which the items are independent measures of the same concept. It further measures the correlation between the items (Sekaran 2000).

As per the procedures described by (Davidson et al, 2002; Nunnally Jum & Bernstein Ira, 1978) the most popular test of inter-item consistency reliability i.e., the Cronbach's coefficient alpha is used for this research (Cronbach, 1951; Nunnally, 1979; Peter, 1979; Sekaran, 2000).

"Cronbach alpha less than 0.6 are considered to be poor while those in the 0.7 range are considered acceptable and those over 0.8 is good" (Sekaran, 2000). "The generally agreed upon lower limit for Cronbach's alpha is 0.70" (Peter 1979; Robinson, Shaver & Wrightsman 1991a, 1991b). The CITC (Corrected Item Total Correlation) value above 0.400 and the min 0.60 KMO is preferred. The higher the value of KMO, the better it is. The outputs of reliability and factor analysis of each construct are as follows:

Table 3.5: Case Processing Summary- Pilot Testing

Case Processing Summary			
		N	%
Cases	Valid	40	100.0
	Excluded	0	.0
	Total	40	100.0
a. Listwise deletion based on all variables in the procedure.			

From the case processing summary table, it is clear that in pilot study 40 respondents was selected and there was no missing data in the response of 40 respondents.

First Construct: Financial Literacy (FL)

Reliability- First Stage

Table 3.6: Reliability -First stage- FL

Reliability Statistics	
Cronbach's Alpha	N of Items
.804	8

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.804 for 8 items of FL, which is above 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.7: Item-Total Statistics-FL-First Stage

Item-Total Statistics				
Financial Literacy Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
FL1	32.40	4.862	.371	.802
FL2	32.95	4.664	.281	.831
FL3	32.70	4.113	.688	.754
FL4	32.20	5.600	.118	.821
FL5	32.40	4.349	.673	.759
FL6.	32.40	4.349	.673	.759
FL7	32.55	4.151	.680	.755
FL8	32.45	4.254	.680	.757

From the item-total statistics table, it is clear that the CITC value of FL2 and FL4 is 0.281 and 0.118 respectively, hence first FL2 will be deleted, because the Cronbach's Alpha value is improved to 0.831 in the second stage for 7 items of FL.

Abbreviations:

FL1 I know how to avoid, check and rectify the inconsistencies in my bank statements.

FL2 I will be prepared to manage my finances upon retirement

FL3 I keep myself updated with latest news pertaining to financial market, products, stocks, policies etc.

FL4 I am well versed with internet and mobile banking.

FL5 I can use combinations of skills, resources and knowledge to make financial decisions.

FL6 I have the ability to discern financial choices and discuss financial issues without discomfort.

FL7 I understand financial terms and concepts

FL8 I can make informed effective financial choices

Reliability- Second Stage

Table 3.8: Reliability- Second Stage-FL

Reliability Statistics	
Cronbach's Alpha	N of Items
.831	7

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.831 for 7 items of FL, which is above 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.9: Item-Total Statistics-FL-Second Stage

Item-Total Statistics				
Financial Literacy Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
FL1	28.20	3.856	.357	.843
FL3	28.50	3.026	.790	.769
FL4	28.00	4.513	.109	.856
FL5	28.20	3.446	.630	.800
FL6	28.20	3.446	.630	.800
FL7	28.35	3.105	.751	.777
FL8	28.25	3.269	.703	.787

From the item-total statistics table, it is clear that the CITC value of FL4 is 0.109, hence first FL4 will be deleted, because the Cronbach's Alpha value is improved to 0.856 in the third stage for 6 items of FL.

Reliability- Third Stage

Table 3.10: Reliability- Third Stage-FL

Reliability Statistics	
Cronbach's Alpha	N of Items
.856	6

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.856 for

5 items of FL, which is above 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.11: Item-Total Statistics-FL-Third Stage

Item-Total Statistics				
Financial Literacy Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
FL1	23.25	3.782	.316	.886
FL3	23.55	2.921	.777	.806
FL5	23.25	3.372	.589	.842
FL6	23.25	3.269	.663	.829
FL7	23.40	2.913	.799	.801
FL8	23.30	3.087	.742	.814

From the item-total statistics table, it is clear that the CITC value of FL1 is 0.316; hence FL4 will be deleted, because the Cronbach's Alpha value is improved to 0.886 in the fourth stage for 5 items of FL.

Reliability- Fourth Stage

Table 3.12: Reliability- Fourth Stage-FL

Reliability Statistics	
Cronbach's Alpha	N of Items
.886	5

Table 3.13: Item-Total Statistics-FL-Fourth Stage

Item-Total Statistics				
Financial Literacy Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
FL3	18.80	2.421	.707	.867
FL5	18.50	2.718	.603	.888
FL6	18.50	2.513	.775	.852
FL7	18.65	2.285	.834	.835
FL8	18.55	2.510	.718	.863

From the reliability statistics and item-total statistics table, it is clear that the all the CITC values are above 0.400, hence no further item will be deleted, because the Cronbach's Alpha value is improved at required level of 0.886 (above 0.700) for 5 items of FL.

Factor Analysis- FL

Table 3.14: KMO and Bartlett's Test-FL

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.722
Bartlett's Test of Sphericity	Approx. Chi-Square	127.430
	df	10
	Sig.	.000

From the KMO and Bartlett's test table, KMO value is 0.722 which is above 0.6 for better results, hence the FL construct passed the sampling adequacy test.

Table 3.15: Total Variance Explained-FL

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.453	69.064	69.064	3.453	69.064	69.064
2	.756	15.116	84.180			
3	.465	9.306	93.487			
4	.201	4.014	97.500			
5	.125	2.500	100.000			
Extraction Method: Principal Component Analysis.						

All the items of FL construct explained 69.064% variance; hence selection of items under FL is good for further statistical analysis. All the five items FL3, FL5, FL6, FL7, and FL8 measure the FL construct up to 69.064% and the data loss is only 30.936%, which represents a good selection of items under FL construct.

Table 3.16: Component Matrix-FL

Component Matrix[a]	
	Component
	1
FL3 I keep myself updated with latest news pertaining to financial market, products, stocks, policies etc.	.813
FL5 I can use combinations of skills, resources and knowledge to make financial decisions.	.733
FL6 I have the ability to discern financial choices and discuss financial issues without discomfort.	.866
FL7 I understand financial terms and concepts	.906
FL8 I can make informed effective financial choices	.828
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

From the components Matrix table, it is clear that all the factor loadings of each items are above 0.5, hence represents the Financial Literacy construct.

Second Construct: Behavioural Control (BC)

Reliability- First Stage

Table 3.17: Reliability-First Stage-BC

Reliability Statistics	
Cronbach's Alpha	N of Items
.440	8

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.440 for 8 items of BC, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.18: Item-Total Statistics-BC-First Stage

Item-Total Statistics				
Behavioural Control Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
BC1	30.70	7.292	-.006	.481
BC2	30.55	7.433	.217	.427
BC3	31.30	5.959	.197	.408
BC4	31.20	5.087	.569	.219
BC5	31.15	6.695	.178	.414
BC6	31.05	5.587	.530	.269
BC7	31.45	5.177	.356	.313
BC8	31.10	7.990	-.211	.598

From the item-total statistics table, it is clear that the CITC value of BC1, BC2, BC3, BC5 and BC8 is -.006, .217, .197, .178 and -.211 respectively, hence first BC8 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.598 in the second stage for 7 items of FL

Abbreviations:

BC1 I believe that savings gives a sense of security.

BC2 My parents and friends consider it important to save money every month for unexpected expenditures

BC3 I don't take large risks for high profits in less time.

BC4 I am not an impulse buyer who buys without comparing prices.

BC5 I always pay my credit card and other bills on time to avoid extra charges.

BC6 I save more when I get a pay rise.

BC7 I don't get carried away with promotional offers while shopping.

BC8 I don't indulge in bad habits like smoking, drinking and gambling.

Reliability- Second Stage

Table 3.19: Reliability-Second Stage-BC

Reliability Statistics	
Cronbach's Alpha	N of Items
.598	7

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.598 for 7 items of BC, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.20: Item-Total Statistics-BC-Second Stage

Item-Total Statistics				
Behavioural Control Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
BC1	26.30	7.395	.033	.644
BC2	26.15	7.618	.265	.594
BC3	26.90	5.938	.255	.591
BC4	26.80	5.292	.569	.458
BC5	26.75	6.756	.231	.586
BC6	26.65	5.772	.540	.485
BC7	27.05	5.074	.438	.508

From the item-total statistics table, it is clear that the CITC value of BC1, BC2, BC3, and BC5 is .033,.265,.255 and .231 respectively, hence first BC1 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.644 in the third stage for 6 items of BC.

Reliability- Third Stage

Table 3.21: Reliability-BC-Third Stage

Reliability Statistics	
Cronbach's Alpha	N of Items
.644	6

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.644 for 6 items of BC, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.22: Item-Total Statistics-BC-Third Stage

Item-Total Statistics				
Behavioural Control Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation(CITC)	Cronbach's Alpha if Item Deleted
BC2	21.35	7.310	.030	.673
BC3	22.10	6.349	.035	.749
BC4	22.00	4.410	.710	.456
BC5	21.95	5.895	.330	.617
BC6	21.85	4.951	.658	.501
BC7	22.25	4.090	.585	.500

From the item-total statistics table, it is clear that the CITC value of BC2, and BC3 is .030, and .035 respectively, hence first BC3 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.749 in the fourth stage for 5 items of BC.

Reliability- Fourth Stage

Table 3.23: Reliability-Fourth Stage- BC

Reliability Statistics	
Cronbach's Alpha	N of Items
.749	5

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.749 for 5 items of BC, which is above 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

From the item-total statistics table, it is clear that the CITC value of BC2 is -0.258, hence first BC2 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.829 in the fifth stage for 4 items of BC. Although the CITC value of BC5 is 0.380 which is less than 0.400, but it can be deleted because the Cronbach's Alpha value is not improved up to the maximum level and it is limited to 0.750 whereas by deleting BC2, it improved to 0.829 which is much better.

Table 3.24: Item-Total Statistics-Fourth Stage- BC

Item-Total Statistics				
Behavioural Control Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
BC2	17.15	6.592	-.258	.829
BC4	17.80	3.549	.730	.613
BC5	17.75	4.808	.380	.750
BC6	17.65	3.823	.780	.606
BC7	18.05	2.818	.773	.590

Reliability- Fifth Stage

Table 3.25: Reliability-BC-Fifth Stage

Reliability Statistics	
Cronbach's Alpha	N of Items
.829	4

Table 3.26: Item-Total Statistics-BC-Fifth Stage

Item-Total Statistics				
Behavioural Control Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
BC4	12.85	3.721	.736	.746
BC5	12.80	4.985	.395	.881
BC6	12.70	4.010	.782	.738
BC7	13.10	2.964	.783	.729

From the reliability statistics and item-total statistics table, it is clear that the all the CITC values are above 0.400, hence no further item will be deleted, because the Cronbach's Alpha value is improved at required level of 0.829 (above 0.700) for 4 items of

BC. Although the CITC value for BC5 is at margin of 0.400, hence it will be retained in the further statistical analysis.

Factor Analysis-BC

Table 3.27: KMO and Bartlett's Test- BC

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.614
Bartlett's Test of Sphericity	Approx. Chi-Square	84.673
	df	6
	Sig.	.000

From the KMO and Bartlett's test table, KMO value is 0.514 which is above 0.6 for better results, hence the BC construct passed the sampling adequacy test.

Table 3.28: Total Variance Explained- BC

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	\% of Vari-ance	Cumulative \%	Total	\% of Vari-ance	Cumulative \%
1	2.698	67.444	67.444	2.698	67.444	67.444
2	.785	19.635	87.079			
3	.398	9.943	97.022			
4	.119	2.978	100.000			
Extraction Method: Principal Component Analysis.						

All the items of BC construct explained 67.444% variance; hence selection of items under BC is good for further statistical analysis. All the four items BC4,BC5, BC6, and BC7 measure the BC construct up to 67.444% and the data loss is only 32.556%, which represents a good selection of items under BC construct.

Table 3.29: Component Matrix-BC

Component Matrixa	
	Component
	1
BC4 I am not an impulse buyer who buys without comparing prices.	.860
BC5 I always pay my credit card and other bills on time to avoid extra charges.	.578
BC6 I save more when I get a pay rise.	.890
BC7 I don't get carried away with promotional offers while shopping.	.912

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

From the components Matrix table, it is clear that all the factor loadings of each items are above 0.5, hence represents the Behavioural Control construct.

Third Construct: Household Wealth (HW)

Reliability- First Stage

Table 3.30: Reliability- First Stage-HW

Reliability Statistics	
Cronbach's Alpha	N of Items
.467	8

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.467 for 8 items of HW, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.31: Item-Total Statistics-First Stage-HW

Item-Total Statistics				
Household Wealth Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
HW1	31.60	4.964	.000	.554
HW2	31.30	4.523	.351	.378
HW3	31.35	4.644	.399	.374
HW4	31.10	4.503	.579	.332
HW5	31.55	5.382	-.040	.540
HW6	31.30	4.113	.361	.358
HW7	31.40	4.862	.151	.458
HW8	31.35	5.054	.203	.438

From the item-total statistics table, it is clear that the CITC value of HW1, HW5, HW7, and HW8 is .000, -.040, .151, and .203 respectively, hence first HW1 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.554 in the second stage for 7 items of FL

Abbreviations:
HW1 I can handle a major unexpected expense.
HW2 I can enjoy life because of the way I'm managing my money.
HW3 I have money left over at the end of the month.
HW4 I am securing my financial future.
HW5 I have sufficient liquid savings.
HW6 I have sufficient long-term savings.
HW7 I have appropriate insurance.
HW8 I have manageable debt.

Reliability- Second Stage

Table 3.32: Reliability- Second Stage-HW

Reliability Statistics	
Cronbach's Alpha	N of Items
.554	7

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.554 for 7 items of HW, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.33: Item-Total Statistics-Second Stage-HW

Item-Total Statistics				
Household Wealth Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
HW2	27.05	3.638	.426	.458
HW3	27.10	3.785	.469	.455
HW4	26.85	3.721	.621	.422
HW5	27.30	4.523	-.027	.648
HW6	27.05	3.228	.436	.440
HW7	27.15	4.028	.175	.561
HW8	27.10	4.503	.095	.574

From the item-total statistics table, it is clear that the CITC value of HW5, HW7, and HW8 is -.027, .175, and .095 respectively, hence first HW5 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.648 in the third stage for 6 items of HW.

Reliability- Third Stage

Table 3.34: Reliability Statistics-Third Stage-HW

Reliability Statistics	
Cronbach's Alpha	N of Items
.648	6

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.648 for 6 items of HW, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.35: Item-Total Statistics- Third Stage-HW

Item-Total Statistics				
Household Wealth Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
HW2	22.75	3.064	.528	.546
HW3	22.80	3.344	.498	.567
HW4	22.55	3.536	.482	.582
HW6	22.75	2.756	.484	.560
HW7	22.85	3.413	.260	.656
HW8	22.80	4.062	.101	.688

From the item-total statistics table, it is clear that the CITC value of HW7, and HW8 is .260, and .101 respectively, hence first HW8 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.688 in the fourth stage for 5 items of HW.

Reliability- Fourth Stage

Table 3.36: Reliability Statistics- Fourth Stage-HW

Reliability Statistics	
Cronbach's Alpha	N of Items
.688	5

From the reliability statistics table, it is clear that Cronbach's Alpha value is 0.688 for 5 items of HW, which is below 0.700, but it can be improved by deleting some items whose CITC value is less than 0.400.

Table 3.37: Item-Total Statistics-Fourth Stage-HW

Item-Total Statistics				
Household Wealth Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
HW2	18.25	2.551	.605	.565
HW3	18.30	2.985	.469	.632
HW4	18.05	3.228	.407	.659
HW6	18.25	2.346	.503	.615
HW7	18.35	2.900	.304	.705

From the item-total statistics table, it is clear that the CITC value of HW7 is .304, , hence HW7 will be deleted, because the Cronbach's Alpha value is maximum improved up to 0.705 in the fifth stage for 4 items of HW.

Reliability- Fifth Stage

Table 3.38: Reliability Statistics- Fifth Stage-HW

Reliability Statistics	
Cronbach's Alpha	N of Items
.705	4

Table 3.39: Item-Total Statistics-Fifth Stage-HW

Item-Total Statistics				
Household Wealth Items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation (CITC)	Cronbach's Alpha if Item Deleted
HW2	13.80	1.805	.460	.661
HW3	13.85	1.977	.468	.658
HW4	13.60	2.092	.485	.658
HW6	13.80	1.292	.614	.565

From the reliability statistics and item-total statistics table, it is clear that the all the CITC values are above 0.400, hence no further item will be deleted, because the Cronbach's Alpha value is improved at required level of 0.705 (above 0.700) for 4 items of HW.

Factor Analysis-HW

Table 3.40: KMO and Bartlett's Test-HW

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.721
Bartlett's Test of Sphericity	Approx. Chi-Square	27.780
	df	6
	Sig.	.000

From the KMO and Bartlett's test table, KMO value is 0.721 which is above 0.6 for better results, hence the HW construct passed the sampling adequacy test.

Table 3.41: Total Variance Explained- HW

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	\% of Variance	Cumulative \%	Total	\% of Variance	Cumulative \%
1	2.158	53.951	53.951	2.158	53.951	53.951
2	.746	18.648	72.599			
3	.638	15.953	88.552			
4	.458	11.448	100.000			
Extraction Method: Principal Component Analysis.						

All the items of HW construct explained 53.951% variance; hence selection of items under HW is good for further statistical analysis. All the four items HW2, HW3, HW4, and HW6 combined explained 53.951% variance and the data loss is only 46.049%, which represents a near to good selection of items under HW construct.

Table 3.42: Component Matrix-HW

Component Matrix[a]	
	Component
	1
HW2 I can enjoy life because of the way I'm managing my money.	.688
HW3 I have money left over at the end of the month.	.702
HW4 I am securing my financial future.	.718
HW6 I have sufficient long-term savings.	.822
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

From the components Matrix table, it is clear that all the factor loadings of each items are above 0.5, hence represents the Household Wealth construct.

Reliability Analysis of Measurement Instrument

Table 3.43: Reliability Analysis of Measurement Instrument

Measurement Instrument	**No. of Items**	**Cronbach's Alpha**	**Reliability Result**
FL	5	0.886	Good
BC	4	0.829	Good
HW	4	0.705	Acceptable

The above table presents the summary of Reliability Analysis for the pilot study with 40 cases. All the Cronbach's Alpha values are above 0.700 which is considered as the good scale.

Factor Analysis of Measurement Instrument

Table 3.44: Factor Analysis of Measurement Instrument

Measurement Instrument	**No. of Items**	**KMO**	**\% Variance**
FL	5	0.722	69.064
BC	4	0.614	67.444
HW	4	0.721	53.951

The above table presents the summary of Factor Analysis for the pilot study with 40 cases. All the KMO values are above 0.6 which shows the good sampling adequacy test. All the % of variance results shows the low data loss in the final selection of items under each construct.

3.20.2 Content Validity

Content validity is also known as face validity. It is used to assess the correspondence or relation of the individual items to the basic idea and concept of the research. The questionnaire was distributed to the few research scholars, teachers and experts from the banking field for the correction and suggestions. This process of expert opinion established the content validity of the questionnaire.

4

Data Analysis and Interpretation

In this chapter, data is analysed in two stages. First stage is the demographic analysis in which single observed variable is used. In the second stage, the observed and latent multi variables are used. Frequency test for percentage is used in the demographic analysis. SEM (Structural Equation Modelling) is used for the multivariate analysis. SEM is basically a combination of factor analysis and the multiple regression analysis.

4.1 Demographic Analysis

1. **AGE**
   From the table and fig 1, it is clear that 35.78% respondents are in the age group of 20-30 years and 64.22% respondents are in the age group of 31-40 years. Therefore, it can be concluded that most of the respondents were older Gen Y'ers of the age group of 31-40 years who contributed to the present study. Older Gen Y or millennials are expected to be more financially informed and have more stable income as compared to the younger millennials.

Table 4.1: AGE

Age		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20-30 years	146	35.8	35.8	35.8
	31-40 years	262	64.2	64.2	100.0
	Total	**408**	**100.0**	**100.0**	

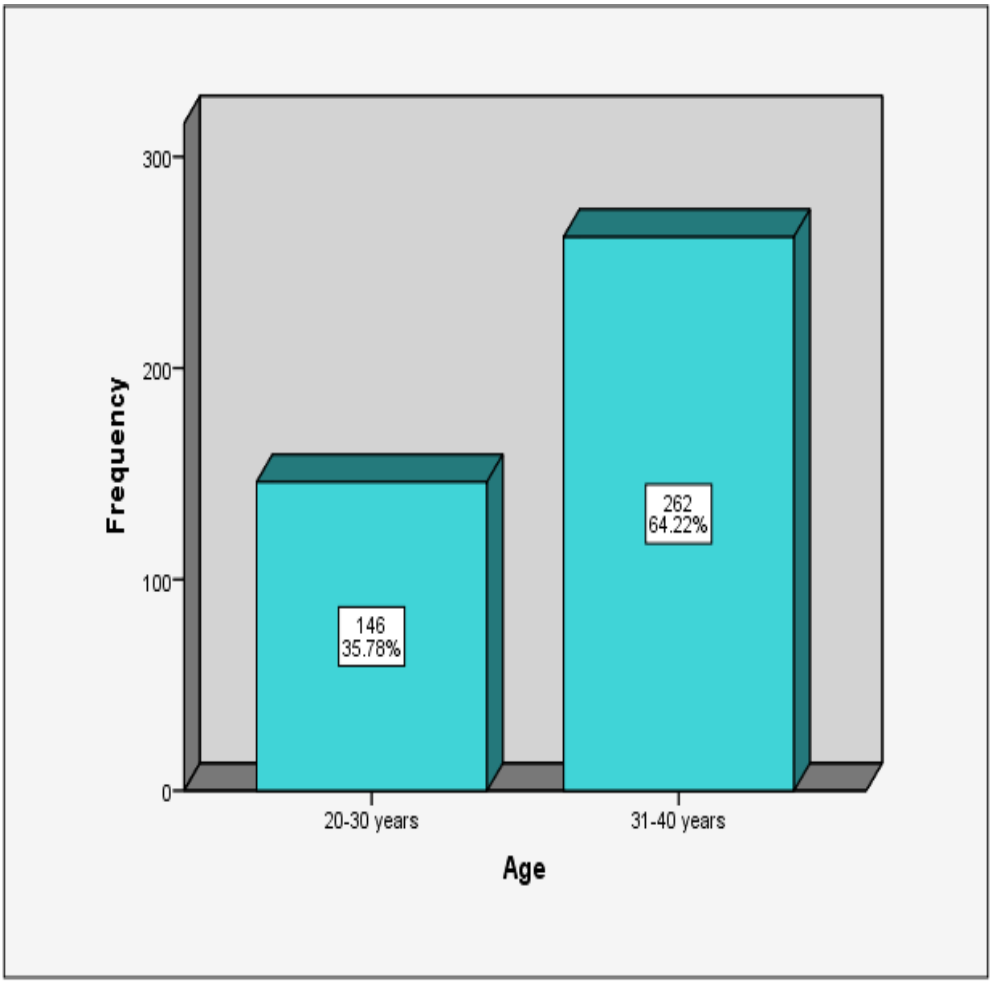

Figure 4.1: Age Bar Chart

2. **GENDER**

From the table and fig 2, it is clear that 38.73% respondents are females and 61.27% respondents are male. Therefore, it can be concluded that females participated less in the survey when compared with males. Males were more informed, responsive and enthusiastic to the present study.

Table 4.2: GENDER

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	158	38.7	38.7	38.7
	Male	250	61.3	61.3	100.0
	Total	**408**	**100.0**	**100.0**	

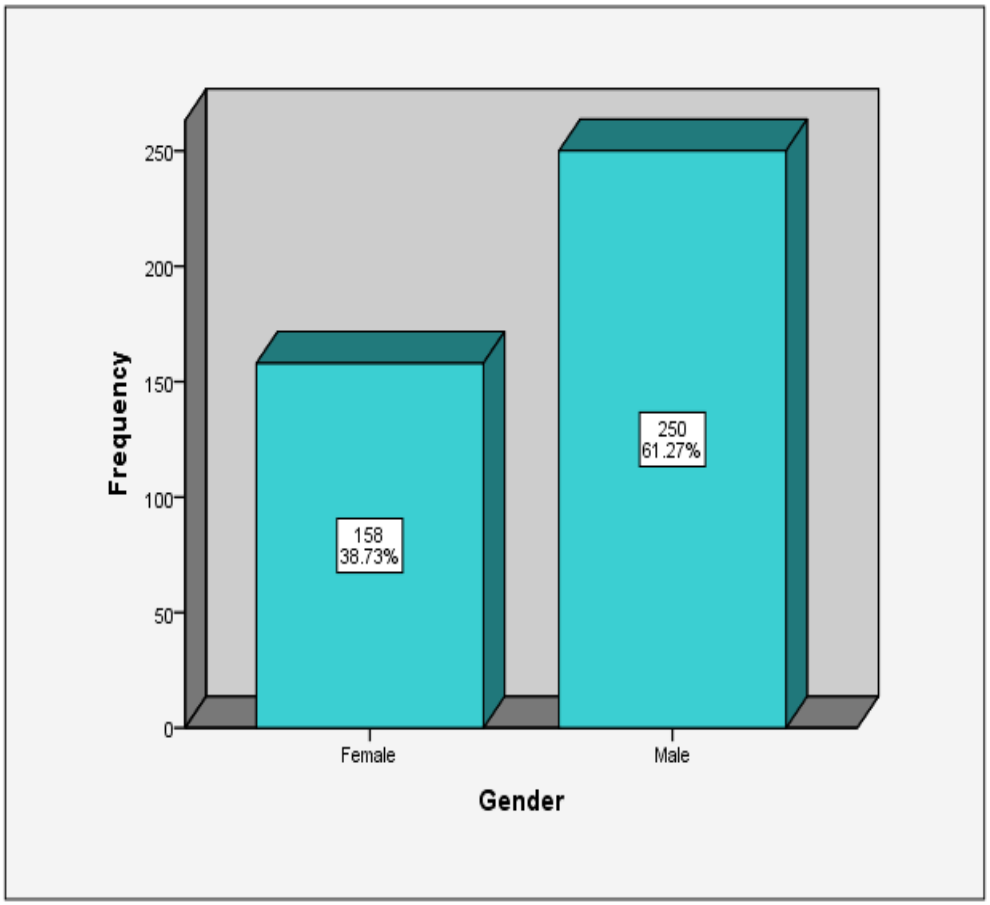

Figure 4.2: Gender Bar Chart

3. **MARITAL STATUS**

   From the table and fig 3, it is clear that 1.47% respondents are divorced, 0.49% respondents are in live in relationship, 62.25% are married, 1.47% are separated and 34.31% respondents are single. Therefore, it can be concluded that most of the respondents were married. Married millennials or Gen Yare expected to be more responsible towards their financial well-being.

Table 4.3: Marital status

Marital status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Divorce	6	1.5	1.5	1.5
	Live in	2	.5	.5	2.0
	Married	254	62.3	62.3	64.2
	Separate	6	1.5	1.5	65.7
	Single	140	34.3	34.3	100.0
	Total	408	100.0	100.0	

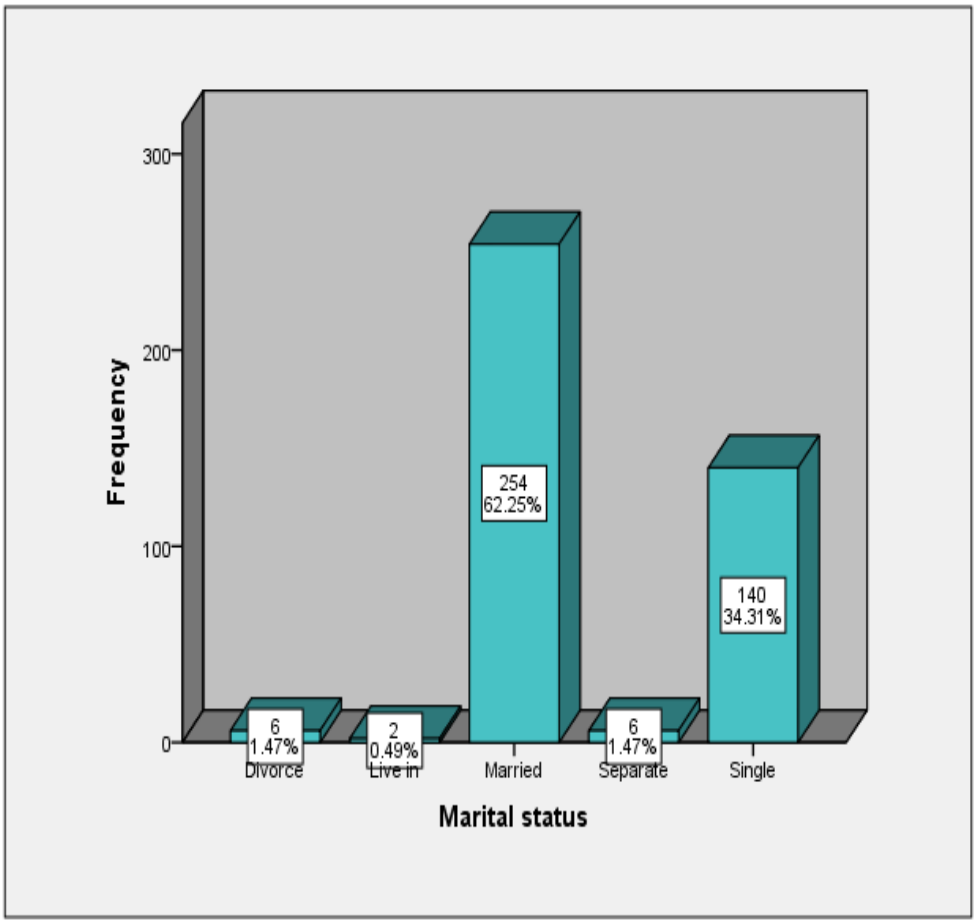

Figure 4.3: Marital Bar Chart

4. **NUMBER OF FINANCIALLY DEPENDENT CHILDREN**

   From the table and fig 4, it is clear that 32.35% respondents have only one financially dependent child, 16.18% have 2 financially dependent children, 1.47% have 3 or more financially dependent, children and 50% respondents said that

they don't have any children. Therefore, it can be concluded that most of the respondents don't have any children. Gen Y is marrying late and have lesser offspring than the previous generations.

Table 4.4: Number of financially dependent children

Number of financially dependent children		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	132	32.4	32.4	32.4
	2	66	16.2	16.2	48.5
	3 or more	6	1.5	1.5	50.0
	Don't have any children	204	50.0	50.0	100.0
	Total	**408**	**100.0**	**100.0**	

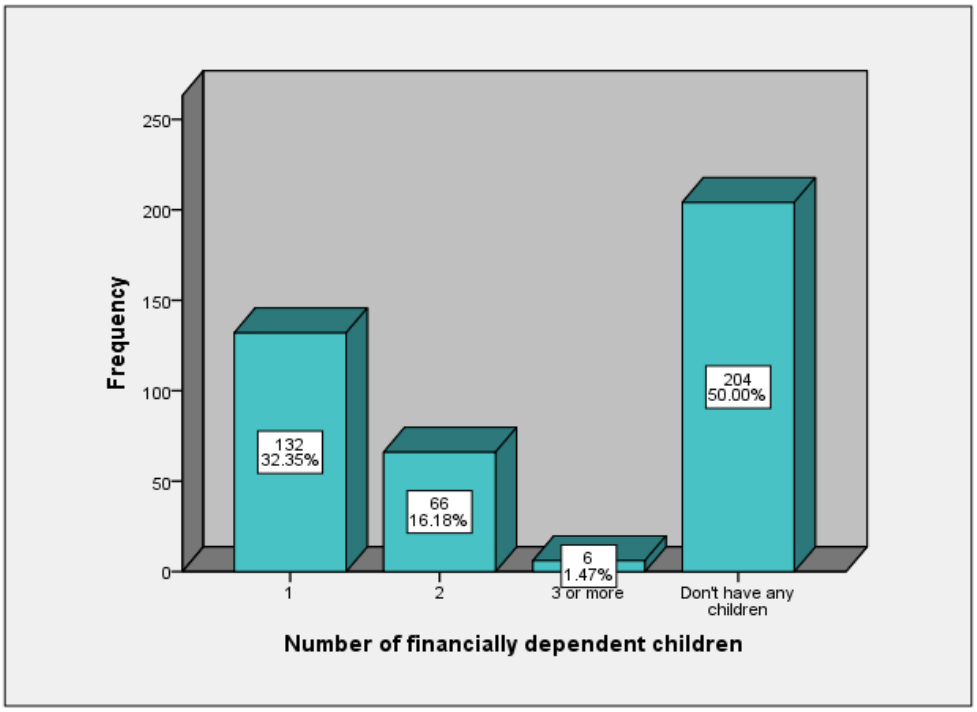

Figure 4.4: Number of financially dependent children Bar Chart

5. **EDUCATION**

From the table and fig 5, it is clear that 0.98% respondents did not complete

high school, 0.49% are educated up to intermediate level, 8.33% respondents are doctorate/ post doctorate, 31.37% are graduates and 58.82% are post graduates. Therefore it can be concluded that most of the members of Gen Y are going for higher education. Most of them are graduates and post graduates which means that they invest time and money for educational qualification and other professional skills.

Table 4.5: Education

Education		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Did not complete high school	4	1.0	1.0	1.0
	Doctoral / Post-Doctoral	34	8.3	8.3	9.3
	Graduation	128	31.4	31.4	40.7
	Intermediate	2	.5	.5	41.2
	Post-graduation	240	58.8	58.8	100.0
	Total	**408**	**100.0**	**100.0**	

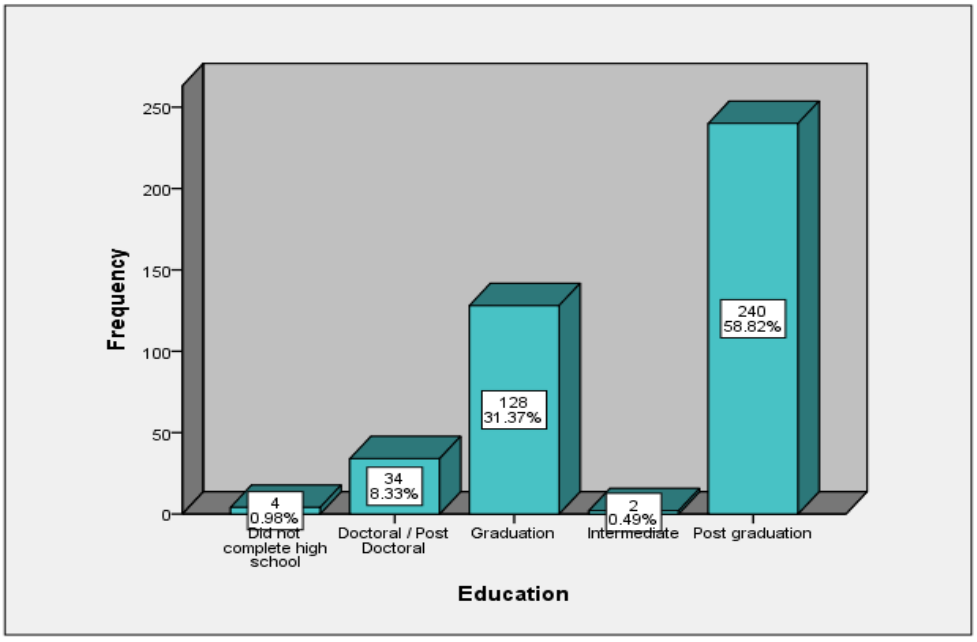

Figure 4.5: Education Bar Chart

6. **EMPLOYMENT**

From the table and fig 6, it is clear that 3.92% respondents are still full time students at the time of filling up the questionnaire, 2.94% respondents are home maker, 15.69% are self-employed, 1.96% are unemployed or temporarily laid, 73.53% are full time employee and 1.96% are part time employee. Therefore, it can be concluded that most of the respondents are full time employee with a stable income.

Table 4.6: Employment Status

Employment Status		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Full time student	16	3.9	3.9	3.9
	Home maker	12	2.9	2.9	6.9
	Self employed	64	15.7	15.7	22.5
	Unemployed or temporarily laid	8	2.0	2.0	24.5
	Work full time for an employer	300	73.5	73.5	98.0
	Work part time for an employer	8	2.0	2.0	100.0
	Total	**408**	**100.0**	**100.0**	

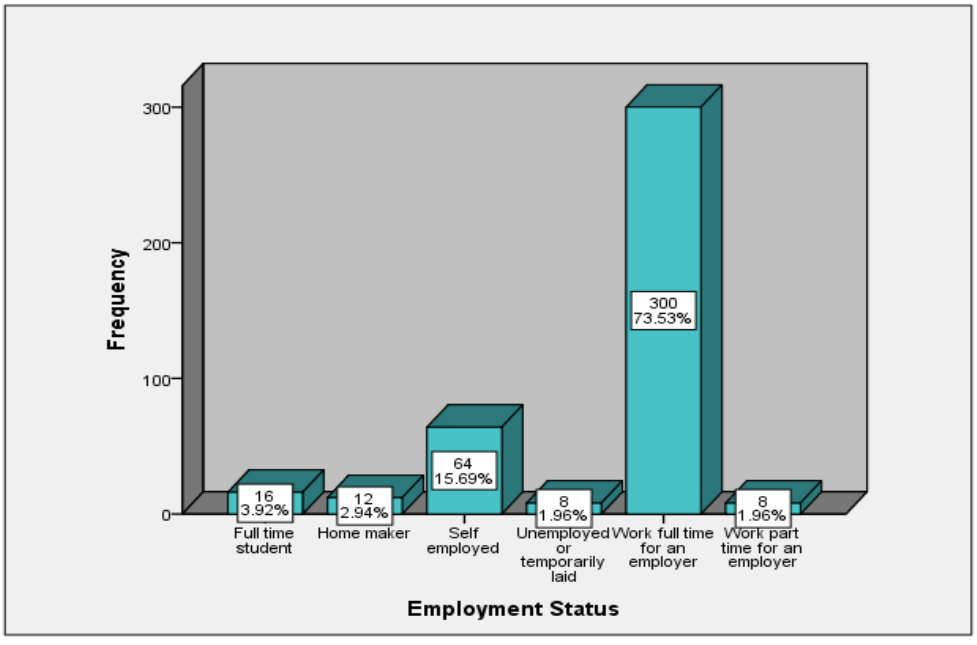

Figure 4.6: Employment Status Bar Chart

7. **Monthly Income in INR**

   From the table and fig 7, it is clear that 6.86% respondents are having monthly income below Rs 25000/- , 29.41% respondents are having monthly income between Rs 25000/- to Rs 50000/-, 34.31% respondents are having monthly income between Rs 50001/- to Rs 100000/-, 25.49% respondents are having monthly income above Rs 100000/-. Only 3.92% of the respondents were having no income. Therefore, it can be concluded that most of the respondents are having monthly income between Rs 50001/- to Rs 100000/, which is a decent salary for household expenditures and savings.

Table 4.7: Monthly income in INR

Monthly income in INR		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	25000	28	6.9	6.9	6.9
	25000-50000	120	29.4	29.4	36.3
	50001-100000	140	34.3	34.3	70.6
	above 100000	104	25.5	25.5	96.1
	NIL	16	3.9	3.9	100.0
	Total	**408**	**100.0**	**100.0**	

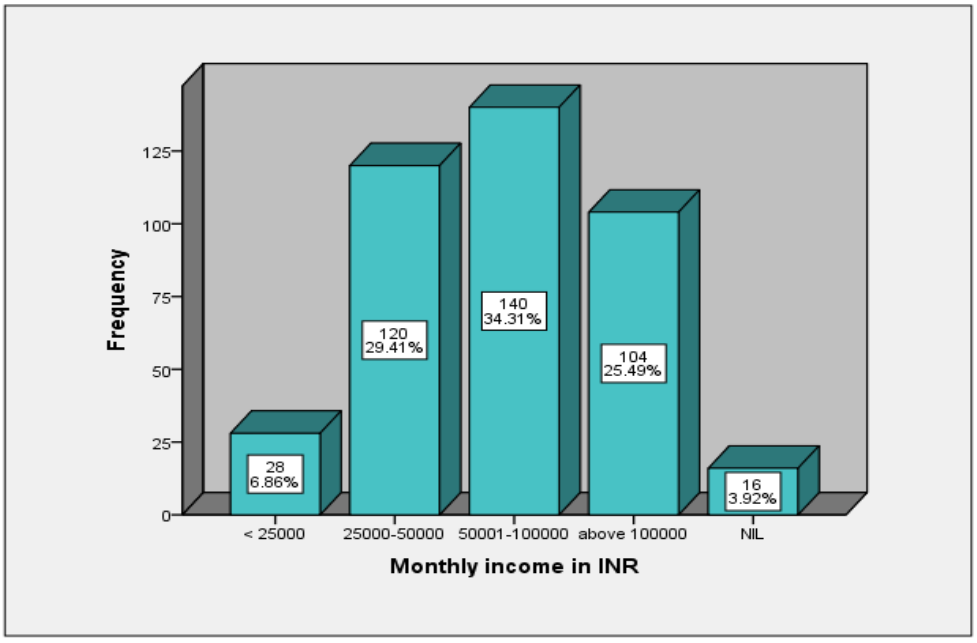

Figure 4.7: Monthly income in INR Bar Chart

8. **Preferred liability products amongst Gen Y**
   It is evident from Fig. 8 that the most preferred and popular liability product for household amongst the Gen Y is credit card followed by home loan and car loan. The credit card default like impulse buying and delay in payments are posing serious threats on the financial well-being of the millennials.

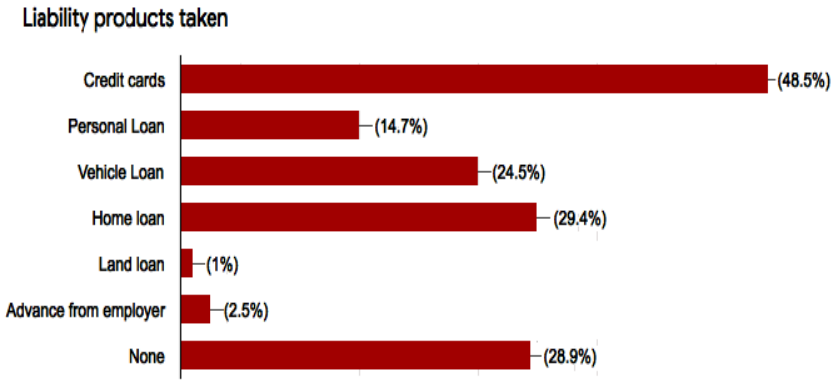

Figure 4.8: Liability products taken

9. **Preferred products to create amongst Gen Y**
   It can be seen in Fig. 9 that the most preferred investment products amongst the Gen Y are stocks, shares and mutual funds followed by fixed deposits, real estate and gold. Gen Y has risk taking abilities and they are ready to invest in the stock market and mutual funds to reap the benefits of the financial securities market with the risk attached.

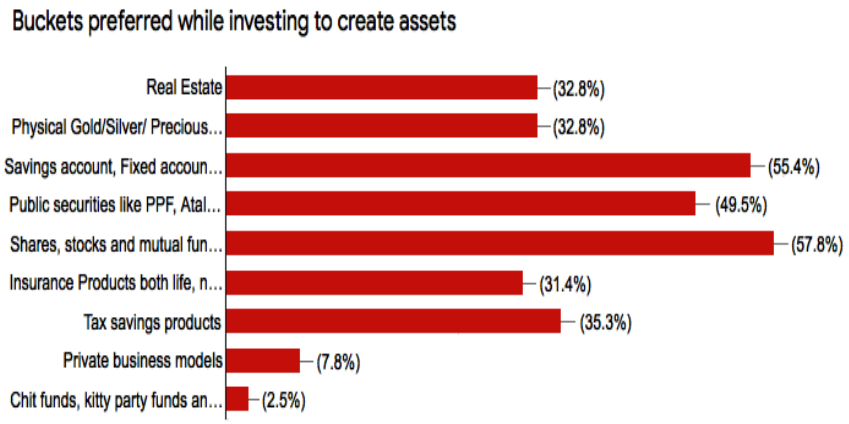

Figure 4.9: Buckets preferred while investing to create assets

10. **Preferred financial advisors**

Gen Y' ers take financial decisions as advised by their friends and relatives. Preferred friends are those who are associated with the financial sectors. Subjective norm plays a vital role in the major financial decisions of their life. It can be said that they follow the financial activities of their family, friends and relatives.

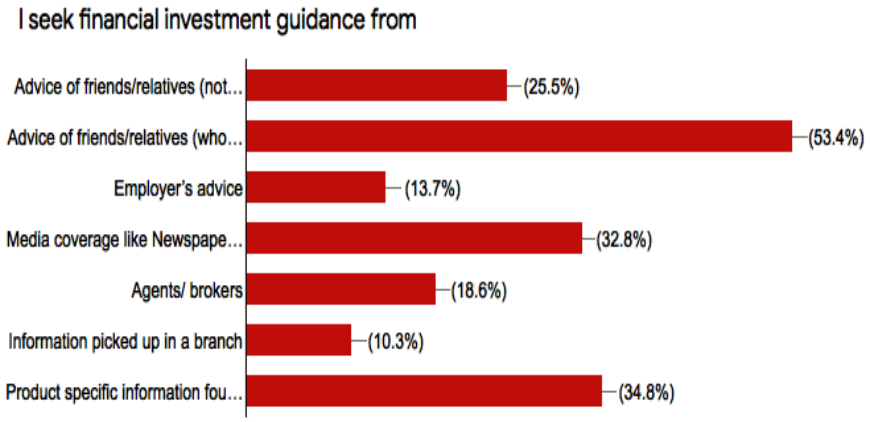

Figure 4.10: I seek financial investment guidence from

4.2 Structural Equation Modelling

SEM has been used for the final analysis and testing of the formulated hypothesis. The SEM model is a combination of factor analysis and regression analysis. (Malhotra & Dash, 2020) defined SEM as " a procedure for estimating a series of dependence relationships among a set of concepts or constructs represented by multiple measured variables and incorporated into an integrated model." The SEM technique is very useful in the direct path analysis, mediating analysis, and moderator (group) analysis. In this study, mediation analysis is used. Three latent variables namely financial literacy (FL), behavioural control (BC) and household wealth (HW) are used with their respective items. These are reflective constructs which reflects certain characteristics in form of items of the respective constructs.

4.2.1 Construct Validity

It is the test of the extent to which the questionnaire is actually testing the formulated hypothesis of the research or measuring what it actually intents to measure. Construct validity is tested on two subsets namely convergent validity and discriminant validity. Convergent validity measures how the items of the construct are related to each other.

The convergent validity is tested using AVE (Average Variance Extracted). All the AVE values are near to 0.5 which proved the convergent validity.

Table 4.8: Construct Validity

Measurement Instrument	**No. of Items**	**AVE**	**Square root of AVE (For Discriminant Validity)**
FL	5	0.589	0.768
BC	4	0.579	0.761
HW	4	0.536	0.733

4.2.1.1 Convergent Validity

Table 4.9: Convergent Validity

Latent Variables	**AVE**	**Results**
FL	0.589	Above 0.5
BC	0.579	Above 0.5
HW	0.536	Above 0.5

From the above table, it is clear that all the AVE (Average Variance Extracted) values are above 0.5, hence convergent validity is established.

Covariances: (Group number 1 - Default model)

Table 4.10: Covariances: (Group number 1 - Default model)

			Estimate	**S.E.**	**C.R.**	**P**	**Results**
FL	<–>	BC	.271	.043	6.245	***	Significant
BC	<–>	HW	.236	.036	6.477	***	Significant
FL	<–>	HW	.341	.041	8.329	***	Significant

Table 4.11: Correlations: (Group number 1 - Default model)

Correlations: (Group no. 1 - Default model)			Estimate
FL	<–>	BC	0.711
BC	<–>	HW	0.829
FL	<–>	HW	0.681

Discriminant validity measures how the items of each construct are not related to each other. For establishing the discriminant validity, the discriminant value must be more than the latent variables correlations. The Discriminant value is 0.768 for FL construct, 0.761 for BC construct and 0.733 for HW construct. From correlation matrix table, it is clear that all the discriminant values are more than the correlations values which also

proved the discriminant validity. Although one correlation coefficient value is 0.829 which is more than the discriminant value, but it can be acceptable because the content validity and convergent validity is already established.

4.2.1.2 Discriminant Validity

Table 4.12: Discriminant Validity

	FL	BC	HW
FL	0.768 (Discriminant Value)		
BC	0.711	0.761 (Discriminant Value)	
HW	0.681	0.829	0.733 (Discriminant Value)

Table 4.13: Construct-item description

Construct	**Items**	**Item Description**
FL	FL3	I keep myself updated with latest news pertaining to financial market, products, stocks, policies etc.
	FL5	I can use combinations of skills, resources and knowledge to make financial decisions.
	FL6	I have the ability to discern financial choices and discuss financial issues without discomfort.
	FL7	I understand financial terms and concepts
	FL8	I can make informed effective financial choices
BC	BC4	I am not an impulse buyer who buys without comparing prices.
	BC5	I always pay my credit card and other bills on time to avoid extra charges.
	BC6	I save more when I get a pay rise.
	BC7	I don't get carried away with promotional offers while shopping.
HW	HW2	I can enjoy life because of the way I'm managing my money.
	HW3	I have money left over at the end of the month.
	HW4	I am securing my financial future.
	HW6	I have sufficient long-term savings.

It is finally concluded that out of eight items of financial literacy construct, only five items are finalised and out of eight items of behavioural control and household wealth, only four items in each case are selected for the next stage of structural equation modelling analysis.

4.2.2 Confirmatory Factor Analysis

The confirmatory factor analysis was conducted to reconfirm the results obtained from exploratory factor analysis. The confirmatory factor analysis was done to finalize the construct for further analysis of the measurement model and the structural model. All the required model fit indices (GFI, AGFI, TLI, CFI, NFI, and RMSEA) were used for good model fit. The minimum CMIN/DF was achieved for each construct under the measurement model and the structural model.

Financial Literacy

It is an exogenous construct which can be explained as latent, multi item, independent variable in any multivariate analysis or model.

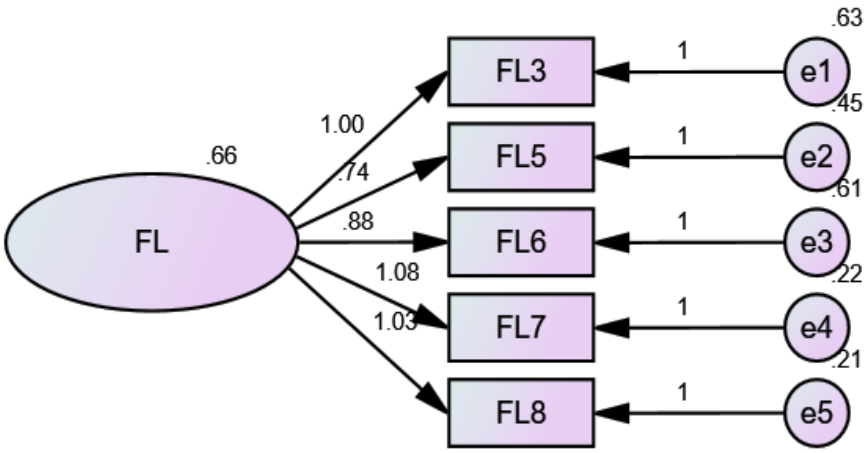

Figure 4.11: Financial Literacy's Unstandardized Estimates

The figure depicts the construct financial literacy (FL) having five items. The rectangular shape represents the observed variables. The oval shape represents the latent variable.

Model Fit Summary of Financial Literacy

CMIN-FL

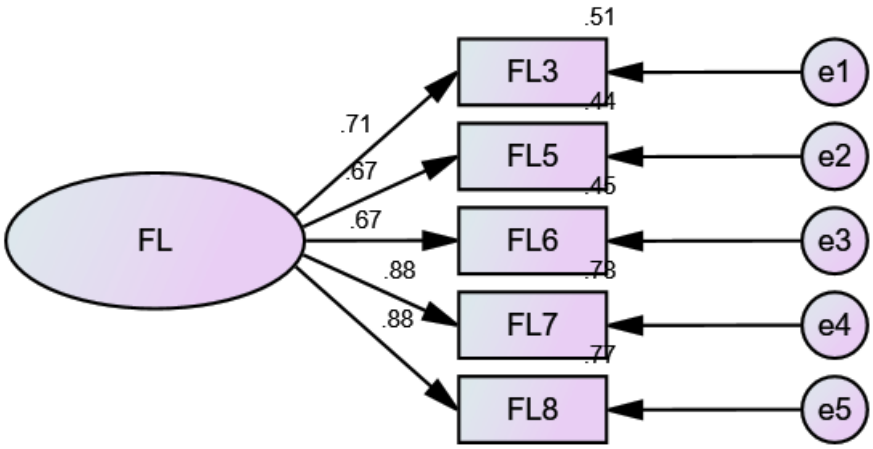

Figure 4.12: Financial Literacy's Standardised estimates

Table 4.14: CMIN-FL

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	10	10.616	5	.060	2.123
Saturated model	15	.000	0		
Independence model	5	1034.882	10	.000	103.488

RMR, GFI-FL

Table 4.15: RMR, GFI-FL

Model	RMR	GFI	AGFI	PGFI
Default model	.018	.990	.969	.330
Saturated model	.000	1.000		
Independence model	.488	.420	.130	.280

Baseline Comparisons-FL

RMSEA-FL

Table 4.17: RMSEA-FL

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.053	.000	.097	.399
Independence model	.502	.476	.528	.000

The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are 2.123, .053, and .060 respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit),

Table 4.16: Baseline Comparisons-FL

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.990	.979	.995	.989	.995
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are .990, .969, .989, .995, and .990 respectively which proves the validation of the financial literacy. All the model fit indices show good fit for the confirmatory factor analysis of the financial literacy construct.

Standardized Regression Weights: (Group number 1 - Default model of FL)

Table 4.18: Standardized Regression Weights: (Group number 1 - Default model of FL)

			Estimate
FL3	—	FL	.715
FL5	—	FL	.665
FL6	—	FL	.673
FL7	—	FL	.881
FL8	—	FL	.876

All the factor loading are above 0.400, hence this is the fair selection of items under financial literacy construct.

Behavioural Control

It is another exogenous construct which can be explained as latent, multi item, independent variable in any multivariate analysis or model.

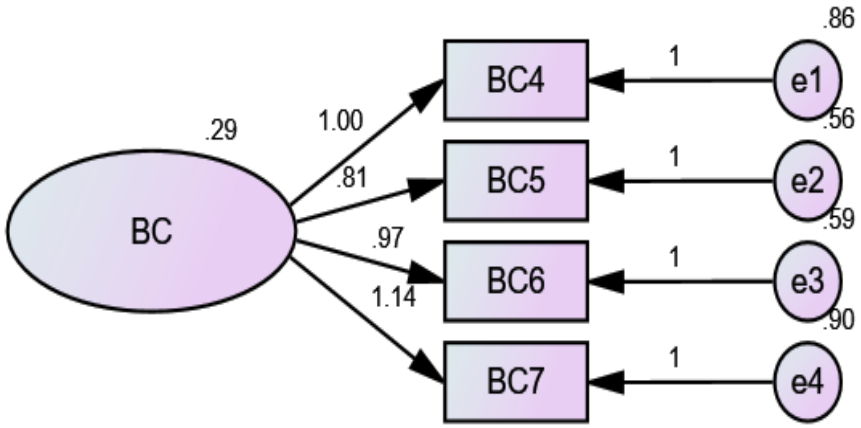

Figure 4.13: Behavioural Control's Unstandardized estimates

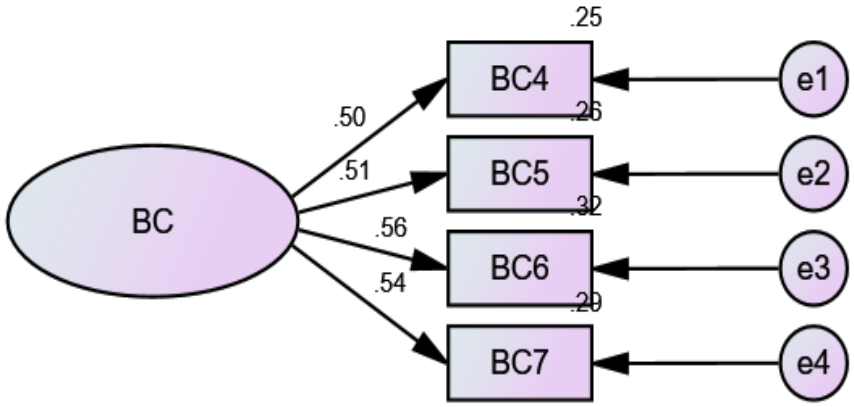

Figure 4.14: Behavioural Control's Standardised estimates

Model Fit Summary of Behavioural Control

CMIN-BC

Table 4.19: CMIN-BC

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	8	3.840	2	.147	1.920
Saturated model	10	.000	0		
Independence model	4	156.358	6	.000	26.060

RMR, GFI-BC

Baseline Comparisons-BC

Table 4.20: RMR, GFI-BC

Model	RMR	GFI	AGFI	PGFI
Default model	.022	.995	.977	.199
Saturated model	.000	1.000		
Independence model	.218	.809	.681	.485

Table 4.21: Baseline Comparisons-BC

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.975	.926	.988	.963	.988
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA-BC

Table 4.22: RMSEA-BC

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.048	.000	.119	.416
Independence model	.248	.215	.282	.000

The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are 1.920, .048, and .147respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are .995, .977, .963, .988, and .975 respectively which proves the validation of the behavioural control. All the model fit indices show good fit for the confirmatory factor analysis of the behavioural control construct.

Standardized Regression Weights: (Group number 1 - Default model)

All the factor loading are above 0.400, hence this is the fair selection of items under behavioural control construct.

Household Wealth

It is an endogenous construct which can be explained as latent, multi item, dependent variable within the model.

Table 4.23: Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
BC4	—	BC	.503
BC5	—	BC	.505
BC6	—	BC	.562
BC7	—	BC	.543

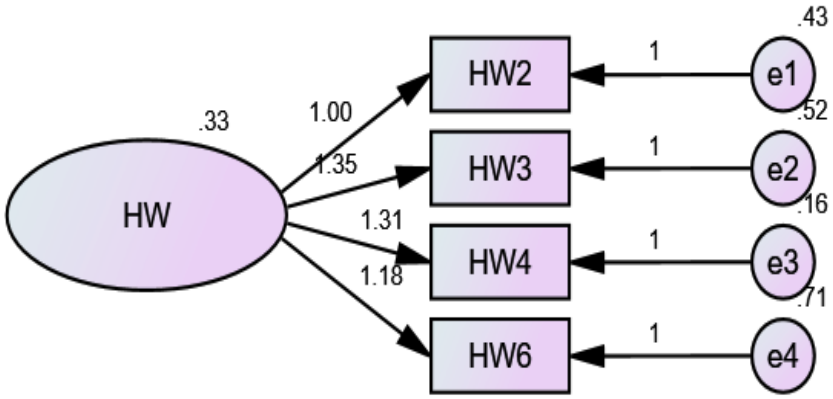

Figure 4.15: Household Wealth's Unstandardized estimates

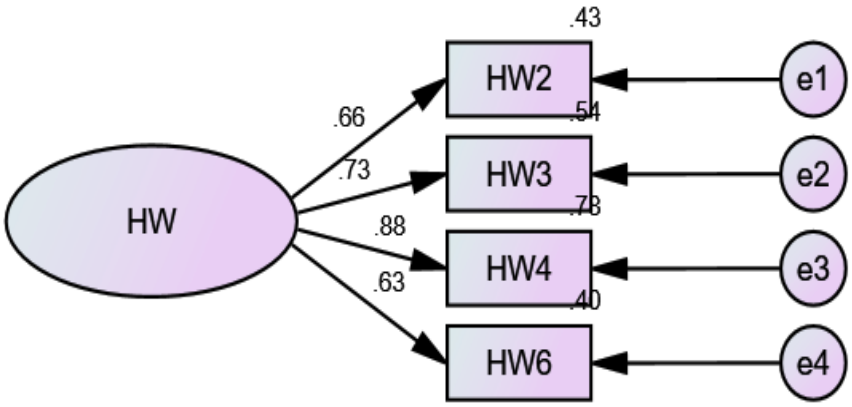

Figure 4.16: Household Wealth's Standardised estimates

Model Fit Summary of Household Wealth

CMIN-HW

RMR, GFI-HW

Table 4.24: CMIN-HW

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	8	.598	2	.741	.299
Saturated model	10	.000	0		
Independence model	4	568.347	6	.000	94.725

Table 4.25: RMR, GFI-HW

Model	RMR	GFI	AGFI	PGFI
Default model	.006	.999	.996	.200
Saturated model	.000	1.000		
Independence model	.380	.542	.237	.325

Baseline Comparisons-HW

Table 4.26: Baseline Comparisons-HW

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.999	.997	1.002	1.007	1.000
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA-HW

The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are .299, .000, and .741 respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are .999, .996, 1.007, 1.000, and .999 respectively which proves the validation of the household wealth. All the model fit indices show good fit for the confirmatory factor analysis of the household wealth construct.

Standardized Regression Weights: (Group number 1 - Default model-HW)

Table 4.28: Standardized Regression Weights: (Group number 1 - Default model-HW)

			Estimate
HW2	—	HW	.659
HW3	—	HW	.733
HW4	—	HW	.883
HW6	—	HW	.629

Table 4.27: RMSEA-HW

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.068	.892
Independence model	.480	.447	.514	.000

All the factor loading are above 0.400, hence this is the fair selection of items under household wealth construct.

4.2.3 Measurement model

The measurement model is specified in a way that the three factors namely financial literacy (FL), Behavioural Control (BC) and Household wealth (HW), correlate with each other. All the three factors are showing association with their respective items.

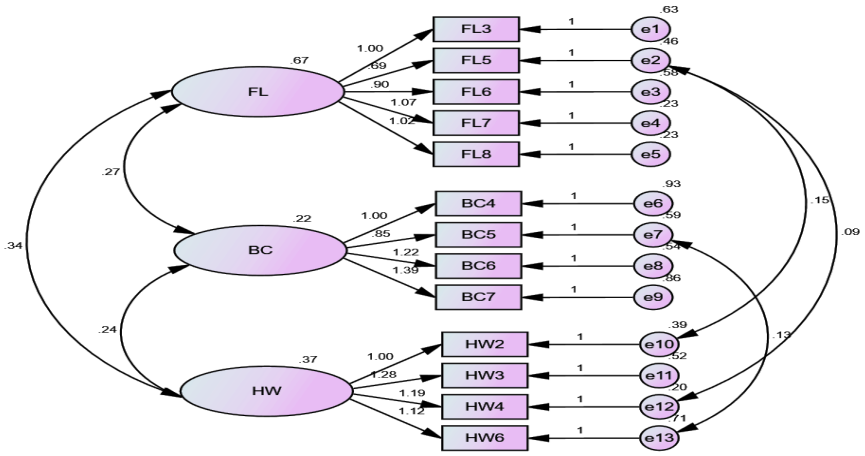

Figure 4.17: Unstandardized estimates of Measurement model

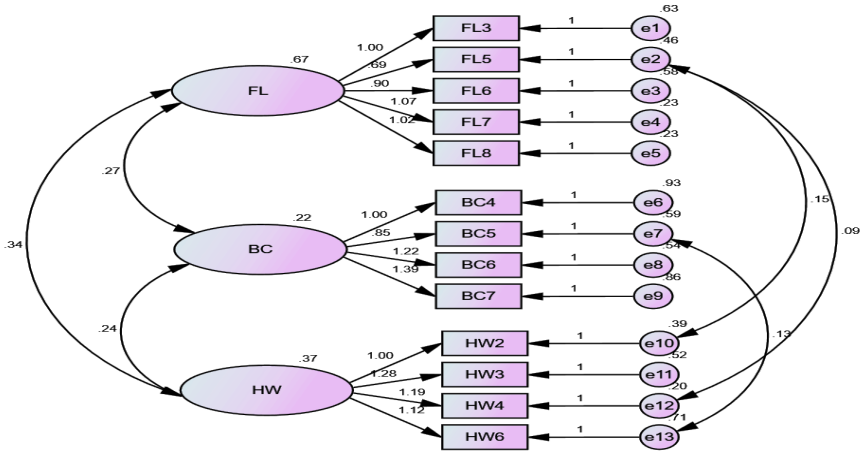

Figure 4.18: Standardised estimates of Measurement model

Model Fit Summary- Measurement model

CMIN- Measurement model

Table 4.29: CMIN- Measurement model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	32	175.254	59	.000	2.970
Saturated model	91	.000	0		
Independence model	13	2370.025	78	.000	30.385

RMR, GFI- Measurement model

Table 4.30: RMR, GFI- Measurement model

Model	RMR	GFI	AGFI	PGFI
Default model	.048	.938	.904	.608
Saturated model	.000	1.000		
Independence model	.367	.338	.228	.290

Baseline Comparisons- Measurement model

Table 4.31: Baseline Comparisons- Measurement model

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.926	.902	.950	.933	.949
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA- Measurement model

Table 4.32: RMSEA- Measurement model

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.070	.058	.082	.004
Independence model	.269	.259	.278	.000

For the development and validation of the measurement model, the model fit indices should be acceptable range (The acceptable range of GFI, AGFI, TLI, CFI, and NFI should be near to 0.9, CMIN/DF should be in between 2 to 3, and RMSEA values should be below 0.05 or near to 0.05). The model fit indices for the measurement model are as follows: The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are

2.970, .070, and 0.000 respectively. The value of GFI Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are .938, .904, .933, .949, and .926respectively which is near to acceptable range which proves the development and validation of the measurement model.

Regression Weights: (Group number 1 - Default model- Measurement model)

Table 4.33: Regression Weights: (Group number 1 - Default model- Measurement model

			Estimate	S.E.	C.R.	P
FL3	—	FL	1.000			
FL5	—	FL	.692	.055	12.476	***
FL6	—	FL	.901	.067	13.406	***
FL7	—	FL	1.067	.064	16.713	***
FL8	—	FL	1.015	.061	16.608	***
BC4	—	BC	1.000			
BC5	—	BC	.854	.138	6.174	***
BC6	—	BC	1.225	.173	7.096	***
BC7	—	BC	1.394	.202	6.899	***
HW2	—	HW	1.000			
HW3	—	HW	1.277	.095	13.379	***
HW4	—	HW	1.189	.080	14.844	***
HW6	—	HW	1.121	.096	11.658	***

Since all the standard error (S.E.) values are low, hence the sample size is sufficiently large, and it truly belongs to the selected population. Since all the critical ratio (C.R.) is > 1.96 for a the unstandardized regression weight, and all the path between items and their construct are significant at the 5% significance level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)].

Standardized Regression Weights: (Group number 1 - Default model- Measurement model)

Each factor loading is above 0.400, hence this is the fair selection of items under each construct.

Table 4.34: Standardized Regression Weights: (Group number 1 - Default model-Measurement model)

			Estimate
FL3	—	FL	.718
FL5	—	FL	.640
FL6	—	FL	.696
FL7	—	FL	.875
FL8	—	FL	.868
BC4	—	BC	.435
BC5	—	BC	.460
BC6	—	BC	.615
BC7	—	BC	.575
HW2	—	HW	.700
HW3	—	HW	.736
HW4	—	HW	.850
HW6	—	HW	.633

Composite Reliability

Composite reliability indicates the shared variance among the observed variables of a latent construct. Composite reliability is also called as internal consistency reliability. Composite reliability of a measurement must be more than 0.6. Composite reliability should be 0.7 or higher, if it is an exploratory research, 0.6 or higher is acceptable.

Table 4.35: Composite Reliability

Measurement Instrument	**No. of Items**	**Composite Reliability**	**Composite Reliability Result**
FL	5	0.876	Good
BC	4	0.608	Acceptable
HW	4	0.820	Good

The composite reliability of FL construct is 0.876, which is more than 0.7; hence, in the measurement model, FL construct is having required internal consistency reliability between indicators FL3, FL5, FL6, FL7, and FL8. The composite reliability of BC construct is 0.608, which is near to 0.6 (near to 0.6 or higher is acceptable for an exploratory); hence, in the measurement model, BC is having required internal consistency reliability between indicators BC4, BC5, BC6, and BC7. The composite

reliability of HW construct is 0.820 which is more than 0.7; hence, in the measurement model, HW is having required internal consistency reliability between indicators HW2, HW3, HW4 and HW6.

HYPOTHESIS TESTING

Case I

$H0_1$: There is no significant effect of Financial Literacy on the Household Wealth.
$H1_1$: There is a significant effect of Financial Literacy on the Household Wealth

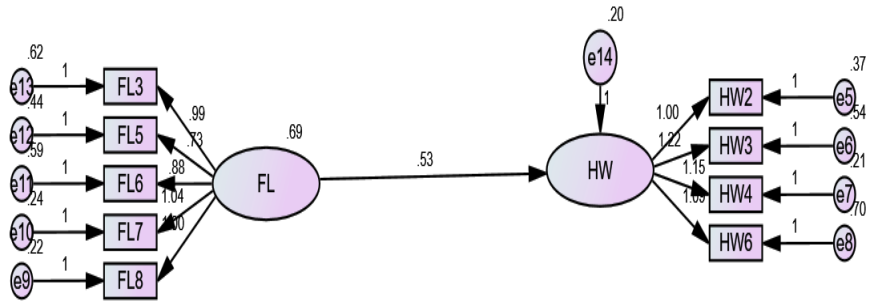

Figure 4.19: Analysis without mediation (Direct relationship between FL and HW)- Unstandardized Estimate output of AMOS 23.0

The above figure represents the direct relation between FL and HW. FL having five items (FL3, FL5, FL,6,FL7, and FL8) , and HW having four items (HW2, HW3, HW4, HW6). Error variables are represented by e5 to e14 which explained the % of error associated with respective items. In the above figure FL is independent latent variable and HW is the dependent latent variable. The numerical values shown on the arrows are the unstandardized estimates.

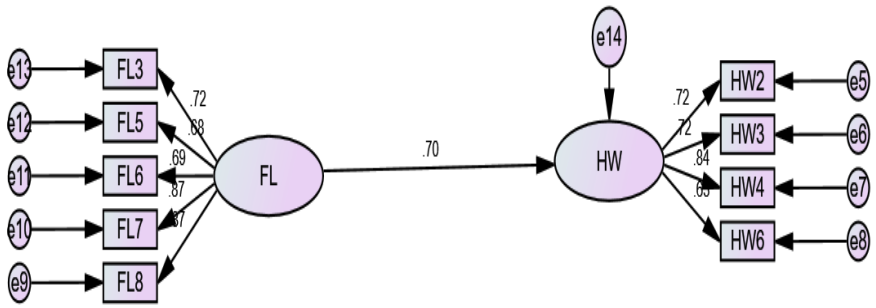

Figure 4.20: Analysis without mediation (Analysis without mediation (Direct relationship between FL and HW)- Standardized Estimate output of AMOS 23.0

In the above figure, the numerical values shown on the arrows are the Standardised estimates.

Model Fit Indices Acceptable Range- Analysis without mediation (Direct relationship between FL and HW)-

Normed Chi-square CMIN/DF (2/df) value close to 1 and not exceeding 5 indicates a good fit. A value less than 1 indicates an over-fit of the model. The CFI value is between 0 and 1. A value close to 1 indicates a very good fit. The TLI value lies between 0 and 1, but is not limited to this range. A value close to 1 indicates a very good fit. A value greater than 1 indicates an over-fit of the model. The NFI value lies between 0 and 1. A value close to 1 indicates a very good fit. The GFI value is always less than or equal to 1. A value close to 1 indicates a perfect fit. The AGFI value is bounded above by 1 and is not bounded by 0. A value close to 1 indicates a perfect fit. RMSEA value about 0.05 or less indicates a close fit of the model. RMSEA value of 0.0 indicates the exact fit of the model. RMSEA value of about 0.08 or less indicates a reasonable error of approximation. RMSEA value should not be greater than 0.1.

CMIN- Analysis without mediation (Direct relationship between FL and HW)-

Table 4.36: CMIN- Analysis without mediation (Direct relationship between FL and HW)

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	139.854	26	.000	5.379
Saturated model	45	.000	0		
Independence model	9	1911.576	36	.000	53.099

RMR, GFI- Analysis without mediation (Direct relationship between FL and HW)-

Table 4.37: RMR, GFI- Analysis without mediation (Direct relationship between FL and HW)

Model	RMR	GFI	AGFI	PGFI
Default model	.055	.927	.873	.535
Saturated model	.000	1.000		
Independence model	.428	.341	.176	.273

Baseline Comparisons- Analysis without mediation (Direct relationship between FL and HW)-

Table 4.38: Baseline Comparisons- Analysis without mediation (Direct relationship between FL and HW)

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.927	.899	.940	.916	.939
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA- Analysis without mediation (Direct relationship between FL and HW)-

Table 4.39: RMSEA- Analysis without mediation (Direct relationship between FL and HW)

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.104	.087	.121	.000
Independence model	.358	.344	.372	.000

From the CMIN, RMR, GFI, Baseline Comparisons, and RMSEA tables, it is clear that all the model fit indices are acceptable range except RMSEA value; therefore we can accept this model as a good fit for the further analysis and interpretation.

Regression Weights: (Group number 1 - Default model) Analysis without mediation (Direct relationship between FL and HW)

Table 4.40: Regression Weights: (Group number 1 - Default model)

Direct Path			Estimate	S.E.	C.R.	P	Result
HW	—	FL	.529	.045	11.698	***	Significant

Standardized Regression Weights: (Group number 1 - Default model) Analysis without mediation (Direct relationship between FL and HW)

From the Regression Weights: (Group number 1 - Default model), and Standardized Regression Weights: (Group number 1 - Default model) table, it is clear that all factor loadings are above 0.300. The standardized regression weight is 0.699 for the path between FL and HW, hence, if there is one standard deviation increase in FL then there is a 0.699 standard deviation increase in HW. Since the standard error (S.E.) is low (0.045), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 11.698) is > 1.96 for a regression weight of 0.699, hence the path between FL and HW is significant at the 5% significance

level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)]. (*** is 0.000)

Table 4.41: Standardized Regression Weights: (Group number 1 - Default model)

Path			Estimate
HW	—	FL	.699
HW2	—	HW	.719
HW3	—	HW	.720
HW4	—	HW	.843
HW6	—	HW	.634
FL8	—	FL	.870
FL7	—	FL	.870
FL6	—	FL	.690
FL5	—	FL	.678
FL3	—	FL	.720

Since the value of P is 0.00, which is less than 0.05 on the direct path relationship between FL and HW, we can reject the null hypothesis and **accept the alternate hypothesis stating 'There is a significant effect of Financial Literacy on the Household Wealth'.**

Case II

$H0_2$: There is no significant effect of Behavioural Control on the Household Wealth.
$H1_2$: There is a significant effect of Behavioural Control on the Household Wealth.

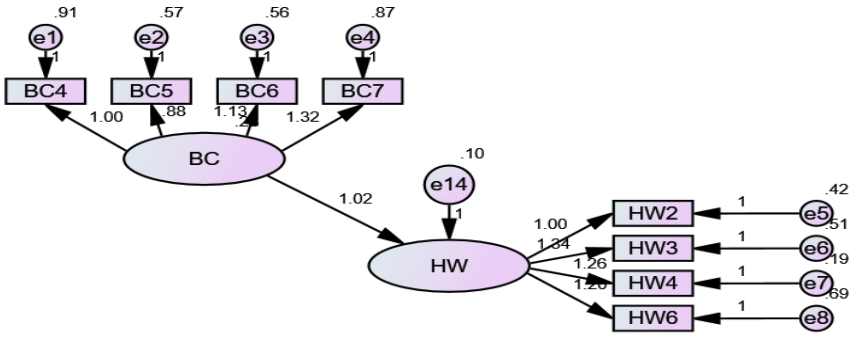

Figure 4.21: Unstandardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between BC and HW)

The above figure represents the direct relation between BC and HW. BC having four items (BC4, BC5, BC,6, and BC7) , and HW having four items (HW2, HW3, HW4, HW6). Error variables are represented by e1 to e8 and e14, which explained the % of error associated with respective items. In the above figure BC is independent latent variable and HW is the dependent latent variable. The numerical values shown on the arrows are the unstandardized estimates.

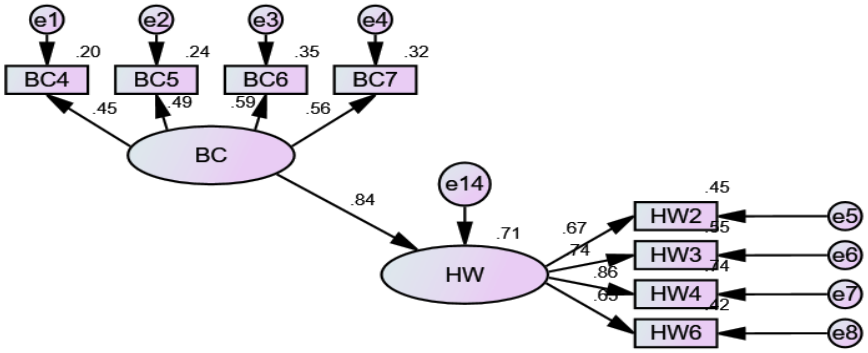

Figure 4.22: Standardized Estimate output of AMOS 23.0–Analysis without mediation (Direct relationship between BC and HW)

In the above figure, the numerical values shown on the arrows are the Standardised estimates.

CMIN-Analysis without mediation (Direct relationship between BC and HW)

Table 4.42: CMIN-Analysis without mediation (Direct relationship between BC and HW)

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	17	43.724	19	.001	2.301
Saturated model	36	.000	0		
Independence model	8	948.657	28	.000	33.881

RMR, GFI-Analysis without mediation (Direct relationship between BC and HW)

Table 4.43: RMR, GFI-Analysis without mediation (Direct relationship between BC and HW)

Model	RMR	GFI	AGFI	PGFI
Default model	.032	.973	.949	.514
Saturated model	.000	1.000		
Independence model	.316	.504	.362	.392

Baseline Comparisons-Analysis without mediation (Direct relationship between BC and HW)

Table 4.44: Baseline Comparisons-Analysis without mediation (Direct relationship between BC and HW)

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.954	.932	.973	.960	.973
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA-Analysis without mediation (Direct relationship between BC and HW)

Table 4.45: RMSEA-Analysis without mediation (Direct relationship between BC and HW)

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.057	.035	.079	.286
Independence model	.284	.269	.300	.000

From the CMIN, RMR, GFI, Baseline Comparisons, and RMSEA tables, it is clear that all the model fit indices are acceptable range; therefore we can accept this model as a good fit for the further analysis and interpretation.

Regression Weights: (Group number 1 - Default model) -Analysis without mediation (Direct relationship between BC and HW)

Table 4.46: Regression Weights: (Group number 1 - Default model)

Direct Path			Estimate	S.E.	C.R.	P	Result
HW	—	BC	1.017	.148	6.893	***	Significant

Standardized Regression Weights: (Group number 1 - Default model) -Analysis without mediation (Direct relationship between BC and HW)

From the Regression Weights: (Group number 1 - Default model), and Standardized Regression Weights: (Group number 1 - Default model) table, it is clear that all factor loadings are above 0.300. The standardized regression weight is 0.841 for the path between BC and HW, hence, if there is one standard deviation increase in BC then there is a 0.841 standard deviation increase in HW. Since the standard error (S.E.) is low (0. 148), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 6.893) is > 1.96 for a regression

Table 4.47: Standardized Regression Weights: (Group number 1 - Default model)

Path			Estimate
HW	—	BC	.841
BC4	—	BC	.452
BC5	—	BC	.495
BC6	—	BC	.591
BC7	—	BC	.564
HW2	—	HW	.669
HW3	—	HW	.740
HW4	—	HW	.862
HW6	—	HW	.645

weight of 0.841, hence the path between BC and HW is significant at the 5% significance level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)]. (*** is 0.000)

Since the value of P is 0.00, which is less than 0.05 on the direct path relationship between BC and HW, we can reject the null hypothesis and accept the alternate hypothesis stating 'There is a significant effect of Behavioral Control on the Household Wealth'.

Case III

$H_0$3: There is no significant effect of Financial Literacy on the Behavioural Control.
$H_1$3: There is a significant effect of Financial Literacy on the Behavioural Control.

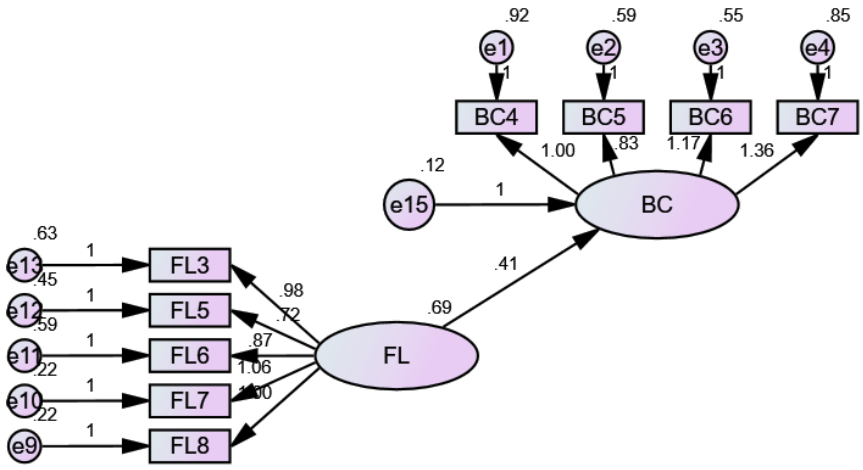

Figure 4.23: Unstandardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between FL and BC)

The above figure represents the direct relation between FL and BC. FL having five items (FL3, FL5, FL6, FL7, and FL8), and BC having four items (BC4, BC5, BC,6, and BC7). Error variables are represented by e1, e2e3, e4, e9, e10, e11, e12, e13, and e15, which explained the % of error associated with respective items. In the above figure FL is independent latent variable and BC is dependent latent variable. The numerical values shown on the arrows are the unstandardized estimates.

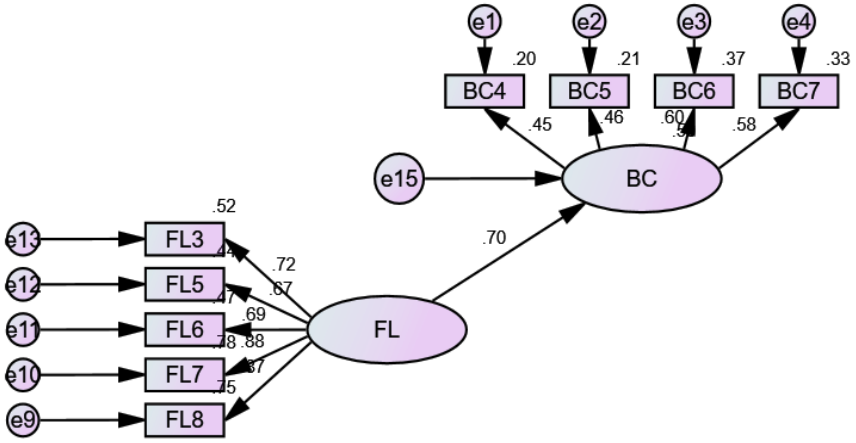

Figure 4.24: Standardized Estimate output of AMOS 23.0-Analysis without mediation (Direct relationship between FL and BC)

In the above figure, the numerical values shown on the arrows are the Standardised estimates.

CMIN -Analysis without mediation (Direct relationship between FL and BC)

Table 4.48: CMIN -Analysis without mediation (Direct relationship between FL and BC)

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	73.498	26	.000	2.827
Saturated model	45	.000	0		
Independence model	9	1378.489	36	.000	38.291

RMR, GFI -Analysis without mediation (Direct relationship between FL and BC)

Table 4.49: RMR, GFI -Analysis without mediation (Direct relationship between FL and BC)

Model	RMR	GFI	AGFI	PGFI
Default model	.041	.962	.935	.556
Saturated model	.000	1.000		
Independence model	.363	.441	.302	.353

Baseline Comparisons-Analysis without mediation (Direct relationship between FL and BC)

Table 4.50: Baseline Comparisons-Analysis without mediation (Direct relationship between FL and BC)

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.947	.926	.965	.951	.965
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA-Analysis without mediation (Direct relationship between FL and BC)

Table 4.51: RMSEA-Analysis without mediation (Direct relationship between FL and BC)

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.067	.049	.085	.057
Independence model	.303	.289	.316	.000

From the CMIN, RMR, GFI, Baseline Comparisons, and RMSEA tables, it is clear that all the model fit indices are acceptable range; RMSEA value is little bit more than 0.05 but this is acceptable, therefore we can accept this model as a good fit for the further analysis and interpretation.

Regression Weights: (Group number 1 - Default model) -Analysis without mediation (Direct relationship between FL and BC)

Table 4.52: Regression Weights: (Group number 1 - Default model)

Direct Path			Estimate	S.E.	C.R.	P	Result
BC	—	FL	.406	.058	7.049	***	Significant

Standardized Regression Weights: (Group number 1 - Default model) -Analysis without mediation (Direct relationship between FL and BC)

Table 4.53: Standardized Regression Weights: (Group number 1 - Default model)

Path			Estimate
BC	—	FL	.704
BC4	—	BC	.447
BC5	—	BC	.462
BC6	—	BC	.604
BC7	—	BC	.578
FL8	—	FL	.868
FL7	—	FL	.880
FL6	—	FL	.686
FL5	—	FL	.666
FL3	—	FL	.718

From the Regression Weights: (Group number 1 - Default model), and Standardized Regression Weights: (Group number 1 - Default model) table, it is clear that all factor loadings are above 0.300. The standardized regression weight is 0.704 for the path between FL and BC, hence, if there is one standard deviation increase in FL then there is a 0.704 standard deviation increase in BC. Since the standard error (S.E.) is low (0.058), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 7.049) is > 1.96 for a regression weight of 0.704, hence the path between FL and BC is significant at the 5% significance level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)]. (*** is 0.000)

Since the value of P is 0.00, which is less than 0.05 on the direct path relationship between two **exogenous construct FL and BC**, we can reject the null hypothesis and **accept the alternate hypothesis stating 'There is a significant effect of Financial Literacy on the Behavioral Control.** It shows that financial literacy can alter the behavioural control in a significant manner. It defines the importance of financial literacy programs as it controls the financial behaviour of the individuals of Gen Y by enabling them to take informed decisions

Case IV

$H_0$4: Behavioural Control does not mediate the relationship between Financial Literacy and Household Wealth.
$H_1$4: Behavioural Control mediates the relationship between Financial Literacy and Household Wealth.

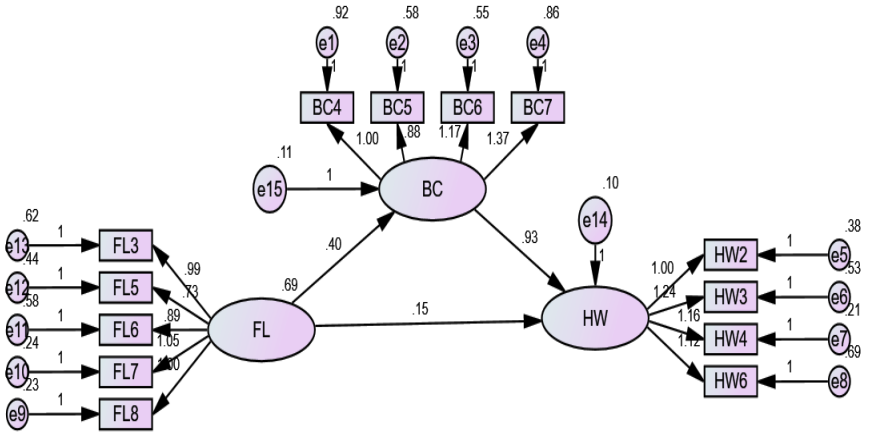

Figure 4.25: The unstandardized estimates of BC mediating the relationship path of FL & HW

The above figure represents the mediating role of BC between FL and HW. FL having five items (FL3, FL5, FL6, FL7, and FL8), HW having four items (HW2, HW3, HW4, HW6), and BC having four items (BC4, BC5, BC,6, and BC7). Error variables are represented by e1, to e15, which explained the % of error associated with respective items. In the above figure FL is independent latent variable, HW is dependent latent variable, and BC is the mediating latent variable.

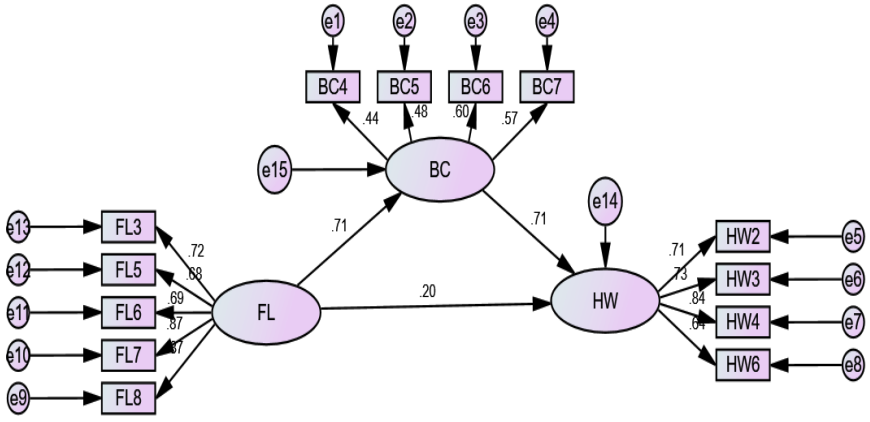

Figure 4.26: The standardized estimates of BC mediating the relationship path of FL & HW

In the above figure, the numerical values shown on the arrows are the Standardised estimates.

CMIN- BC mediating the relationship path of FL & HW

Table 4.54: CMIN- BC mediating the relationship path of FL & HW

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	29	233.981	62	.000	3.774
Saturated model	91	.000	0		
Independence model	13	2370.025	78	.000	30.385

RMR, GFI- BC mediating the relationship path of FL & HW

Table 4.55: RMR, GFI- BC mediating the relationship path of FL & HW

Model	RMR	GFI	AGFI	PGFI
Default model	.051	.918	.880	.626
Saturated model	.000	1.000		
Independence model	.367	.338	.228	.290

Baseline Comparisons- BC mediating the relationship path of FL & HW

Table 4.56: Baseline Comparisons- BC mediating the relationship path of FL & HW

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.901	.876	.925	.906	.925
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA -BC mediating the relationship path of FL & HW

Table 4.57: RMSEA -BC mediating the relationship path of FL & HW

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.083	.071	.094	.000
Independence model	.269	.259	.278	.000

From the CMIN, RMR, GFI, Baseline Comparisons, and RMSEA tables, it is clear that all the model fit indices are acceptable range; RMSEA value is little bit more than 0.05 but this is acceptable, therefore we can accept this model as a good fit for the further analysis and interpretation.

Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

Table 4.58: Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

Path			Estimate	S.E.	C.R.	P	Results
BC	—	FL	.403	.055	7.321	***	Significant
HW	—	FL	.148	.070	2.119	.034	Significant
HW	—	BC	.926	.179	5.162	***	Significant

Standardized Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

Table 4.59: Standardized Regression Weights: (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

Path			Estimate
BC	—	FL	.705
HW	—	FL	.197
HW	—	BC	.708
BC4	—	BC	.442
BC5	—	BC	.482
BC6	—	BC	.597
BC7	—	BC	.574
HW2	—	HW	.709
HW3	—	HW	.725
HW4	—	HW	.843
HW6	—	HW	.643
FL8	—	FL	.867
FL7	—	FL	.872
FL6	—	FL	.694
FL5	—	FL	.675
FL3	—	FL	.721

From the Regression Weights: (Group number 1 - Default model), and Standardized Regression Weights: (Group number 1 - Default model) table, it is clear that all factor loadings are above 0.300.

The standardized regression weight is 0.705 for the path between FL and BC hence, if there is one standard deviation increase in FL then there is a 0.705 standard deviation increase in BC. Since the standard error (S.E.) is low (0. 055), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 7.321) is > 1.96 for a regression weight of 0.705, hence the path between

FL and BC is significant (p = 0.000) at the 5% significance level.

The standardized regression weight is 0.197 for the path between FL and HW hence, if there is one standard deviation increase in FL then there is a 0.197 standard deviation increase in HW. Since the standard error (S.E.) is low (0.070), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 2.119) is > 1.96 for a regression weight of 0.197, hence the path between FL and HW is significant (p =0.034) at the 5% significance level.

The standardized regression weight is 0.708 for the path between BC and HW hence, if there is one standard deviation increase in FL then there is a 0.708 standard deviation increase in HW. Since the standard error (S.E.) is low (0.179), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 5.162) is > 1.96 for a regression weight of 0.708, hence the path between BC and HW is significant (p =0.000) at the 5% significance level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)]. (*** is 0.000)

Total, Direct and Indirect Effect results

Table 4.60: Total Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.403	.000	.000
HW	.521	.926	.000
FL3	.991	.000	.000
FL5	.734	.000	.000
FL6	.886	.000	.000
FL7	1.049	.000	.000
FL8	1.000	.000	.000
HW6	.586	1.042	1.125
HW4	.607	1.078	1.164
HW3	.647	1.151	1.242
HW2	.521	.926	1.000
BC7	.553	1.370	.000
BC6	.471	1.168	.000
BC5	.355	.880	.000
BC4	.403	1.000	.000

Table 4.61: Standardized Total Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.705	.000	.000
HW	.697	.708	.000
FL3	.721	.000	.000
FL5	.675	.000	.000
FL6	.694	.000	.000
FL7	.872	.000	.000
FL8	.867	.000	.000
HW6	.448	.455	.643
HW4	.588	.597	.843
HW3	.505	.514	.725
HW2	.494	.502	.709
BC7	.405	.574	.000
BC6	.421	.597	.000
BC5	.340	.482	.000
BC4	.312	.442	.000

Table 4.62: Direct Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.403	.000	.000
HW	.148	.926	.000
FL3	.991	.000	.000
FL5	.734	.000	.000
FL6	.886	.000	.000
FL7	1.049	.000	.000
FL8	1.000	.000	.000
HW6	.000	.000	1.125
HW4	.000	.000	1.164
HW3	.000	.000	1.242
HW2	.000	.000	1.000
BC7	.000	1.370	.000
BC6	.000	1.168	.000
BC5	.000	.880	.000
BC4	.000	1.000	.000

Table 4.63: Standardized Direct Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.705	.000	.000
HW	.197	.708	.000
FL3	.721	.000	.000
FL5	.675	.000	.000
FL6	.694	.000	.000
FL7	.872	.000	.000
FL8	.867	.000	.000
HW6	.000	.000	.643
HW4	.000	.000	.843
HW3	.000	.000	.725
HW2	.000	.000	.709
BC7	.000	.574	.000
BC6	.000	.597	.000
BC5	.000	.482	.000
BC4	.000	.442	.000

Table 4.64: Indirect Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.000	.000	.000
HW	.374	.000	.000
FL3	.000	.000	.000
FL5	.000	.000	.000
FL6	.000	.000	.000
FL7	.000	.000	.000
FL8	.000	.000	.000
HW6	.586	1.042	.000
HW4	.607	1.078	.000
HW3	.647	1.151	.000
HW2	.521	.926	.000
BC7	.553	.000	.000
BC6	.471	.000	.000
BC5	.355	.000	.000
BC4	.403	.000	.000

Table 4.65: Standardized Indirect Effects (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.000	.000	.000
HW	.500	.000	.000
FL3	.000	.000	.000
FL5	.000	.000	.000
FL6	.000	.000	.000
FL7	.000	.000	.000
FL8	.000	.000	.000
HW6	.448	.455	.000
HW4	.588	.597	.000
HW3	.505	.514	.000
HW2	.494	.502	.000
BC7	.405	.000	.000
BC6	.421	.000	.000
BC5	.340	.000	.000
BC4	.312	.000	.000

Table 4.66: Standardized Total Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.001	...	...
HW	.001	.001	...
FL3	.001	...	...
FL5	.002	...	...
FL6	.001	...	...
FL7	.001	...	...
FL8	.001	...	...
HW6	.001	.001	.001
HW4	.001	.001	.002
HW3	.001	.001	.001
HW2	.001	.000	.001
BC7	.001	.001	...
BC6	.001	.002	...
BC5	.001	.001	...
BC4	.001	.001	...

Table 4.67: Standardized Direct Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	.001	...	...
HW	.129	.001	...
FL3	.001	...	...
FL5	.002	...	...
FL6	.001	...	...
FL7	.001	...	...
FL8	.001	...	...
HW6	...	...	.001
HW4	...	...	.002
HW3	...	...	.001
HW2	...	...	.001
BC7	...	.001	...
BC6	...	.002	...
BC5	...	.001	...
BC4	...	.001	...

Table 4.68: Standardized Indirect Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- BC mediating the relationship path of FL & HW

	FL	BC	HW
BC	...	...	...
HW	.001	...	...
FL3	...	...	...
FL5	...	...	...
FL6	...	...	...
FL7	...	...	...
FL8	...	...	...
HW6	.001	.001	...
HW4	.001	.001	...
HW3	.001	.001	...
HW2	.001	.000	...
BC7	.001	...	...
BC6	.001	...	...
BC5	.001	...	...
BC4	.001	...	...

Final Results : On the introduction of BC in between FL and HW (Baron & Kenny's Method)

This final results table is prepared on the basis of Total, Direct and Indirect Effect results. (Standardised Estimation and Sig, value p value) generated by the output of AMOS 23.0 in the process of mediation analysis.

From the above table it is clear that Standardised Estimation is reduced from 0.697 to 0.197, and Sig value (p = 0.129) is more than 0.05, hence there exist a **full mediation of BC in between FL and HW.** Since first null hypothesis was H04: BC does

Table 4.69: Final Results : On the introduction of BC in between FL and HW (Baron & Kenny's Method)

Effects	Standardised Estimation	Sig. Value (p value)	Sig Results	Mediation Results
Total Effect	0.697	0.001	Significant	**Full Mediation**
Direct Effect	0.197 (reduced from 0.697 to 0.197)	0.129	Insignificant	
Indirect Effect	0.500 (0.697-0.197)	0.001	Significant	

not mediate between FL and HW, hence it is safe to reject null hypothesis H04 and **accept the alternate hypothesis stating that 'Behavioural Control mediates the relationship between Financial Literacy and Household Wealth.'**

Case V

H05: Financial Literacy does not mediate the relationship between Behavioural Control and Household Wealth.
H15: Financial Literacy mediates the relationship between Behavioural Control and Household Wealth.

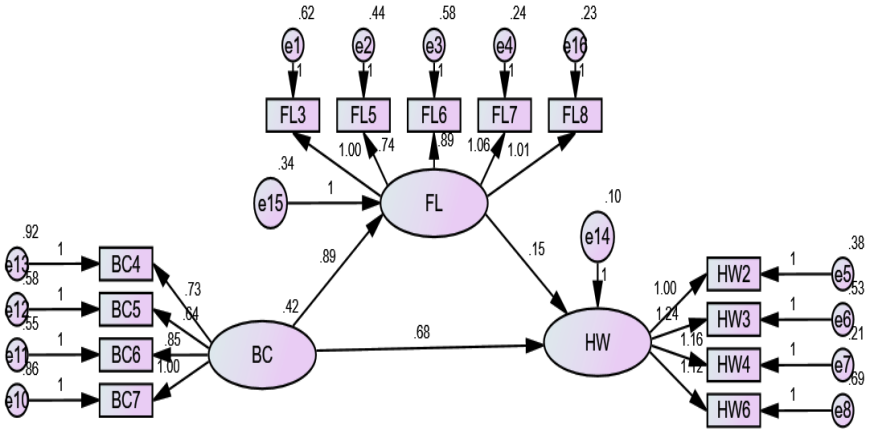

Figure 4.27: The unstandardized estimates of FL mediating the relationship path of BC & HW

The above figure represents the mediating role of FL between BC and HW. FL having five items (FL3, FL5, FL6, FL7, and FL8), HW having four items (HW2, HW3, HW4, HW6), and BC having four items (BC4, BC5, BC,6, and BC7). Error variables are represented by e1, to e16, which explained the % of error associated with respective

items. In the above figure BC is independent latent variable, HW is dependent latent variable, and FL is the mediating latent variable. The numerical values shown on the arrows are the unstandardized estimates.

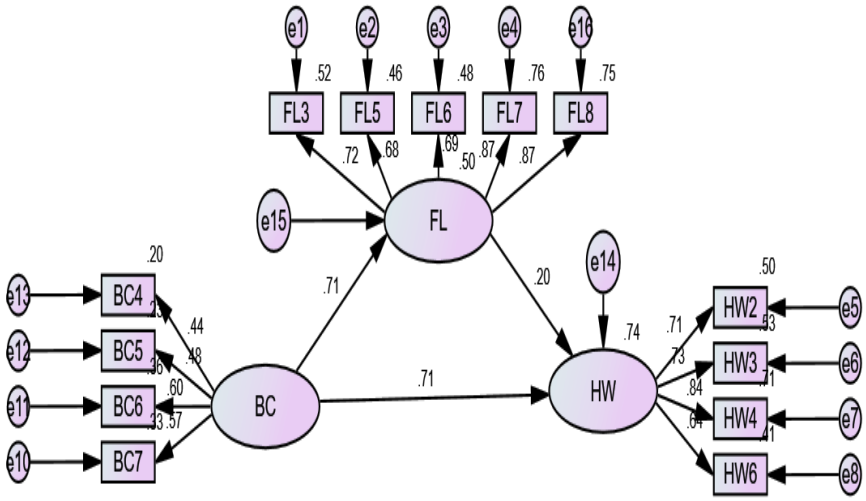

Figure 4.28: The standardized estimates of FL mediating the relationship path of BC & HW

In the above figure, the numerical values shown on the arrows are the Standardised estimates.

CMIN- FL mediating the relationship path of BC & HW

Table 4.70: CMIN- FL mediating the relationship path of BC & HW

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	29	233.981	62	.000	3.774
Saturated model	91	.000	0		
Independence model	13	2370.025	78	.000	30.385

RMR, GFI- FL mediating the relationship path of BC & HW

Table 4.71: RMR, GFI- FL mediating the relationship path of BC & HW

Model	RMR	GFI	AGFI	PGFI
Default model	.051	.918	.880	.626
Saturated model	.000	1.000		
Independence model	.367	.338	.228	.290

Baseline Comparisons- FL mediating the relationship path of BC & HW

Table 4.72: Baseline Comparisons- FL mediating the relationship path of BC & HW

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.901	.876	.925	.906	.925
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

RMSEA- FL mediating the relationship path of BC & HW

Table 4.73: RMSEA- FL mediating the relationship path of BC & HW

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.083	.071	.094	.000
Independence model	.269	.259	.278	.000

From the CMIN, RMR, GFI, Baseline Comparisons, and RMSEA tables, it is clear that all the model fit indices are acceptable range; RMSEA value is little bit more than 0.05 but this is acceptable, therefore we can accept this model as a good fit for the further analysis and interpretation.

Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

Table 4.74: Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

Direct Path			Estimate	S.E.	C.R.	P	Results
FL	—	BC	.892	.114	7.833	***	Significant
HW	—	BC	.676	.121	5.610	***	Significant
HW	—	FL	.149	.071	2.112	.035	Significant

Standardized Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

From the Regression Weights: (Group number 1 - Default model), and Standardized Regression Weights: (Group number 1 - Default model) table, it is clear that all factor loadings are above 0.300.

The standardized regression weight is 0.705 for the path between BC and FL hence, if there is one standard deviation increase in BC then there is a 0.705 standard deviation increase in FL. Since the standard error (S.E.) is low (0. 114), hence the sample size

Table 4.75: Standardized Regression Weights: (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

Path			Estimate
FL	—	BC	.705
HW	—	BC	.708
HW	—	FL	.197
FL3	—	FL	.721
FL5	—	FL	.675
FL6	—	FL	.694
FL7	—	FL	.872
HW2	—	HW	.709
HW3	—	HW	.725
HW4	—	HW	.843
HW6	—	HW	.643
BC7	—	BC	.574
BC6	—	BC	.597
BC5	—	BC	.482
BC4	—	BC	.442
FL8	—	FL	.867

is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 7.833) is > 1.96 for a regression weight of 0.705, hence the path between BC and FL is significant (p = 0.000) at the 5% significance level.

The standardized regression weight is 0.708 for the path between BC and HW hence, if there is one standard deviation increase in BC then there is a 0.708 standard deviation increase in HW. Since the standard error (S.E.) is low (0.121), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 5.610) is > 1.96 for a regression weight of 0.708, hence the path between BC and HW is significant (p =0.000) at the 5% significance level.

The standardized regression weight is 0.197 for the path between FL and HW hence, if there is one standard deviation increase in FL then there is a 0.708 standard deviation increase in HW. Since the standard error (S.E.) is low (0.071), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (C.R. = 2.112) is > 1.96 for a regression weight of 0.197, hence the path between FL and HW is significant (p =0.000) at the 5% significance level. (Z Score 1.645, 1.96, 2.76 represents 90%, 95%, 99% confidence Interval respectively)]. (*** is 0.000)

Total, Direct and Indirect Effect results- FL mediating the relationship path of

BC & HW

Table 4.76: Standardized Total Effects (Group number 1 - Default model)

	BC	FL	HW
FL	.705	.000	.000
HW	.847	.197	.000
FL8	.612	.867	.000
BC4	.442	.000	.000
BC5	.482	.000	.000
BC6	.597	.000	.000
BC7	.574	.000	.000
HW6	.545	.127	.643
HW4	.714	.166	.843
HW3	.615	.143	.725
HW2	.601	.140	.709
FL7	.615	.872	.000
FL6	.490	.694	.000
FL5	.477	.675	.000
FL3	.509	.721	.000

Table 4.77: Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.892	.000	.000
HW	.676	.149	.000
FL8	.000	1.010	.000
BC4	.730	.000	.000
BC5	.642	.000	.000
BC6	.853	.000	.000
BC7	1.000	.000	.000
HW6	.000	.000	1.125
HW4	.000	.000	1.164
HW3	.000	.000	1.242
HW2	.000	.000	1.000
FL7	.000	1.059	.000
FL6	.000	.895	.000
FL5	.000	.741	.000
FL3	.000	1.000	.000

Table 4.78: Standardized Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.705	.000	.000
HW	.708	.197	.000
FL8	.000	.867	.000
BC4	.442	.000	.000
BC5	.482	.000	.000
BC6	.597	.000	.000
BC7	.574	.000	.000
HW6	.000	.000	.643
HW4	.000	.000	.843
HW3	.000	.000	.725
HW2	.000	.000	.709
FL7	.000	.872	.000
FL6	.000	.694	.000
FL5	.000	.675	.000
FL3	.000	.721	.000

Table 4.79: Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.000	.000	.000
HW	.133	.000	.000
FL8	.901	.000	.000
BC4	.000	.000	.000
BC5	.000	.000	.000
BC6	.000	.000	.000
BC7	.000	.000	.000
HW6	.910	.168	.000
HW4	.942	.173	.000
HW3	1.005	.185	.000
HW2	.809	.149	.000
FL7	.944	.000	.000
FL6	.798	.000	.000
FL5	.661	.000	.000
FL3	.892	.000	.000

Table 4.80: Standardized Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.000	.000	.000
HW	.139	.000	.000
FL8	.612	.000	.000
BC4	.000	.000	.000
BC5	.000	.000	.000
BC6	.000	.000	.000
BC7	.000	.000	.000
HW6	.545	.127	.000
HW4	.714	.166	.000
HW3	.615	.143	.000
HW2	.601	.140	.000
FL7	.615	.000	.000
FL6	.490	.000	.000
FL5	.477	.000	.000
FL3	.509	.000	.000

Table 4.81: Standardized Total Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.705	.000	.000
HW	.847	.197	.000
FL8	.612	.867	.000
BC4	.442	.000	.000
BC5	.482	.000	.000
BC6	.597	.000	.000
BC7	.574	.000	.000
HW6	.545	.127	.643
HW4	.714	.166	.843
HW3	.615	.143	.725
HW2	.601	.140	.709
FL7	.615	.872	.000
FL6	.490	.694	.000
FL5	.477	.675	.000
FL3	.509	.721	.000

Table 4.82: Standardized Direct Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.705	.000	.000
HW	.708	.197	.000
FL8	.000	.867	.000
BC4	.442	.000	.000
BC5	.482	.000	.000
BC6	.597	.000	.000
BC7	.574	.000	.000
HW6	.000	.000	.643
HW4	.000	.000	.843
HW3	.000	.000	.725
HW2	.000	.000	.709
FL7	.000	.872	.000
FL6	.000	.694	.000
FL5	.000	.675	.000
FL3	.000	.721	.000

Table 4.83: Standardized Indirect Effects (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.000	.000	.000
HW	.139	.000	.000
FL8	.612	.000	.000
BC4	.000	.000	.000
BC5	.000	.000	.000
BC6	.000	.000	.000
BC7	.000	.000	.000
HW6	.545	.127	.000
HW4	.714	.166	.000
HW3	.615	.143	.000
HW2	.601	.140	.000
FL7	.615	.000	.000
FL6	.490	.000	.000
FL5	.477	.000	.000
FL3	.509	.000	.000

Table 4.84: Standardized Total Effects - Two Tailed Significance (BC) (Group number 1 - Default model) -FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.001	...	...
HW	.001	.129	...
FL8	.001	.001	...
BC4	.001	...	...
BC5	.001	...	...
BC6	.002	...	...
BC7	.001	...	...
HW6	.001	.121	.001
HW4	.001	.127	.002
HW3	.001	.121	.001
HW2	.001	.128	.001
FL7	.001	.001	...
FL6	.001	.001	...
FL5	.001	.002	...
FL3	.001	.001	...

Table 4.85: Standardized Direct Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	.001	...	...
HW	.001	.129	...
FL8	...	.001	...
BC4	.001	...	...
BC5	.001	...	...
BC6	.002	...	...
BC7	.001	...	...
HW6	...	...	.001
HW4	...	...	.002
HW3	...	...	.001
HW2	...	...	.001
FL7	...	.001	...
FL6	...	.001	...
FL5	...	.002	...
FL3	...	.001	...

Table 4.86: Standardized Indirect Effects - Two Tailed Significance (BC) (Group number 1 - Default model)- FL mediating the relationship path of BC & HW

	BC	FL	HW
FL	...	...	...
HW	.126	...	...
FL8	.001	...	...
BC4	...	...	...
BC5	...	...	...
BC6	...	...	...
BC7	...	...	...
HW6	.001	.121	...
HW4	.001	.127	...
HW3	.001	.121	...
HW2	.001	.128	...
FL7	.001	...	...
FL6	.001	...	...
FL5	.001	...	...
FL3	.001	...	...

Final Results : On the introduction of FL in between BC and HW (Baron & Kenny's Method)

This final results table is prepared on the basis of Total, Direct and Indirect Effect results. (Standardised Estimation and Sig, value p value) generated by the output of AMOS 23.0 in the process of mediation analysis.

Table 4.87: Final Results : On the introduction of FL in between BC and HW (Baron & Kenny's Method)

Effects	**Standardised Estimation**	**P Value**	**Sig. Results**	**Mediation Results**
Total Effect	.847	0.001	Significant	Partial Mediation
Direct Effect	.708(reduced from 0.847 to 0.708)	0.001	Significant	
Indirect Effect	.139 (0.847-0.708)	0.126	insignificant	

From the above table it is clear that Standardised Estimation is reduced from 0.847 to 0.708, and Sig value (p = 0.001) is less than 0.05, hence there exist a partial mediation of FL in between BC and HW. Since fifth null hypothesis was H05: FL does not mediate between BC and HW, hence it is safe to reject null hypothesis H05, and accept the alternate hypothesis stating 'Financial Literacy mediates the relationship between Behavioural Control and Household Wealth.'

Case VI

H06: Financial Literacy has more mediating effect on Household Wealth in comparison to Behavioural Control.
H16: Behavioural Control has more mediating effect on Household Wealth in comparison to Financial Literacy.

BC has full mediation in between FL and HW whereas FL has partial mediation in between BC and HW, therefore it can be concluded that BC influence more in comparison to FL. Finally it is concluded that Behavioural Control (BC) has more impact on the accumulation of Household Wealth (HW) in comparison to the Financial Literacy (FL) of the respondents of generation Y. Since sixth null hypothesis was H06: Financial Literacy has more mediating effect on Household Wealth in comparison to Behavioural Control. Hence, null hypothesis can be rejected and alternate hypothesis can be accepted stating 'Behavioural Control has more mediating effect on Household Wealth in comparison to Financial Literacy.'

5

Conclusions and Implications

5.1 Integration of results from exploratory and descriptive study.

The objective of the study was to understand the behavioral control and financial literacy level by comparing the effects of both on the household wealth of Gen Y. A sequential mixed method was used to achieve the said objectives of the research. The first method of exploratory qualitative study was used to formulate the hypothesis and to propose a research model. It was followed by the second method of descriptive study to test the hypothesis and validate the proposed model with a quantitative method. The study was carried out on large sample size of 408 members of Gen Y in order to generalize the results to their population at large. (Venkatesh et al., 2013) also supported the fact that these types of mixed method study is developmental in nature as it integrates the findings from both qualitative and quantitative phases of the research.

After testing the hypothesis, it was found that Behavioral Control has full mediating effect whereas Financial literacy has partial mediating effect. Thus, behavioral control has stronger impact on the household wealth accumulation of Gen Y. Since a full mediation by the mediating variable of behavioural control exists, the independent variable

of financial literacy exerted its total influence with and through the mediating variable. If we remove the mediator, the significant relationship between the Dependent Variable and the Independent Variable disappears. Thus, the effect of behavioural control becomes significant for the sound financial health and well-being of the millennial household.

5.2 Suggestions and Managerial Implications

Since, it has been found and validated that the behavioural control has more impact on the household wealth of Gen Y, policies need to be made in order to control and motivate the behaviour of Gen Y for the desired household wealth accumulation.

5.2.1 The theory of 'The Carrot and Stick' for Behavioral Control

It can be applied to motivate Gen Y to save and invest. This motivational theory is based on the 'principles of reinforcement' and is given by a philosopher Jeremy Bentham, during the industrial revolution. "This theory is derived from the old story of a donkey, the best way to move him is to put a carrot in front of him and jab him with a stick from behind."

Carrots

- Creating awareness about Tax Benefits and Tax-free interest on long term savings and retirement funds like PPF etc.
- Old tax regime should be encouraged by the employers as it favors investment rather than mere slabbing.
- Value added services like cash backs, reward points, bundled products like free insurance and riders, freebies like health checkup with medical insurances etc. can be rewarding for the Gen Y.
- Financial counselling from time to time with the help of both human and artificially intelligent bots should be encouraged.

Sticks

- Commitment accounts with large lock-in period and high penal interest to discourage frequent withdrawals.
- Fear appeal campaigns to encourage savings and investment for rainy days by making them realize the importance of savings for conditions like job insecurity, lack of social security, unpredictable economic environment, recession, pandemic, state of war, health hazard, disability and death.
- Very high penal interest charges should be levied.
- CIBIL scores for credit defaults should be continuously updated.
- Credit limit ceiling with respect to declared earnings should be fixed from time to time.
- Automated deduction from the earning's account to investment account can promote and foster savings.

5.2.2 Financial Literacy awareness Campaigns

- Top management of various business organisations should take the initiative to financially educate their employees. They should make them aware of the basic financial know how to keep themselves financially sound. This initiative will instil loyalty in the employees for their organisation.
- Enhancing the customer retention by Financial Institutions through knowing the customer in terms of their behaviour, literacy and income bracket. Only when we know the customer, we can curate products for high customer satisfaction and loyalty.
- Financial institutions and policymakers should curate financial products that can provide personalised financial education to control subjective behaviour through bundled programs. It can be done with the help of infomercials on television, radio ads, self-service modules on web pages, artificially intelligent applications on smart phones and other decision support tools.

- "Contactless-ness is the new normal". Therefore, digital literacy becomes imperative for the overall financial literacy in the world of digital disruption with technologies like machine learning, artificial intelligence, internet of things (IoT) etc. Self-service technologies are offered by financial institutions like passbook printers, cash deposit and withdrawal ATMs, no touch card withdrawals up to Rs. 2000/- without PIN, positive pay system for conforming the cheques etc.,

5.3 Contribution to the existing literature

The study contributes to the scant research on the comparative effect of the behavioural control and financial literacy on the household wealth of Gen Y. There was paucity of literature pertaining to the same. The findings of the study will be applicable in similar economies where the said generation is facing immense financial distress.

5.4 Limitations & Future scope of the study

- The present study is limited to urban members of Gen Y. The future study may include the rural Gen Y also.
- The comparative study of Gen Y with Gen X and Gen Z can be done at a later stage.
- We do believe that the results of our study are indicative of more robust models of consumer financial behaviour that can be developed and extended using more advanced machine learning algorithms.
- We are in quest of continuous innovation of exploring further refinements with broader datasets in on-going research.

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Appendices

Questionnaire

Questionnaire- Financial Literacy & Behavioural Control on Household Wealth of Generation Y

This research is aimed to measure the comparative effects of financial literacy and behavioural control on the household wealth of Generation Y. The duration of the survey is approximately 5-7 mins. If you belong to Generation Y, defined as under, you are invited to answer in the most sincere and spontaneous way. There is no correct or incorrect answer. Best regards and thanks in advance.

Generation Y, popularly known as 'Millennial' falls into the age bracket of 20 -40 years.

Consent form to Data Confidentiality	**This consent form informs you about the purpose of research and the type of commitment made so that you can voluntarily choose to take part in the survey. You must provide your consent before participating in this research. The personal data collected will be processed anonymously. The presentation of the data collected for scientific purposes will take place in aggregate form to guarantee the impossibility of identifying the participants. The participants are free to ask for any clarifications on any aspect of the research as well as to refuse participation or abandon the investigation at any time.**

1. Agree to take part in the survey.

   ☐ Agree

Demographics

2. Age

   ☐ 20-30 years
   ☐ 30-40 years

3. Gender

   ☐ Male
   ☐ Female
   ☐ Other

4. Marital Status

   ☐ Single
   ☐ Live in
   ☐ Married
   ☐ Separated
   ☐ Divorced
   ☐ Widowed

5. Number of financially dependent children

   ☐ 1
   ☐ 2
   ☐ 3 or more
   ☐ Don't have any children

6. Education

   ☐ Did not complete high school
   ☐ High school
   ☐ Intermediate
   ☐ Vocational training/ Diploma
   ☐ Graduation
   ☐ Post-graduation
   ☐ Doctoral/ Post-Doctoral

7. Employment Status

   ☐ Self employed
   ☐ Work full time for an employer
   ☐ Work part time for an employer
   ☐ Home maker
   ☐ Full time student
   ☐ Permanently sick, disabled or unable to work
   ☐ Unemployed or temporarily laid off

8. Monthly income in INR

   ☐ <25000
   ☐ 25000-50000
   ☐ 50000-100000
   ☐ Above 100000
   ☐ NIL

9. I seek financial investment guidance from

   ☐ Advice of friends/ relatives (not working in the financial services industry)
   ☐ Advice of friends/ relatives (who work in the financial services industry)
   ☐ Employer's advice
   ☐ Media coverage like Newspaper articles, Television infomercials or radio ads or social media platform.
   ☐ Agents/brokers
   ☐ Information picked up in a branch
   ☐ Product specific information found on the internet

10. Buckets preferred while investing to create assets

    ☐ Real Estate
    ☐ Physical Gold/ Silver/ Precious metals or gems
    ☐ Savings account, Fixed account, post office
    ☐ Public securities like PPF, Atal
    ☐ Pension Yojana, Sukanya account etc.,
    ☐ Shares, stocks and mutual funds lumpsum or Systematic Investment Plans
    ☐ Insurance Products both life, non life, term, medical, house, car, theft, fire etc.
    ☐ Tax savings products
    ☐ Private business models
    ☐ Chit funds, kitty party funds and other informal investments

11. Liability products taken

    ☐ Credit cards
    ☐ Personal Loan
    ☐ Vehicle Loan
    ☐ Home Loan
    ☐ Land Loan
    ☐ Advance from employer
    ☐ None

Financial Literacy	**Checks basic numeracy skills, know how about inflation, mortgage, risks and other basic and advanced financial knowledge.**

12. Imagine you have Rs.100.00 in a savings account and the interest rate is 10% per year. After 5 years, how much money will you have in this account?

    ☐ More than Rs. 150/-
    ☐ Less than Rs. 150/-
    ☐ Exactly Rs. 150/-
    ☐ Do not know

13. Imagine the interest rate applied to your savings account is 6% per year and the inflation rate is 10% per year. After one year, how much will you able to buy with the money from the account?

    ☐ Less than today
    ☐ More than today
    ☐ Exactly same
    ☐ Don't know

14. Imagine you saw the same television at two different stores at the initial price of Rs. 1000.00. Store A offers a discount of Rs. 150.00, while the Store B offers a discount of 10%. What is the best alternative?

    ☐ Buy in Store A (discount of Rs. 150.00).
    ☐ Buy in Store B (discount of 10%)
    ☐ Do not know

15. Considering a long time period, (e.g., to years), which asset described below normally gives the highest rate of return?

    ☐ Stocks
    ☐ Savings account
    ☐ Fixed Deposit
    ☐ Don't know

16. When an investor diversifies, his investments are divided among different assets. The risk of losing money then:

    ☐ Increases
    ☐ Decreases

☐ Remains the same
☐ Don't know

17. A loan lasting 15 years typically requires higher monthly payments than a 30-year credit, but the total interest paid at the loan will be less. This affirmation is:

☐ True
☐ False
☐ Don't know

18. I know how to avoid, check and rectify the inconsistencies in my bank statements.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

19. I will be prepared to manage my finances upon retirement.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

20. I keep myself updated with latest news pertaining to financial market, products, stocks, policies etc.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

21. I am well versed with internet and mobile banking.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

22. I can use combinations of skills, resources and knowledge to make financial decisions.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

23. I have the ability to discern financial choices and discuss financial issues without discomfort.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

24. I understand financial terms and concepts.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

25. I can make informed effective financial choices.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

Behavioural control	**Describes one's attitude, subjective norms, self-efficacy, perceived behavioural control and intentions.**

26. I believe that savings give a sense of security.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

27. My parents and friends consider it important to save money every month for unexpected expenditures.

	1	**2**	**3**	**4**	**5**	
Strongly agree	☐	☐	☐	☐	☐	Strongly disagree

28. I don't take large risks for high profits in less time.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

29. I am not an impulse buyer who buys without comparing prices.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

30. I always pay my credit card and other bills on time to avoid extra charges.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

31. I save more when I get a pay rise.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

32. I don't get carried away with promotional offers while shopping.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

33. I don't indulge in bad habits like smoking drinking and gambling.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

Household wealth	**Studies the effects of financial literacy and behavioural control on different assets and liabilities that create household wealth.**

34. I can handle a major unexpected expense.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

35. I can enjoy life because of the way I'm managing my money.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

36. I have money left over at the end of the month.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

37. I am securing my financial future.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

38. I have sufficient liquid savings.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

39. I have sufficient long-term savings.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

40. I have appropriate insurance.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

41. I have manageable debt.

	1	**2**	**3**	**4**	**5**	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

List of Publications and Presentations

Research Manuscript Published

1. Anand S, Mishra K, Verma V and Taruna T. Financial literacy as a mediator of personal financial health during COVID-19: A structural equation modelling approach [version 2; peer review: 2 approved] Emerald Open Research 2021, 2 :59 https://doi.org/10.35241/emeraldopenres.13735.2

2. Anand, S. Mishra, K. (2020). Strategic Technology Trends in Banks : Artificial Intelligence , Big Data and Competitive Advantage (ABC).Bank Quest. 32–38.

Conference and Paper-Presentations

1. Anand.S, A review on banking industry revamping with millennials captivated by the social media, *International Conference Social Media Marketing- Opportunities and Challenges*, Department of Commerce, Jesus and Mary College, University of Delhi, India, 28 March, 2019.

2. Anand.S, Integrated Product offerings of BFSI and Telecom Sector via Partnership in a Digital Ecosystem : A Case Study Approach, *International Conference Building New Digital Ecosystem*, Indian Institute of Management Raipur, India, 27 December, 2020.

Check for updates

RESEARCH ARTICLE

REVISED Financial literacy as a mediator of personal financial health during COVID-19: A structural equation modelling approach [version 2; peer review: 2 approved]

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v2 **First published:** 14 Sep 2020, **2**:59
https://doi.org/10.35241/emeraldopenres.13735.1

Latest published: 10 May 2021, **2**:59
https://doi.org/10.35241/emeraldopenres.13735.2

Abstract

The coronavirus disease 2019 (COVID-19) pandemic has become a global humanitarian challenge. This scourge has impacted people from all walks of life as well as every economic sector and activity, from travel to automotives, hotels to banking, and supply chain to retail. The pandemic has affected not only physical and mental health but also financial health. Studies have examined the pandemic's economic impact, but very few have examined its impact on personal finances. Efforts to contain the pandemic's spread, such as lockdowns, have resulted in suspended business operations throughout the world that have intensified joblessness. To prepare and protect people from such unforeseen situations, financial education and planning are necessary. We attempt to expand the evidence on this issue by applying a structural equation modelling approach to identify the mediating role of financial literacy programs in preparing and protecting household wealth against sudden worldwide setbacks. The research design is descriptive and exploratory using snowball sampling technique. The data was collected through an internet survey. In total, 400 survey responses were obtained. After testing the measurement model for key validity dimensions, the hypothesised causal relationships are examined in several path models. The results indicated that coronavirus awareness exerts a direct or indirect influence on the financial health of individuals through financial literacy. We conclude that financial literacy has a full mediating effect on the personal finance of individuals during the COVID-19 pandemic. The findings not only contributed to the need and understanding of financial literacy but also have managerial implications. Financial literacy programs provide investment advice and suggestions which are actionable and also work to help individuals to come out stronger in terms of knowledge and skill set when the COVID-19 crisis passes.

Keywords

COVID-19, financial health, financial literacy, structural equation modelling.

Open Peer Review

Reviewer Status ✓ ✓

	Invited Reviewers	
	1	**2**
version 2 (revision) 10 May 2021	✓ report	✓ report
version 1 14 Sep 2020	? report	? report

1. **Neeti Agarwal**, IGNOU, New Delhi, India

2. **Yogesh Upadhyay**, ITM (SLS) Baroda University Vadodara, Vadodara, India

Any reports and responses or comments on the article can be found at the end of the article.

This article is included in the Coronavirus (COVID-19) collection.

Corresponding author: Kushendra Mishra (kushendra78@gmail.com)

Author roles: Anand S: Conceptualization, Data Curation, Writing – Original Draft Preparation, Writing – Review & Editing; **Mishra K**: Supervision; **Verma V**: Formal Analysis, Methodology; **Taruna T**: Validation

Competing interests: No competing interests were disclosed.

Grant information: The author(s) declared that no grants were involved in supporting this work.

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How to cite this article: Anand S, Mishra K, Verma V and Taruna T. **Financial literacy as a mediator of personal financial health during COVID-19: A structural equation modelling approach [version 2; peer review: 2 approved]** Emerald Open Research 2021, **2**:59 https://doi.org/10.35241/emeraldopenres.13735.2

First published: 14 Sep 2020, **2**:59 https://doi.org/10.35241/emeraldopenres.13735.1

REVISED **Amendments from Version 1**

We have revised our manuscript from version 1 to version 2 as per the suggestions of the two esteemed reviewers in order to enhance the quality of our manuscript. More related literature has been reviewed as advised by the first reviewer as she wanted that the study should focus more on the financial literacy and financial health rather than the precautional measures of corona virus. The suggested research article has also been cited. The reviewer has also commented that the study focuses on the urban middle class covering one sector only and it would have been better if at least two sectors could have been covered. We would like to express our inability to further add respondents due to the limitations of time and funds. We opted for the snowball convenience sampling technique limited to the urban respondents. The future scope of this research can further reach out to the rural as well as respondents from different sectors.

According to the second reviewer, multiple in-text citations at many places given in different brackets have been rectified. Review of literature has been enriched as advised regarding the variables selected for the study. The grammatical errors in the paper needed to be addressed for which the article has been proofread by us as well as by Editage, a renowned editing services. Financially independent banking individuals has been replaced by individuals with bank account. Discriminant value has been replaced by validity. Composite reliability and reliability is shared in the same para and conclusion is modified as required.

Indeed the revision gives better and generalisable results. We have incorporated all the possible suggestions in the limited time, funds and capacity. The suggestions which could not be incorporated can act as the limitations of our present study and future scope of the research.

Any further responses from the reviewers can be found at the end of the article

Introduction

A pandemic refers to any sudden outbreak of contagious disease over a wide geographical area, accompanied by high morbidity and mortality rates (Madhav *et al.*, 2017). It can cause major socio-economic and political disruptions as it directly or indirectly interrupts and hinders all events, activities, and processes pertaining to global development. Pandemics can occur for many reasons, including over-exploitation of natural resources, blurring of geographic boundaries through travel, excessive integration of trade, and globalisation. Though pandemics have occurred since time immemorial, their frequency has increased manifold (Jones *et al.*, 2008; Morse, 1995). New deadly viruses have emerged through animals, which act as disease vectors. Influenza has the highest probability of causing a pandemic. Analytical tools, such as exceedance probability curve estimates, have shown that influenza has a one percent probability of causing 6 million pneumonia-related deaths in any given year (Patel *et al.*, 2015).

Coronavirus disease 2019 (COVID-19) originated in Wuhan, China in the year 2019. (see World Health Organization site, 2019). As with any pandemic, COVID-19 carries both, a spark risk and a spread risk (Morse, 1995). Spark risk is the risk created at the location where the disease originated. In the case of COVID-19, the spark risk started in Wuhan, China, and the spread risk permeated to other parts of the world. Although the pandemic has led to social, political, economic, and financial disruptions, this study is limited to the economic disruptions and people's financial losses. COVID-19, like any pandemic, has the capacity to cause long-term economic damage via short-term fiscal shocks.

In the field of personal finance, financial health defines a person's monetary state in four dimensions: savings, spending, borrowing, and planning. One can also explain financial health in terms of overall financial capability[1], financial wellness[2], and financial well-being[3]. The four dimensions of savings, spending, borrowing, and planning, along with financial capability, wellness, and well-being, provide a holistic picture of financial health. (Xiao, 2016).

Both intrinsic and extrinsic factors affect financial health. Intrinsic factors include an individual's attitude, awareness, numeracy skills, knowledge, risk-taking abilities, far-sightedness, and inherent behaviour. Intrinsic factors are subjective and vary from person to person. Extrinsic factors may include socio-economic, political, geographical, and natural disasters such as droughts, floods, earthquakes, and disease outbreaks that lead to pandemics. They may also include circumstances such as World Wars, nuclear attacks, bioterrorism, recessions, and stock market crashes. Extrinsic factors are uncontrollable, and they cause financial shocks. Thus, sound financial health should not only cater to current needs for saving and meeting immediate financial goals, but also prepare and protect against financial shocks brought about by extrinsic factors. Such preparation and protection are facilitated by financial literacy and awareness. Financial literacy and awareness refer to a person's orientation towards the needs and advantages of savings, investment, and financial planning, as well as their knowledge of various financial products, basic numeracy skills, and other money management tasks, in order to make sound financial decisions and have good financial health (Widyastuti *et al.*, 2016). This study examines the effect of the coronavirus pandemic on the financial health of the urban banking public in general, and the mediating effect that financial literacy may have.

Literature review

Several studies have examined the effect of pandemics on the world's economic condition. Studies have identified the reasons behind pandemic outbreaks as the over-exploitation of natural resources, rapid urbanisation and land use, and recent increases in global travel and integration (Jones *et al.*, 2008; Morse, 1995). A study examined the economic impact of pandemic influenza

[1]Financial capability refers to people's capacity in terms of their knowledge, skills, and money management behaviour in the enabling environment. It is dynamic in nature, as it differs from one person to another.

[2]Financial wellness is the ongoing and active process of combining financial awareness, literacy, and numeracy skills, with a check on financial behaviour, to achieve financial satisfaction.

[3]Financial well-being is the end result of desirable financial capability and financial wellness.

to identify intervention priorities in the United States via death rates, hospitalisation data, and hospital visits. After excluding disruptions to commerce and society, it estimated the economic impact to be around $166.5 billion. The study revolved around the potential economic returns of vaccination (Meltzer *et al.*, 1999). Another study estimated the aggregate macroeconomic impact of the HIV/AIDS pandemic in South Africa using a computable general equilibrium approach. The researchers investigated the interaction between unemployment and AIDS and concluded that the pandemic depressed labour demand, with several notable features. First, the rate of overall economic growth declined. Second, there was a decline in certain sectors, such as construction, equipment supplies, investments, and commodities. Third, AIDS-induced morbidity depressed output in sectors that employed unskilled and semi-skilled labour, causing additional negative implications for employment (Arndt & Lewis, 2001). Another study revealed the need to devise and identify specific policies to limit the spread of pandemics. To sustain investment and foster preparedness and health capacity requires strict policies (Smolinski *et al.*, 2003). Many countries devised strategies and policies to mitigate the impact of pandemics in 2003 when there was an outbreak of severe acute respiratory syndrome. A review paper by (Rashid *et al.*, 2015) on responses to influenza pandemics concluded that school and workplace closures appeared to be effective in preventing influenza transmission, but it ignored intra-household disease transmission and the very high secondary costs involved. Lockdowns, whether proactive or reactive, were economically disruptive. (Yuesti *et al.*, 2020) studied the effect of the pandemic not only on the world economy but also on the family economy. They studied that the good financial literacy will help individuals to avoid certain financial problems during the pandemic by managing their income. A sample study of 396 household survey was done to apply partial least square method for the analysis. The findings showed that the financial attitude, behaviour and literacy has positive effect on the financial literacy and well-being. The managerial implication of the research concluded that the financial literacy reflected by financial attitude and behaviour is crucial for public financial welfare. (Xiao *et al.*, 2014) studied the pre and post effect of financial literacy on financial behavior on young university students. Financial literacy was categorized into two parts namely objective and subjective. Behavioral aspects were studied on risky paying and borrowing. The data was collected from students of university of USA at both the times. The findings showed that subjective knowledge had more effect on both the aspects of risky borrowing and paying financial behavior. Thus, financial educations programs should work on enhancing the subjective knowledge that is individual specific. (Widyastuti *et al.*, 2016) did a research on the impact of subjective norm, attitude, and financial literacy on the savings intention and behavior of the teacher students of a university in Jakarta, Indonesia. This research took place when Indonesia was ranked the lowest in the whole Asia-Pacific region in terms of financial literacy. Subjective norm means the important people is one's life whose thought, expectations and decision matters and influences a person's action. Financial literacy affected savings behavior and intention. Saving intention was also influenced by attitude and subjective norm. (Cudmore *et al.*, 2010) observed that the youth of America i.e., the millennial generation was targeted for debt creation by financial institutions. They studied that there is a pressing requirement of financial literacy for the millennial generation in order to regularize their financial health. The paper also highlighted that the millennial generation can be helped by the financial services industry through financial literacy programs and customized tailor made investment products. This will make the millennial generation loyal towards the financial services industry. If this target market segment will be ignored, they may use their money for other purposes according to their lifestyle.

Research has revealed that, despite continuous improvements in policymaking, significant gaps exist in global pandemic preparedness. Health encompasses physical as well as mental health, but mental health preparedness has been completely ignored. Its preparation has been insufficient and completely uneven, catering primarily to physical health instead (Fischer & Katz, 2013). Financial health also affects mental health, as people who lose their jobs in the pandemic, and families that lose their income earners, are worried and stressed. A historical review of the literature indicates that it is a dire and pressing requirement to identify and study these gaps.

Research gaps

- There is little focus on the effect of pandemics on joblessness, business losses, and, eventually, on personal finance, in terms of eroded savings and increased expenses.
- The probable solutions provided for the protection of household wealth during pandemics are reactive rather than proactive.

Rationale

The rationale of our study is to prepare people financially for pandemics through financial education. Our research examines the effect of the COVID-19 pandemic, and of the subsequent lockdowns to arrest its spread, on the financial health of individuals. Financial health incorporates four areas of personal finance: savings, spending, borrowing, and planning.

Objectives

1. To identify the impact of coronavirus awareness on the financial health of individuals.
2. To understand how financial literacy mediates the relationship between coronavirus awareness and financial health.

Hypotheses

Null hypothesis $H0_1$: There is no relationship between coronavirus awareness (the independent variable, or IV) and financial health (the dependent variable, or DV).

Alternative hypothesis $H1_1$: There is a relationship between coronavirus awareness (IV) and financial health (DV).

Mediating null hypothesis MedH0$_2$: Financial literacy (Mediator) does not mediate the relationship between coronavirus awareness (IV) and financial health (DV).

Mediating alternative hypothesis MedH1$_2$: Financial literacy (Mediator) mediates the relationship between coronavirus awareness (IV) and financial health (DV).

Methods

Data

This study collected its own data, because the required data were not available. We used a web-based survey questionnaire to collect data through snowball sampling, with a sample size of 400. In our study, a structured questionnaire was sent across through e-forms via email or push messages (see extended data (Mishra, 2020). The size of the population of this research was not identified, therefore to determine the sample size, Slovin's formula with error standard of 5% was used. We have supposed that a group of 2000-3000 urban working individuals needs to be surveyed to gauge the effect of coronavirus awareness and the mediating effect of financial literacy on the financial health of individuals in COVID-19. Thus, N is taken as 2500 on an average. A margin of sampling error of 0.05 was considered for the survey. Using Slovin's formula, we arrived at the required web sample survey size which is as follows:

$n = N /(1 + Ne^2)$;

where, n = sample size,

N = Total population

e = Error tolerance.

$n = 2500/(1+2500*0.05^2)$

$= 344.8$

Thus, post rounding off the figure, we decided the sample size to be nearing 350 but we successfully received 400 responses. Urban individuals were the units of analysis. Out of the final sample of 400 respondents, 160 were female and 240 were male, and the highest response rate, 93%, was in the millennial age bracket of people between 20 and 40 years old. It is shown in Figure 1. The scale consisted of items on a five-point Likert scale, ranging from 1=strongly disagree to 5=strongly agree. We utilised AMOS 23 for inferential analysis using structural equation modelling (SEM).

Ethics and consent

This study was approved by the Ethical and Biosafety Committee of Babasaheb Bhimrao Ambedkar University (BBAU/EBC/2020/212-M). The study questionnaire began with a disclaimer stating the purpose of the research and informing participants all data would be anonymised. Proceding with and completion of the questionnaire was considered to imply consent for participation.

Preliminary pilot testing

Satisfactory preliminary pilot testing has been performed on 40 participants. We identified participants from our social groups and acquaintances who were financially independent. We further invited them formally in a message or email with due consent in the form of an explicit disclaimer to participate in the survey questionnaire. No changes were implemented in the questionnaire resulting from the preliminary testing.

Research methodology

We have created a novel questionnaire to collect the data. Data collection was done with a web based survey. Urban individuals either self-employed or government/private/corporate professionals or research students availing fellowships were identified through snowball convenience sampling and invited to participate in a web based survey through mails and push messages. It is a type of chain-referral sampling technique where existing study subjects recruit future subjects from among their acquaintances. We started with a small pool of initial respondents

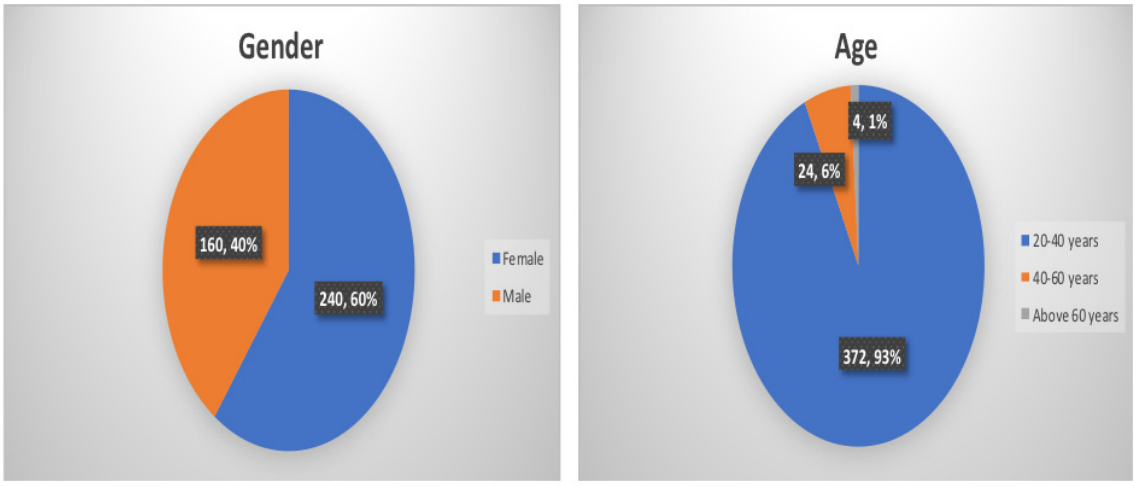

Figure 1. Gender and age of survey respondents. In the final sample of 400 respondents, 240 were males and 160 were females constituting the 60:40 ratio, whereas the highest response rate of 93% was from the millennial age bracket of 20–40 years.

from our social groups and acquaintances who were financially independent. They were invited to participate with a formal message or mail with due consent in the form of an explicit disclaimer to participate in the survey questionnaire. They further nominated others who meet the eligibility criteria and who could potentially contribute to our study through their social networks. The inclusion criteria for participants was that they should be financially independent banking individuals earning a living in form of wages, salary or stipend. Banking individuals here means that the individuals hold an account in a bank. The exclusion criteria remained the financially dependent, non-earning individuals like minors and housewives. The first data was received on the 30.03.2020 and the end data was collected on 03.04.2020 comprising a total 400 records on a web-based data collection platform. The responses to the questionnaires are provided as underlying data (Mishra, 2020).

The questionnaire has been validated under the validity testing, preliminary pilot testing, and reliability testing. The convergent validity is tested using AVE (Average Variance Extracted). All the AVE values are near to 0.5 which proves the convergent validity of the questionnaire. For establishing the discriminant validity, the discriminant validity must be more than the latent variables correlations. The Discriminant validity is 0.651 for coronavirus awareness construct, 0.537 for financial literacy construct and 0.620 for financial health construct which is more than the correlations values of 0.408, 0.133 and 0.182 respectively, thus proving the discriminant validity. Composite reliability indicates the shared variance among the observed variables of a latent construct. Composite reliability is also called as internal consistency reliability. The composite reliability of coronavirus awareness construct is 0.777, which is more than 0.7; hence, the measurement model of coronavirus awareness construct is having required internal consistency reliability between indicators CVA9, CVA8, CVA6, CVA2, and CVA1. The composite reliability of financial health construct is 0.752, which is also more than 0.7; hence, the measurement model of financial health is having required internal consistency reliability between indicators FH5, FH4, FH3, FH2, and FH1. The composite reliability of financial literacy construct is 0.534 (near to 0.6 or higher is acceptable for an exploratory), hence the measurement model of financial literacy is having required internal consistency reliability between indicators FL6, FL5, FL3, FL2, and FL1.

This study employed an exploratory and descriptive research design. The exploratory design helps formulate hypotheses, whereas the descriptive design helps test the hypotheses. We set the level of significance at 5%. For scale development and tool standardisation, we performed factor and reliability analysis for every factor. Under factor analysis, we conducted principal component analysis and calculated the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and percentage of variance. Moreover, we conducted a reliability analysis considering Cronbach's alpha and corrected item-total correlation (CITC). As per accepted thresholds, we used a minimum alpha of 0.70 and a CITC value of more than 0.300 to select the final online questionnaire survey items for the three constructs. In this study, the alpha was over 0.70 for each of the constructs/latent variables, thus establishing the high reliability of the questionnaire.

The IBM SPSS 23.0 version and its add on feature AMOS 23.0 version software is used for the statistical analysis. The statistical tools utilised under these softwares are confirmatory factor analysis and SEM. The results of four conditions of Baron and Kenny's mediation analysis are verified with the help of the Sobel, Aroian, and Goodman test values using online calculators on http://quantpsy.org/sobel/sobel.

The IBM SPSS 23.0 version and its add on feature AMOS 23.0 version software is a proprietary software. It is not an open-access software. The open-access alternative that can perform an equivalent function are as follows:

Tetrad
Tetrad is a freeware which performs many statistical functions. It is user friendly in nature. Users need not be updated about the programming language to work on the same. The scope of Tetrad is limited to linear models and models of categorical or ordinal data with a normal probability distribution. The program runs under the GNU GPL v.2 license and is available for free download.

LISREL
It is also a freely available software used for structural equation modelling. It allows researchers to empirically assess their data and theories in the fields like social sciences and management sciences.

R library: Lavaan
It is free and fully open sourced software with commercial quality for latent variable modelling. R package is very user friendly in nature.

Reliability testing
1. Internal consistency and reliability
The Cronbach's alpha values for coronavirus awareness, financial health, and financial literacy construct are 0.783, 0.763 0.653 respectively. Calculations were performed using SPSS 23.0. The composite reliability coronavirus awareness, financial health, and financial literacy construct are 0.777, 0.620, 0.534 respectively, hence, all the constructs are having required internal consistency reliability.

All items of coronavirus awareness, financial health, and financial literacy construct are having the CITC (Correlated Item- total correlation) values greater than 0.300, which proves their internal reliability.

2. Test-retest
The questionnaire was tested in two different time interval and found that there was no significant difference in the correlation results, hence test-retest reliability was high for the finalized questionnaire.

3. Inter-rater
The questionnaire was also tested by the different researchers and found that there was no significant difference in the correlation results, hence inter-rater reliability was also proved.

Coronavirus awareness (CVA)
In our study, coronavirus awareness (CVA) acts as an independent variable which enquires about the awareness and knowledge about COVID-19 in terms of its origin, symptoms, virus spread and precautionary measures like social distancing amongst the respondents. We studied novel coronavirus awareness as the IV and examined its effect on the personal financial health of individuals.

Table 1 displays the results of the reliability and factor analysis, and we selected 5 of the 9 items for SEM as under:

CVA1 (I understand the seriousness of the new Coronavirus),

CVA2 (The new coronavirus spread from person to person),

CVA6 (The virus originally came from Wuhan, China),

CVA8 (Social distancing, hand wash, hygiene, sanitising quarantine, lockdown will help in controlling the outbreak) and

CVA9 (Symptoms include sore throat, fever, breathlessness, joint pain, and dysentery.)

Financial literacy (FL)
Financial literacy (FL) is another IV which encompasses a person's basic awareness of financial products, numeracy skills, and money management tactics. We investigated the mediating effect of financial literacy on a person's preparedness for unforeseen pandemic situations such as COVID-19. Table 2 presents the results of the reliability and factor analysis, and we retained 5 of the 6 items for SEM as under:

FL1 (Banks are giving their best services),

FL2 (This is an opportunity to buy stocks at discounted prices as market dips),

FL3 (Digital payments/ ADCs/ UPIs are offering comfort with discounts and help in combating virus spread through currency notes),

FL5 (One should have a diversified portfolio of investment to curtail market risk) and

FL6 (I am aware of telecom's life segment bundled product which is offering term insurance plans on phone recharges).

With the advent of financial inclusion and digital enableness, different industries have joined hands to enter the financial sector. Telecom, E- commerce, Social media platforms etc have entered into finance sector and are termed as fintech companies. Insurance adoption and penetration is low in both rural and urban areas. With the product integration of a telecom giant and a leading private commercial bank, an attempt has been made to remove the barrier in order to provide basic insurance to all. The purpose of putting this question in the survey questionnaire is to check the financial awareness of innovative financial products like the Telecom's life segment bundled product.

Financial health
The personal financial health of individuals was the DV that coronavirus awareness and financial literacy affected. Financial health encompasses people's savings, liquidity, borrowings, as well as their present and future capability, in terms of their financial assets and liability. Table 3 displays the results of the reliability and factor analysis, and we retained 5 out of 6 items for SEM: FH1, FH2, FH3, FH4, and FH5 as under:

FH1(My earnings are arrested and savings getting eroded due to pandemic outbreak and further lockdown),

FH2 (Impulsive use of credit card is happening),

FH3 (Forced to do panic buying and hoarding),

FH4 (Forced to do panic buying and hoarding) and

FH5 (Tend to withdraw cash more often).

Table 4 provides the correlations among the three latent variables of coronavirus awareness, financial literacy, and financial health. All three latent variables were positively correlated with each other.

In addition, the correlation between coronavirus awareness and financial literacy > the correlation between financial health and financial literacy > the correlation between coronavirus awareness and financial health.

Table 1. Reliability and factor analysis for coronavirus awareness. KMO - Kaiser-Meyer-Olkin.

Cronbach's Alpha	KMO Test	N of Items	% of Variance
0.783, 0.777	0.718	5	53.809

Table 2. Reliability and factor analysis for financial literacy. KMO Kaiser-Meyer-Olkin.

Cronbach's Alpha	KMO Test	N of Items	% of Variance
0.653, 0.534	0.703	5	43.055

Table 3. Reliability and factor analysis for financial health. KMO Kaiser-Meyer-Olkin.

Cronbach's Alpha	KMO Test	N of Items	% of Variance
0.763, 0.620	0.775	5	51.740

Table 5 displays the standardised regression weights. Since all the standardized regression weights (estimates) are more than 0.300, hence it can be concluded that the items under each construct explained above, truly represent the characteristics of their respective constructs. The higher factor loading is better for further statistical analysis.

Structural equation model

We formed an integrated model with a series of dependence relationships among the constructs represented by the measured variables. We based the model on the principle of regression and factor analysis.

This study examines many questions: what variables determine coronavirus awareness? How does coronavirus awareness affect the personal financial health of individuals? What effect does coronavirus awareness have on financial literacy? In what way does it help protect financial health? We cannot answer such an inter-related set of questions with a unified form of analysis that uses a single statistical tool. We must use a unified and integrated measurement model called SEM (Malhotra & Dash, 2019). Coronavirus awareness, financial health, and financial literacy, coded as CVA, FH, and FL, are latent constructs that we cannot observe or measure directly. SEM examines the contribution of each observed variable to determine the latent construct. It generated a series of structural equations by examining the structure of those interrelationships. SEM has two parts:

1. **Measurement model**: This part of the model draws arrows from the constructs to the observed variables.

   Development and validation of the measurement model: For the development and validation of the measurement model, each construct is validated under the confirmatory factor analysis. The confirmatory factor analysis is conducted to reconfirm the results obtained from the exploratory factor analysis. The confirmatory factor analysis is done to finalize the construct for further development of the measurement model. All the required model fit indices like GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), NFI (Normed Fit Index), and RMSEA(Root Mean Square Error of Approximation) are used for good model fit. The minimum CMIN/DF (Chi-square Mean/Degree of Freedom) is achieved for each construct under the confirmatory factor analysis.

   The model fit indices for coronavirus awareness are as follows:
   The value of CMIN/DF,RMSEA and P(Significance value) are 2.717, 0. 066, and 0.043 respectively. The value of GFI, AGFI, TLI, CFI, and NFI are 0.992, 0.961, 0.972, 0.992, and 0.987 respectively which proves the validation of the coronavirus awareness model. All the model fit indices show that the confirmatory factor analysis of the coronavirus awareness model is a good fit model. (See Figure 2)

   The model fit indices for financial literacy are as follows:
   The value of CMIN/DF, RMSEA, and P are 2.727, 0. 066, and 0.028 respectively. The value of GFI, AGFI, TLI, CFI, and NFI are 0.990, 0.961, 0.935, 0.974, and 0.960 respectively which proves the validation of the financial literacy model. All the model fit indices show that the confirmatory factor analysis of financial literacy model is a good fit model. (See Figure 3)

   The model fit indices for financial health are as follows:
   The value of CMIN/DF, RMSEA, and P are 2.490, 0. 061, and 0.041 respectively. The value of GFI, AGFI, TLI,

Table 4. Correlation matrix and discriminant validity.

	Coronavirus awareness	Financial literacy	Financial health
Coronavirus awareness	1 (Discriminant value = 0.651)		
Financial literacy	0.408*	1 (Discriminant Value =0.537)	
Financial health	0.133*	0.182*	1 (Discriminant Value =0.620)

**Correlation is significant at the 0.01 level (two-tailed)*

Table 5. Corrected item-total correlation (CITC), standarised regression weights (SRW).

			CITC	SRW
CVA9	**<---**	**CVA**	**0.609**	**0.762**
CVA8	**<---**	**CVA**	**0.709**	**0.856**
CVA6	**<---**	**CVA**	**0.470**	**0.547**
CVA2	**<---**	**CVA**	**0.543**	**0.572**
CVA1	**<---**	**CVA**	**0.478**	**0.429**
FH5	**<---**	**FH**	**0.561**	**0.687**
FH4	**<---**	**FH**	**0.531**	**0.644**
FH3	**<---**	**FH**	**0.564**	**0.740**
FH2	**<---**	**FH**	**0.483**	**0.467**
FH1	**<---**	**FH**	**0.534**	**0.520**
FL6	**<---**	**FL**	**0.361**	**0.464**
FL5	**<---**	**FL**	**0.453**	**0.525**
FL3	**<---**	**FL**	**0.451**	**0.635**
FL2	**<---**	**FL**	**0.438**	**0.508**
FL1	**<---**	**FL**	**0.385**	**0.543**

CVA - coronavirus awareness **FH** - financial health **FL** - financial literacy

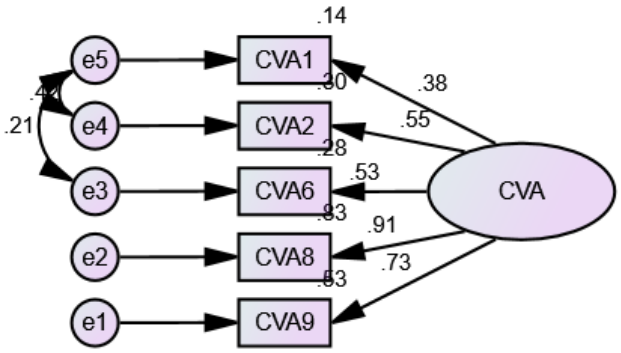

Figure 2. Confirmatory factor analysis of coronavirus awareness. The figure depicts the construct coronavirus awareness (CVA) having five items. The rectangular shape represents the observed variables. The oval shape represents the latent variable. The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are 2.717, 0. 066, and 0.043 respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are 0.992, 0.961, 0.972, 0.992, and 0.987 respectively which proves the validation of the coronavirus awareness model. All the model fit indices show good fit for the confirmatory factor analysis of the coronavirus awareness model.

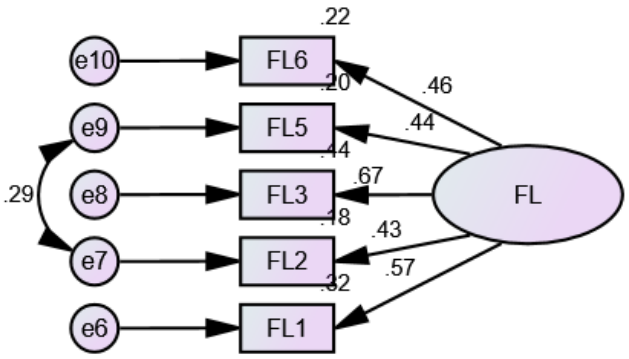

Figure 3. Confirmatory factor analysis of financial literacy. The figure depicts the construct financial literacy (FL) having five items. The rectangular shape represents the observed variables. The oval shape represents the latent variable. The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are 2.727, 0.066, and 0.028 respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are 0.990, 0.961, 0.935, 0.974, and 0.960 respectively which proves the validation of the financial literacy model. All the model fit indices show good fit for the confirmatory factor analysis of the coronavirus awareness model.

CFI, and NFI are 0.991, 0.965, 0.968, 0.987, and 0.979 respectively which proves the validation of the financial health model. All the model fit indices show that the confirmatory factor analysis of financial health model is a good fit model. (See Figure 4)

The measurement model is specified in a way that the three factors namely CVA(Coronavirus awareness), FH (Financial health) & FL(Financial literacy) correlate with each other. All the three factors are showing association with their respective five items. The three factors are positively correlated with each other with a maximum correlation of 0.41 between coronavirus awareness and financial literacy. (See Figure 5)

The model fit indices for the measurement model are as follows:
The value of CMIN/DF, RMSEA, and P are 3.457, 0.078, and 0.000 respectively. The value of GFI, AGFI, TLI, CFI, and NFI are 0.911, 0.874, 0.832, 0.864, and 0.820 respectively which is near to acceptable range which proves the development and validation of the measurement and structural model. These values are the AMOS output under the model fit heading. (The acceptable range of GFI, AGFI, TLI, CFI, and NFI should be near to 0.9, CMIN/DF should be in between 2 to 3, and RMSEA values should be near or below 0.05)

2. **Structural model**: This part of the model displays the interrelationships between constructs with multiple dependence relationships. Ovals represent the constructs, while squares represent the items of the construct. The standard regression weight between CVA (coronavirus Awareness) & FH (financial health) diminishes from 0.13 to 0.07 after the addition of the mediator FL (financial literacy). Thus, showing full mediation by the mediating variable. The IV (coronavirus awareness) exerted its total influence on the DV(financial health) through the mediating variable (financial literacy). If we take the mediator away, the relationship between the DV and the IV disappears. It shows the importance of financial literacy programs for good financial health. All three constructs are represented by their own sets of observed variables with error variables e1-e17. Out of which e4-e5 and e11-e12 are correlated with each other. The assignment of measured variables to each latent construct is graphically equivalent to drawing arrows from each construct to the measured variables that represent that construct. The degree to which each measured variable is related to its construct is represented by that variable's loading as values on the arrows.

Analysis and results

Mediation effects

We considered a variable to be a mediator based on the extent to which it carried the influence of a given IV on a given DV. Generally, we can say mediation occurs when (1) the IV significantly affects the mediator, (2) the IV significantly affects the DV in the absence of the mediator, (3) the mediator has a significant, unique effect on the DV, and (4) the effect of the IV on the DV diminishes after the addition of the mediator to the model.

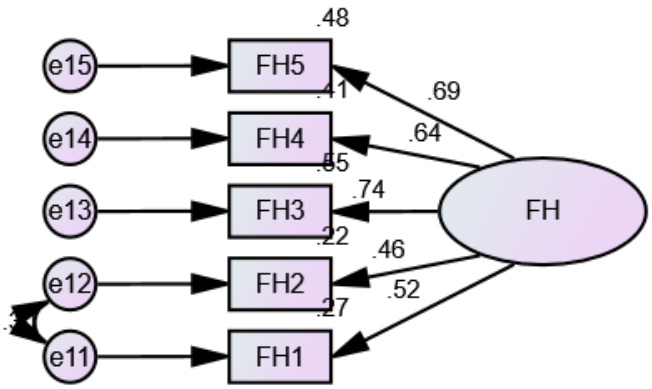

Figure 4. Confirmatory factor analysis of financial health. The figure depicts the construct financial Health (FH) having five items. The rectangular shape represents the observed variables. The oval shape represents the latent variable. The value of CMIN/DF (Chi-square Mean/Degree of Freedom), RMSEA (Root Mean Square Error of Approximation), and P (Significance value) are 2.490, 0. 061, and 0.041 respectively. The value of GFI (Goodness-of-Fit), AGFI (Adjusted Goodness-of-Fit), TLI (Tucker Lewis Index), CFI (Comparative Fit Index), and NFI (Normed Fit Index) are 0.991, 0.965, 0.968, 0.987, and 0.979 respectively which proves the validation of the financial health model. All the model fit indices show good fit for the confirmatory factor analysis of the coronavirus awareness model.

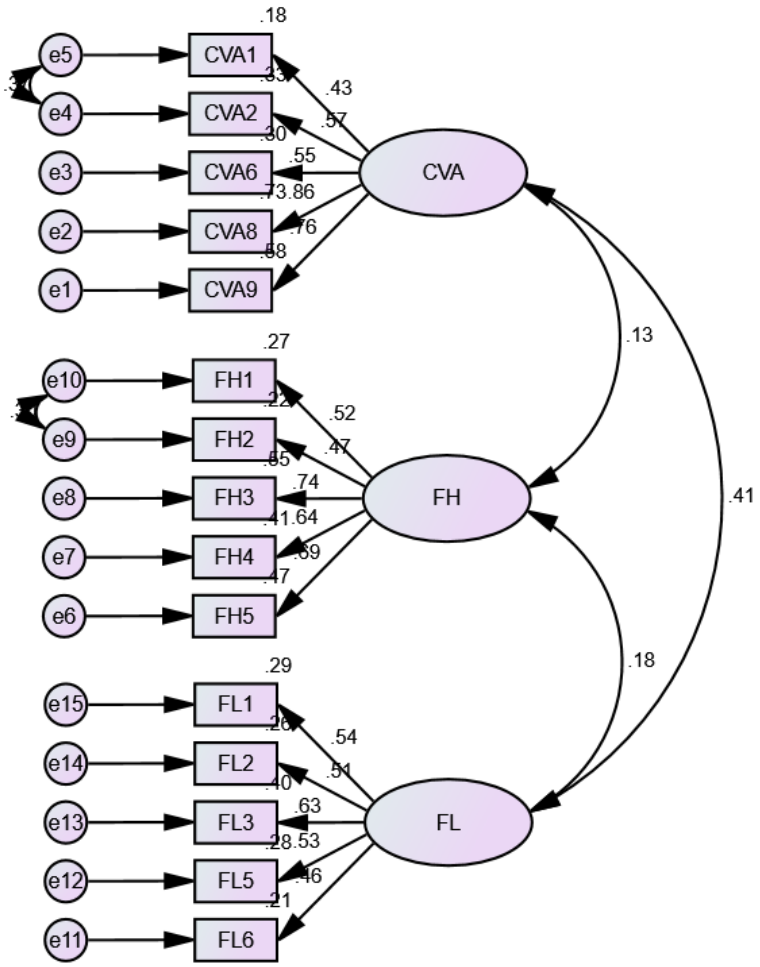

Figure 5. Measurement model. The measurement model is specified in a way that the three factors namely CVA (coronavirus awareness), FH (financial health) and FL (financial literacy) correlate with each other. All the three factors are showing association with their respective five items. The three factors are positively correlated with each other with a maximum correlation of 0.41 between coronavirus awareness and financial literacy.

Baron and Kenny's mediating analysis

Condition 1: The IV should significantly affect the mediator.

Under this condition, we studied the effect of coronavirus awareness on financial literacy to examine the effect of the IV on the mediator.

Table 6 reveals a value of p (***) <0.05, indicating that there exists an effect of IV (coronavirus awareness) on the mediator (financial literacy). Here, p*** means the value of p is 0.00. This satisfied the first condition of Baron and Kenny's mediating analysis.

The standardised regression weight is 0.446, which indicates that for every one standard deviation (SD) increase in coronavirus awareness, there is 0.446 SD increase in financial literacy. The standard error (SE) is very low (0.068), hence the sample size is sufficiently large and it truly belongs to the selected population. Since the critical ratio (CR=5.821) is > 1.96 for the regression weight 0.446, hence the path between coronavirus awareness and financial literacy is significant at the 0.05 level or better. (Z Score 1.645, 1.96 and 2.576 represent 90%, 95% and 99% confidence Interval respectively). Figure 6 explains the structural model on the condition 1 of the Baron and Kenny's Mediating Analysis.

Condition 2: The IV significantly affected the DV in the absence of the mediator.

Table 7 reveals a value of p (.044) <0.05, indicating that there exists an effect of IV (coronavirus awareness) on the DV (financial

Table 6. Standardised Regression Estimate: Independent Variable -----> Mediator (coronavirus awareness----- >Financial literacy).

Direct Path	Standardised Regression Estimate	S.E.	C.R.	P
Financial literacy ← coronavirus awareness	0.446	0.068	5.821	0.000

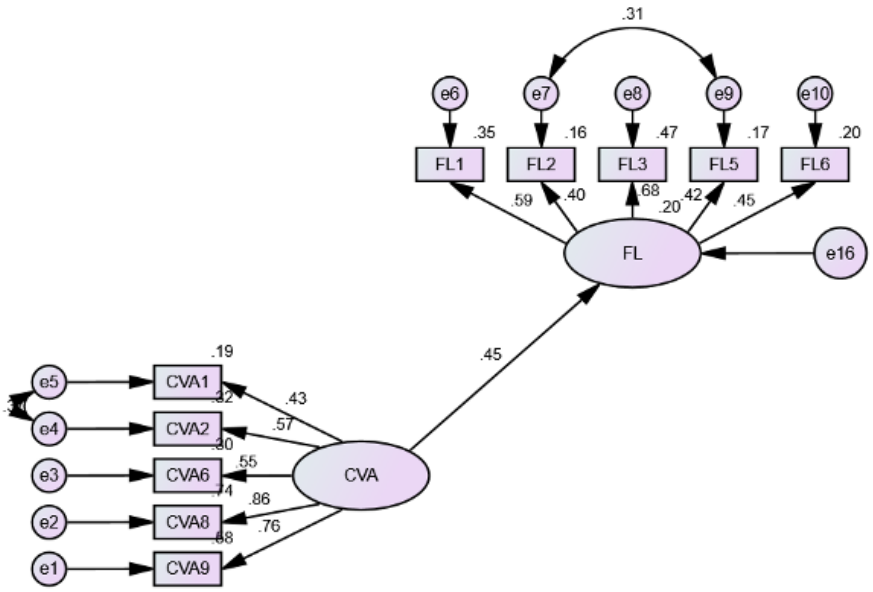

Figure 6. The effect of coronavirus awareness on financial literacy. The figure displays both coronavirus awareness (CVA) and financial literacy construct (FL) represented by their respective observed variables. The e1 to e16 error variables are used for the unexplained content, in which a latent variable is not able to describe perfectly about the observed variables. Out of which e4-e5 and e7-e9 are correlated with each other. The standard regression weight between CVA and FL is 0.45. The values on the arrow are path coefficients. The values on the corner of the rectangle are known as the coefficient of determination R^2. The constructs, observed variables, and the error variables are represented by oval, rectangular, and circular shapes respectively.

Table 7. Standardised Regression Estimate: Independent Variable ----> Dependent Variable (coronavirus awareness ----->financial health).

Direct Path	Standardised Regression Estimate	S.E.	C.R.	P
Financial health ← coronavirus awareness	0.127	0.090	2.014	0.044

health) in the absence of the mediator. The standardised regression weight is 0.127, which indicates that for every one SD increase in coronavirus awareness, there is 0.127 SD increase in financial health. The standard error (SE) is very low (0.090), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (CR=2.014) is > 1.96 for the regression weight 0.127, hence the path between coronavirus awareness and financial health is significant at the 0.05 level or better. This satisfied the second condition of Baron and Kenny's mediating analysis. Figure 7 explains the structural model on the condition 2 of the Baron and Kenny's Mediating Analysis.

Condition 3: The mediator has a significant, unique effect on the DV.

Table 8 reveals a value of p (0.007) <0.05, indicating that there exists a significant, unique effect of the mediator (financial literacy) on the DV (financial health). The standardised regression weight is 0.202, which indicates that for every one SD increase in financial literacy, there is 0.202 SD increase in financial health. The standard error (SE) is very low (0.141), hence the sample size is sufficiently large, and it truly belongs to the selected population. Since the critical ratio (CR=2.702) is > 1.96 for the regression weight 0.202, hence the path between financial literacy and financial health is significant at the 0.05 level or better. This satisfied the third condition of Baron and Kenny's mediating analysis. Figure 8 explains the structural model on the condition 3 of the Baron and Kenny's mediating analysis.

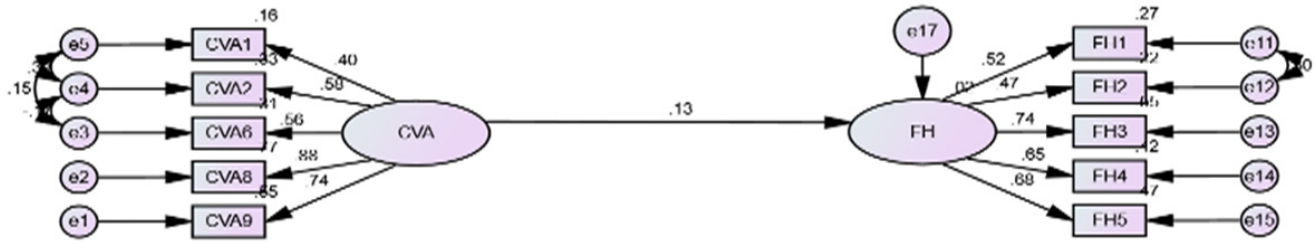

Figure 7. The effect of coronavirus awareness on the financial health. The figure depicts the standard regression weight between CVA (coronavirus awareness) and FH (financial health) as 0.13. Both the constructs are represented by their own sets of observed variables with error variables e1–e17. Out of which e3–e4, e4–e5, and e11–e12 are correlated with each other. The assignment of measured variables to each latent construct is graphically equivalent to drawing arrows from each construct to the measured variables that represent that construct. The degree to which each measured variable is related to its construct is represented by that variable's loading as values on the arrow shown in the figure.

Table 8. Standardised Regression Estimate: Independent Variable----- > Dependent Variable (financial literacy ------>financial health).

Direct Path	Standardised Regression Estimate	S.E.	C.R.	P
financial health ← financial literacy	0.202	0.141	2.702	0.007

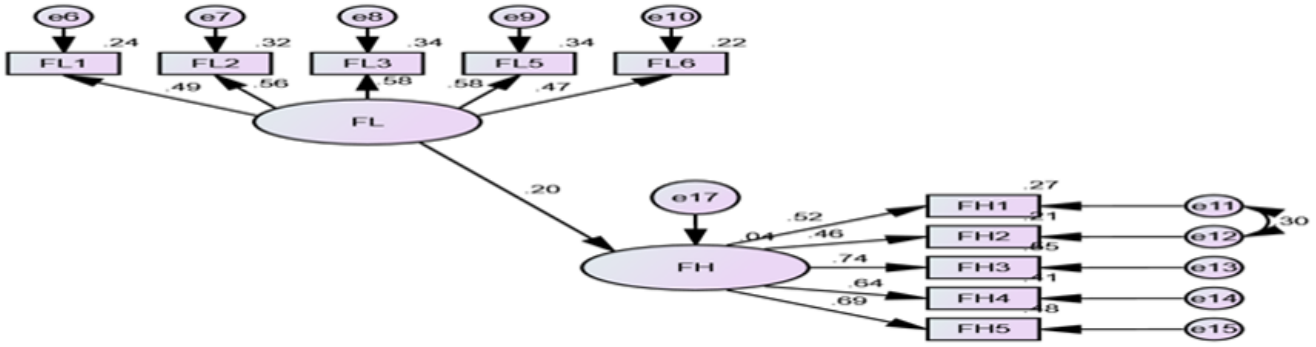

Figure 8. The mediator has a significant, unique effect on the DV (dependent variable). The figure depicts the standard regression weight between FL (financial literacy) and FH (financial health) as 0.20. Both the constructs are represented by their own sets of observed variables with error variables e6–e17. Out of which e11–e12 are correlated with each other. The assignment of measured variables to each latent construct is graphically equivalent to drawing arrows from each construct to the measured variables that represent that construct. The degree to which each measured variable is related to its construct is represented by that variable's loading as values on the arrow shown in the figure.

Condition 4: The effect of the IV on the DV diminishes after the addition of the mediator to the model.

Table 9 reveals that the standardised regression weight is 0.070, which indicates that for every one SD increase in coronavirus awareness, there is 0.070 SD increase in financial health. The standard error (SE) is low (0.100), hence the sample size is sufficiently large and it truly belongs to the selected population. Since the critical ratio (CR=0.978) is < 1.64 for the regression weight 0.070, hence the path between coronavirus awareness and financial health is insignificant at the 0.10 level. Since the standardised regression estimate values shrank from 0.127 to 0.070 and p>0.050 (p=0.328), there existed full mediation by the mediating variable; thus, the IV (coronavirus awareness) exerted its total influence on the DV(financial health) through the mediating variable (financial literacy). A p-value of less than 0.05 would have indicated a partial mediation effect. Hence, the fourth condition of Baron and Kenny's mediating analysis was also satisfied. A p-value of less than 0.05 would have indicated a partial mediation effect.

Figure 9 explains the structural model on condition 4 of the Baron and Kenny's Mediating Analysis.

Sobel, Aroian, and Goodman tests

We used an online excel calculator to check the SEM's results that indicated a full mediation effect of financial literacy on the financial health of individuals during the COVID-19 pandemic.

As Table 10 indicates, the p-value was less than 0.05, indicating that the IV exerted its total influence through the mediating variable.

Thus, in our study, the null hypothesis and mediating null hypothesis are not accepted. Therefore, we can conclude the following:

- There is a relationship between coronavirus awareness (IV) and financial health (DV).
- Financial literacy (Mediator) mediates the relationship

Table 9. Standardised Regression Estimate: Independent Variable--->Mediator-->Dependent Variable for Mediating Hypothesis MedH2.

Mediation (Indirect) Path	Standardised Regression Estimate	S.E.	C.R.	P
Coronavirus awareness .....> Financial literacy .....>Financial health	0.070	0.100	0.978	0.328

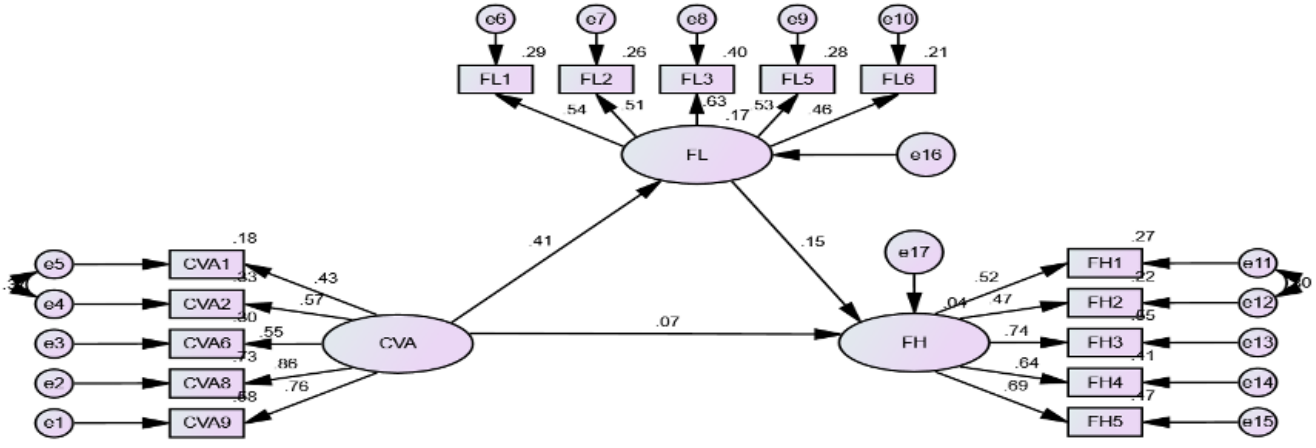

Figure 9. The effect of the IV (independent variable) on the DV (dependent variable) diminishes after the addition of the mediator to the model. The figure depicts the standard regression weight between CVA (coronavirus awareness) and FH (financial health) diminishes from 0.13 to 0.07 after the addition of the mediator FL (financial literacy). Thus, showing full mediation by the mediating variable. The IV (coronavirus awareness) exerted its total influence on the DV (financial health) through the mediating variable (financial literacy). If we take the mediator away, the relationship between the DV and the IV disappears. It shows the importance of financial literacy programs for good financial health. All three constructs are represented by their own sets of observed variables with error variables e1-e17. Out of which e4-e5 and e11-e12 are correlated with each other. The assignment of measured variables to each latent construct is graphically equivalent to drawing arrows from each construct to the measured variables that represent that construct. The degree to which each measured variable is related to its construct is represented by that variable's loading as values on the arrow shown in the figure.

Table 10. Sobel, Aroian, and Goodman Tests.

Mediation Path	Sobel Test	Aroian Test	Goodman Test
Coronavirus awareness---------> Financial literacy -->Financial health	2.43702564*	2.40700518*	2.46819812*
P value	0.01480863*	0.01608394*	0.01357951*

**Calculated using online Excel calculators*

between coronavirus awareness (IV) and financial health (DV) with full mediation effect.

Discussion, conclusion, and managerial implications

The existing literature studies the economic impact of various pandemics but very few focusses on the personal finance arena of the same. Regardless of the current or coming health effects of COVID-19 on our family, the pandemic has affected and will likely continue to affect household finances for years to come. Having a plan, prioritizing spending, and using resources efficiently will be key to personal financial stability.

The GDP of India was already at its lowest level in the last six years in the third quarter of 2019–20. The coronavirus outbreak plunged it to a new low, as low as 1.9%, which was still better than many of the other countries in the G-20 as projected by the IMF. However, the Reserve Bank of India (RBI) declared that it would inject liquidity into the financial market to curb the economic crisis. Banks offered a three-month moratorium for repaying loans, and did not report them as non-performing assets. India had a good buffer stock of food grains, and agriculture. Internet banking and ATMs worked at 91% of capacity and the RBI reduced the reverse repo rate from 4% to 3.75%. However, all these measures were reactive in nature. India requires a proactive approach to prepare and protect households from sudden financial setbacks. Not everyone could work at home; only highly skilled government/corporate/service class employees had that opportunity. Businesses that offered non-essential products and services, as well as low-skilled workers such as drivers and deliverers, were major sufferers during the pandemic. Not only were they unable to make money, but they were spending their savings to meet basic requirements. Financial education for employees is a pressing requirement in times of crisis. We have discovered that financial literacy had a profound mediating effect on the personal finance of individuals during the COVID-19 pandemic. Since a full mediation by the mediating variable existed, the IV exerted its total influence through the mediating variable. If we take the mediator away, the relationship between the DV and the IV disappears, making financial literacy imperative for good financial health. Awareness of the coronavirus's origin, symptoms, prevention, and control will not take care of people's financial well-being; they also need to be financially educated.

Companies should take the initiative to educate their employees financially. In turn, this will develop their loyalty for their organisation (Dhore, 2020). People's physical and financial well-being are congruent with each other, and they cannot ignore either one, since financial stress can lead to mental stress that eventually compromises their physical health.

Banks and other financial institutions have dropped the interest rate of savings account and other deposits as pandemic has hit the business hard. Meanwhile, the stock rates have also come down. This is the time to invest in shares when the prices are all time low and it has definitely to surge in the time to come, when the pandemic goes or with the advent of vaccination drives. The results of the present study have shown that the financial literacy has exerted its total influence as a mediating variable on the dependent and independent variable of financial health and corona virus awareness. Thus, both the consumers and the financial institutions should extensively carry out the financial literacy drive in order to help the needful.

Financial institutions and policymakers should curate programs such as infomercials, self-service modules, artificial intelligence applications, and decision support tools, into the form of mobile apps that are capable of providing personalised financial education that prepares people for a pandemic crisis. Contact lessness is going to be the new normal, thus making the digital education and financial literacy, a new bundled tool for financial well-being. As it is rightly said, an informed and educated person is more capable of performing crisis management.

Data availability

Underlying data

DANS: THE EFFECT OF COVID-19 ON FINANCIAL HEALTH. https://doi.org/10.17026/dans-x9e-rqhf (Mishra, 2020)

This project contains the following underlying data:

- swati form.csv (Questionnaire responses)

Extended data

DANS: THE EFFECT OF COVID-19 ON FINANCIAL HEALTH. https://doi.org/10.17026/dans-x9e-rqhf (Mishra, 2020)

This project contains the following extended data:

- questionnaire copy.pdf (Study questionnaire)

Data are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

Acknowledgment

We would like to thank Editage (www.editage.com) for English language editing.

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Strategic Technology Trends in Banks: Artificial Intelligence, Big Data and Competitive Advantage (ABC)

Swati Anand*

Dr. Kushendra Mishra**

Abstract

New technological developments like Artificial Intelligence and Big data have revolutionized every business due to exchange of data in high volumes and velocity. This new research taxonomy has created renaissance in every sector like health, finance, telecom, automobile, aviation etc. as this taxonomy has the capacity to do the simulation as the human brain and can do investigative trend analysis, prescriptive analysis and forecasting with real time data. Starting from curating smarter products and services as per individual's choice to taking wiser business decisions and automated business processes, AI has done it all. The business that will not encash and capitalise upon these transformative opportunities will be left behind complacent in this fierce and ever-changing competitive environment. We review the application of artificial intelligence and big data in devising the business strategy to gain competitive advantage with special reference to Banking, Financial services and Insurance (BFSI) industry.

Keywords: Artificial Intelligence, Big data, trend analysis, prescriptive analysis, BFSI industry.

Introduction

The finance sector of the country constituting the BFSI industry which stands for Banking, Financial services and Insurance industry has an imperative effect on the economic development of the country. The financial sector is also integrant in shaping the private sector development of the country. It has a significant role in poverty alleviation in a way that it increases the capacity of the individuals as well as the households to avail primary services like food, shelter, health and education. It also enables the wealth and capital accumulation with the array of financial products available. Thus, there is a need of continuous innovation, research and development in the financial sector. Research will help not only in forecasting financial trends but also predicting the financial behavior of the investors. Research will aid not only in routine activities like asset management, portfolio management, IPOs, formulation of capital structure etc. but also assist in preventing undesirable situations like irregularities in security price movements, defaults in payments, frauds and bankruptcy. There has been continuous innovation with the usage of different research tools since time immemorial. The practice of fetching insights from the data available was there but with least innovation and high stability. The limitation with the traditional statistical models is that they are asymptotic, linear, parametric and rational whereas the financial transactions or any kind of investments are non-linear, non-parametric, time variant and uncertain. Thus, arrived the need of the latest approach called *'Analytics'* pertaining to computer science literature. The factors like high speed internet and computing power, cloud computing[1], Internet of Things[2], big data[3], metadata[4], AI 2.0[5], deep learning[6], Industry 4.0[7]

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[1]Cloud computing is the storage service on the web. It allows to keep files on a remote database which can be accessed through internet rather than holding it on a physical hard drive.

[2]Internet of things is a concept of connection of different objects over internet like smart watches, smart tv, fitness devices etc to share data amongst people and the environment.

[3]Big data is large volume of complex and diverse data which can be structured, semi- structured and unstructured data from different sources and size ranging from terabytes to zettabytes.

[4]Metadata is a data which describes other data by giving underlying information and definition about the same which eventually makes us to work with that data easier.

[5]60 year old AI entering into new stage with breakthroughs like big data, sensor network permeation, cyberspace and popularization and increase of internet and information community.

[6]Deep learning is the subset of the machine learning algorithm of the artificial intelligence which does pattern recognition and data processing by imitating like a human brain. The learning is unsupervised and the data can be unstructured and unlabelled.

[7]Industry 4.0 is the fourth industrial revolution in mechanical and automation industry which focusses on interconnectivity, real time data, automation and computing.

etc. have caused digital disruption and the finance sector cannot be left untouched. There is a rapid transformation in the Banking, Financial services and Insurance (BFSI) industry on a global basis. Artificial Intelligence is a group of related technologies with taxonomies like machine learning, deep learning and neural network etc. which has the potential to disrupt, refine and redefine the financial services industry. Fintech (Financial technology) companies who were either e-commerce giants or social media giants are also entering finance sector. With the help of latest technologies, they are able to deliver financial services in a better, improved and automated ways. Thus, there is an imperative need to adopt these technological developments in order to gain an edge over competition.

Rationale

The rationale of the study is an attempt to exfoliate ways to prepare the business decision makers to devise strategies in congruent to the general populace which can be their potential customers in order to achieve the organisational objective with the help of AI and Big data analytics. This survey paper aims to study and understand the different opportunities and threats that these technological developments like AI and Big data will bring to the sustainability of high performance and the future of strategy research. Keeping in mind the financial sector of the country, this paper attempts to understand the challenges and opportunities of the technological disruption on the same.

Objective

- To understand the taxonomy of the Artificial Intelligence and Big Data analytics.
- To study the strength, weakness, opportunity and threat of AI and Big Data analytics on the sustainable development.
- To explore the expectations and experiences of the customers of general populace with the ever-evolving AI aided banking service design and transforming financial services distribution models.
- To study the effects of data analytics tools of AI & ML on the future of strategy research.

Literature Review

Artificial Intelligence dates back to as old as 1940s when **Alan Turing** made a thought whether or not it is possible for machinery to show intelligent behaviour. Then in the year 1956, **John McCarthy** coined the term 'Artificial Intelligence'. Focus was not there on the financial sector in the 1950s and 1960s. Bayesian statistics was developed in the 1960s itself which was later used in machine learning. Then came, neural network in the same year which came out to be the building block of the deep learning algorithm of AI. But in those times of 1960s, the computing power and availability of electronic data was very low. Thus, funding for research pertaining to AI stopped in countries like UK at that point of time and that time of AI is called AI Winter (**Kaplan, 2016; FSB, 2017).**

Again, in 1980s AI witnessed a revival with funding which included the birth of expert system. The idea of personal financial planning expert system was provided by **Brown, Neilson and Phillips (1990).** It used the heuristic approach of learning and was first used by Chase Lincoln First Bank and Arthur D. Little Inc. to employ different kinds of financial planning in which investment planning, retirement planning and income tax planning were also included. Expert system was also used for program trading in stock market to capitalise on pricing disparities between stock index futures and the underlying stock index by **Finnerty and Park (1987).** Apple and IBM desktops arrived in the late 1980s making handling expert system, a costly affair. And with this, the second AI winter arrived which lasted till 1993. The main advancement in AI started in 1993 post second AI winter, in which machine learning algorithm came into picture. The machine learning algorithm does the learning with experience, practice, reasoning and training with limited or no human intervention. **Cybenko (1989)** learned that ML does the general pattern recognition and universal approximations of relations in data when no such tool was there. Machine learning although was first originated by **McCulloch and Pitts (1943)** but was developed to the fullest into five components only by **Chakraborty and Joseph (2017).** The five components of which it is comprised of are defining the problem, source of data, model, an algorithm for optimization and testing for validation. After machine

learning, came the deep learning, which is the latest development in Artificial Intelligence taxonomy. **FSB (2017)** defines deep learning as a form of machine learning that uses algorithm which works as a layer. It uses this layered form of the structure inspired from the structure of the brain which is termed as artificial neural network. The artificial neural network can be present in three forms: supervised, unsupervised and reinforcement learning. **Liebergen (2017)** employed the successful use of classifier machine learning algorithm in credit card detection. The transactions were divided into fraud and non-fraud transactions. This model inspired Mastercard to launch Decision Intelligence module which kept the track of historical transactions and customers spending behaviour to score each and every transaction of the customer. **Javelin (2015)** published a report in which they reported about the false positives. False positives were those transactions which were declined by wrongly suspecting them as false transaction. **Prado and Lewis (2018)** examined the reasons of ever-increasing false positives and arrived at a new technology called EMV (Europay, Mastercard & Visa) which improved upon the card authorization process by lowering the number of false positives. Support vector machines, a machine learning algorithm, was used by **Cecchini et al. (2010**) to identify fraud in corporates. This fraud management of corporates was done using the company's own financial data with the help of support vector machines. There were many instances in which the machine learning algorithms were proved better than the traditional statistical tools. **Zhang and Turbey (2017)** studied that the artificial neural network outperformed parametric logistic regression.

Research Methodology/ Analysis

The data have been collected from various secondary sources like, journals, books, magazines and websites relating to banking and finance. No specific statistical tools have been used for the analysis. This study is deductive in character and nature as majority of the data has been derived from secondary sources.

Discussion

"AI is the 'new electricity'. Just as electricity transformed many industries roughly one hundred years ago; AI will also now change every major industry."

Andrew Ng, 2007

Suddenly, every business is finding itself amidst race to become a leader in the field of Artificial Intelligence and Big data analytics on a global basis. Due to the information overload and open market scenario with many giver options for a sought to be taken product, the customer loyalty is thinning every time. Thus, it becomes important to have a competitive advantage over others with latest technological developments. Business organisations rooted in India are also devising strategies to develop, promote and encourage the use of artificial intelligence. Strategies are devised in congruence with the artificial intelligence in almost all the departments of the organisation like talent development, skills and education, scientific marketing research, public and private sector adoption, data and digital infrastructure, ethics and inclusion standards and regulation.

Understanding the taxonomy: Artificial Intelligence & Machine learning, Analytics, Big data, Structured Data and Unstructured Data.

Artificial Intelligence, as the name suggests, can be defined as the set of algorithms which attempts to simulate or replicate the decision-making capabilities of a human brain through learning.

Machine learning algorithms can be defined as the set of algorithms which learn and develop pattern on the basis of earlier experiences and compare the existing data for future prediction. Learning is also of two types: supervised (where both input and output data is given to make machine learn) and unsupervised learning (where only input data is given).

Analytics: Analytics is defined as the extensive use of data with the statistical and quantitative

aid like explanatory and predictive models with fact-based management to drive decisions and actions. (Davenport & Harris, 2007)

Table 1. Evolution of Data Analytics

Analytics 1.0 (mid 2000s)	Also called **descriptive analytics**. It accesses historical and current data which is majorly structured data in rows and columns to explain what happened in the past to compare it with the present to make future predictions.
Analytics 2.0 (2007-2010)	Birth of big data which is voluminous, fast moving - fast changing, highly unstructured which uses different techniques like econometric forecasting to do predictive analysis. Thus, also called **predictive analytics.**
Analytics 3.0 (2010-2015)	It's a combination of big and small data, analytics 1.0 & 2.0 to do predictive cum prescriptive analysis. It uses models, machine learning and recommendation engines and thus called **prescriptive analytics**.
Analytics 4.0 (2015 onwards)	The most disruptive force of technology employing Artificial Intelligence and cognitive technologies like deep learning, neural network and natural language processing (NLPs) which is giving rise to **Autonomous Analytics** with less, limited and negligible human involvement.

Big Data: The copious data availability which is beyond the capacity of human and traditional statistical tools as well as the traditional relational databases to input and process the datasets and output the desired information, is termed as Big data. Big data has high volume and velocity, much of it in the real time, in the sense that data travels with high speed and volume through mobile, social media, networks, sensors, transactional applications and many more Internet of things (IoT) which are driving the data complexity to a whole new level. Thus, it can be explained on three pillars of **Vs: Variety, Velocity and Volume.**

Structured Data are in the form of spreadsheets in excel or tabular format which is well organised. **Unstructured Data** is the data generated continuously in the form of e-mails, customer complaints and from the content of social media which can be mined and stored in a database and can be characterized by its variety, volume and velocity.

Further, we will do the **SWOT** analysis of technological developments like AI and Big Data on the strategic development of banks to have a better understanding on the same.

STRENGTH:

1. **Unbiased nature:** It is considered as the fair, transparent, unbiased tool for research and development. Unlike humans, machines think intelligently without being biased or partial in nature. The decisions made are rational, impartial and personalized at the same time.
2. **Ability to handle huge data:** It has the ability to work with copious data availability nowadays. For instance, every financial transaction taking place in this world can be a data item, every post on a social media is a data item and same ways every review on an e-commerce site is a data item. Thus, this data availability with very high computing speed and supporting business environment allows AI to work efficiently in any organisation. This huge and plentiful data available these days is beyond human capacity to process. AI technology of JP Morgan can review 12,000 documents in few seconds, for which a human would spend 360,000 hours. (Brummer and Yadav, 2019)
3. **Routine task manager:** It allows employees to free themselves from routine, repetitive, mundane and procedural tasks which can also be called as lower involvement tasks. This way, the employees get more time to involve themselves in the work which needs more creativity, higher focus, human instinct and result oriented mindset.
4. **Increase in productivity by scalability at low cost:** Productivity at the workplace increases manifolds. Productivity in terms of cost and time reduction may happen when artificial intelligence aids the whole process.
5. **Easily adaptable with wider outreach:** It can be easily adopted in various industries like healthcare, manufacturing, BFSI, automobile etc.

6. **Renders better quality of life:** Artificial intelligence and machine learning algorithm add quality to life by simplifying the lives of people. Employees as well as customers benefit with the same. For instance, in BFSI sector, the banks have employed machines to do the routine tasks like passbook printing, cash depositing up to certain limit etc. ATMs nowadays also prompt the customers to open a recurring/ fixed account. It allows for pin change, mobile number change and various other facilities at the kiosk itself. This not only saves the time of the customers but also of the employees. In this way, banking service design is enhanced and a standard is maintained to give a user friendly, standard platform to the customers.

WEAKNESS:

1. **Lacks human touch:** In spite of all the popularity and momentum, AI tools and algorithm have gained in such a short span of time, one need not forget that it has been developed by a human only. It can act as intelligently as and to that extent only till it has been created for. It lacks human touch, common sense, cognition power, contextual awareness, basic human instinct and emotions. These human characteristics are required in service sectors where we interact with customers online as well as in person in real time as well as on a daily and frequent basis.
2. **High cost:** Artificial intelligence needs a conducive environment to perform. High speed internet, high computing power of latest generation computers and technical expertise to process the structured and unstructured data availability are prerequisite for the implementation of the artificial intelligence machines and algorithms in any organisation and huge cost is required to be incurred for the same.

OPPORTUNITY:

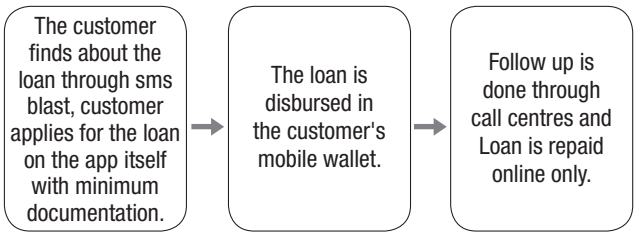
1. **Improve performance and efficiency:** Artificial Intelligence improves upon the performance of the employees by sharing their work and at many instances, replacing the work used to be done by the employees earlier. It assists the organisation in arenas like fraud detection, predictive analysis, virtual private assistants and decision support system. The most promising opportunity which AI gives is the pattern recognition and predictive analysis, which is beyond the human capacity because of such a huge data being involved.
2. **Can be deployed in belligerent activities and complex problem solving:** Robots can be deployed in risky situations where human presence is not advisable as it may be life threatening or dangerous. For instance, a robot can be deployed to diffuse a bomb, a robot can be sent in front to raise an alarm when burglars try to loot the bank, a robot can be deployed to enter an area affected with an epidemic disease or can be sent to the areas affected by famine conditions or any natural disaster to study the situation.

THREAT:

1. **Cyber Security: Privacy** and confidentiality issues may always crop up when every transaction and other informative data in the account opening form itself acts as an open data in the virtual environment travelling in high volume and velocity. Although all precautions are taken in order to prevent any security breaches, risk always prevails.
2. **Machine and Data Dependency:** Too much of machine and data dependency leads to non-usage of human brain which leads to redundancy and compromise at the creativity and innovation level.
3. **Job displacement:** AI can lead to unemployment by replacing humans by their robotic and machine presence. The routine jobs like passbook printing, cash depositing, grievance handling etc. which were diverted to artificially intelligent machines have replaced humans and hence stole their jobs. Self - checkout counters and kiosks at the stores is another example of replacing humans. It can be detrimental in the longer run.

The experiences of the customers of general populace with the ever-evolving AI aided banking service design

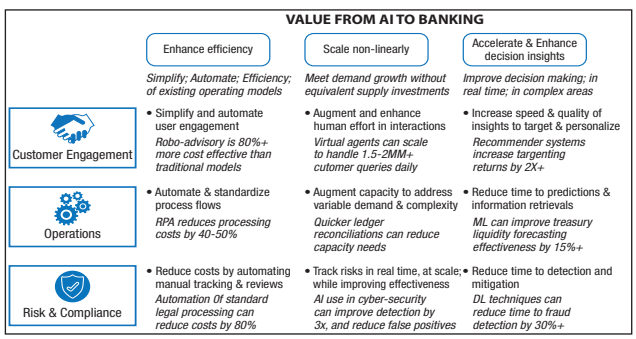
1. **Chatbots & Robo Advisory:** A bot can be defined as a software application developed to automate tasks using AI technology (Future Today Institute, 2017). Same ways, robo advisors are also digital platforms based on algorithms for offering investment advices and financial management services. It should not be misunderstood with robots. They are based on NLP (Natural Language Processing) to provide customised, conversational and natural environment.



2. **Digital Flow Based Lending:** It is a process starting from loan application to loan disbursement all happening digitally. It can be better understood with the following diagram.

3. **Algorithmic trading:** This is a program implemented with trading rules which learns from the structure of the existing and past data and then tries to predict the future pattern of stock's performance.

4. **Fraud detection and compliance:** AI algorithms possess the capability to detect the fraudulent transactions amongst the millions of data points which is beyond the human capability. Credit card fraud detection is one of the most successful examples for the same.



Conclusion and Scope of Future Research

"The rise of powerful AI will be either the best or the worst thing ever happened to the humanity. We do not yet know which"- Late Stephen Hawking

Big data analytics and artificial intelligence is still at its infancy in the finance sector. With more deluge of data as financial services keep generating more and more transactional data, more challenges like ethical and legal issues may crop up. AI will continue to bring more advancement with complexities in the financial ecosystem at the global level as artificial intelligence combined with the internet of things has transformed a mere physical object more responsive to the analytics and algorithms. Thus, with the increasing computing power increases the risk which still needs to be addressed. At the organisational level, embracing analytics not only means embracing new skills but also welcoming different behaviours from the employees with new ways of managing them with new strategic models. Apparently, a lot is still left to be done. Along with the rolling out of the financial literacy campaigns, there is also the need of creating AI awareness and literacy.

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Ref: CDE/ICDE ISDSI/2020/164a

Certificate of Participation

This is to certify that *Swati Anand* from *Babasaheb Bhimrao Ambedkar University Lucknow* has presented paper title '*Integrated Product offerings of BFSI and Telecom Sector via Partnership in a Digital Ecosystem : A Case Study Approach*' in the 3rd ICDE & 14th ISDSI Annual Conference, organized by Centre for Digital Economy, Indian Institute of Management Raipur, India, during 27-29 December, 2020.

Mahadeo Jaiswal
President ISDSI

Sumeet Gupta
Head, Centre for Digital Economy

Satyasiba Das
Conference Chair

INDIAN INSTITUTE OF MANAGEMENT RAIPUR
Atal Nagar, Naya Raipur, Chhattisgarh, India

Department Of Commerce,

Jesus and Mary College, University of Delhi

INTERNATIONAL CONFERENCE

SOCIAL MEDIA MARKETING-OPPORTUNITIES AND CHALLENGES

ICSMM'19

Certificate

This is to certify that Dr./Mr./Ms. Swati Anand of Babasaheb Bhimrao Ambedkar University, Lucknow presented a paper titled, 'A review on banking industry revamping with millennials captivated by the social media'

in the International Conference held on March 28-29, 2019.

Sr.(Dr.)Rosily T.L.r.j.m	Dr. Jyotsna Sethi	Dr. Sunita Kaistha	Dr. Rekha Dayal
PRINCIPAL	TEACHER-IN-CHARGE	CONVENOR	CONVENOR

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In quest of challenging assignments in Marketing/ Research & Development/Teaching with an organization of high repute

A BRIEF OVERVIEW

- ✓ A dynamic professional with over 7 years of rich experience in marketing and operations activities in banking industry with key focus on top-line & bottom-line profitability.
- ✓ Adept in introduction of new products, promotional and visibility plans, market surveys, etc. at regional levels in both southern and northern zones.
- ✓ Competent in driving growth, generating revenues, capturing market share and enhancing the value of products; gained experience in conceptualization & execution of marketing campaigns.
- ✓ An effective leader possessing a go-getter attitude with distinguished abilities in leading & motivating team.
- ✓ Pursuing Ph.D. in order to gain deeper insights into both intra and interdisciplinary field of management.

SKILLS

Operation Management	Data Analysis	Strategic Decision maker
Interpersonal Skills	Analytical Writing	Consumer Behavior

CAREER GRAPH

Work Experience:

Since July 2011: Bank of Baroda,

- *Probationary Officer , Gumti No. 5 branch, Kanpur, Lucknow.*
- *Credit Officer, Ambattur branch, Chennai, Tamil Nadu.*
- *Credit Officer, Mogappair branch, Chennai, Tamil Nadu.*
- *Operations Officer, Regional Back Office, Lucknow, Uttar Pradesh*

October 2018: Till Present (on Sabbatical Leave with NOC from Bank of Baroda to pursue Ph.D.)

- *Ph.D. Research Scholar, Babasaheb Bhimrao Ambedkar University, Lucknow.*

Key Learning

To manage the entire product portfolio of banking sector and rendering various services in crucial times when nationwide government schemes were rolled out like Jan Dhan, Demonetization, Aadhar campaigns, etc.

Summary:

- Responsible for managing efficiency in operations.
- Responsible for driving a healthy team work to reach a desired goal.
- Responsible to develop and plan marketing strategies to enhance the competitive position.
- Responsible for all customer communications.
- Responsible for preventing frauds.

PUBLISHED RESEARCH PAPERS

- Anand S, Mishra K, Verma V and Taruna T. Financial literacy as a mediator of personal financial health during COVID-19: A structural equation modelling approach [version 2; peer review: 2 approved] Emerald Open Research 2021, 2 :59 https://doi.org/10.35241/emeraldopenres.13735.2
- Verma, V., Anand, S., & Mishra, K. (2020). The Pathos and Logos Affecting Online Purchasing Behavior. *International Journal of Online Marketing*, *10*(4), 41–56. https://doi.org/10.4018/ijom.2020100103
- Anand, S. & Mishra, K. (2020). Strategic Technology Trends in Banks : Artificial Intelligence , Big Data and Competitive Advantage (ABC).*Bank Quest.* 32–38.

PAPERS PRESENTED

A Review on Banking Industry Revamping with Millennials Captivated by Social Media at an International Conference on the theme of Social Media Marketing- Opportunities & Challenges at Jesus & Mary College, University of Delhi.

Integrated Product Offerings of BFSI and Telecom Sector via Partnership in a Digital Ecosystem: A Case Study Approach at an International Conference on the theme of Building New Digital Ecosystem at India Institute of Management, Raipur.

ACADEMIA

2018	**UGC NET**
2018	**Ph.D. (Pursuing)**
2012	**UGC NET**
2011	**MBA** from **ICFAI BUSINESS SCHOOL, Gurgaon.**
2009	**B.Tech. (Biotechnology)** from **AMITY UNIVERSITY NOIDA, Uttar Pradesh.**

INTERNSHIP

Organization: Dabur India Limited,
Ghaziabad, Feb'10 – May'10
Internship Details:

- To explore the possibility of selling the Dabur products in Corporates, Gurgaon and to develop with the Bharat Gas chain in Delhi.

Organization: Biotech Park in Biotechnology City, Lucknow.
June'07 – July'07

Internship Details:

- A study on " Clusters of Orthologous Groups of Trypsin Protein" at Bioinformatics Centre, Biotech Park, Lucknow.

- Various Techniques and Protocols for Isolation of Human Genomic DNA and Other Molecular Techniques at Central Laboratory, IQRA Biotech Services, Human DNA Bank, Biotech Park, Lucknow.

BEYOND CURRICULUM

- Active Blood Donor in tie up with Rotary Club, Lucknow.
- Participated in '**Swachhta Pakhwara'** from 01.08.2019- 15.08.2019 under National Service Scheme.

ACHIEVEMENTS & ACCOLADES

- Awarded with JAIIB(Junior Associate of the Indian Institute of Bankers), CAIIB (Certified Associate of the Indian Institute of Bankers) certification in bank.
- Awarded with best branch for lowest NPA and best employee award.

MEMBERSHIPS

- Indian Institute of Banking & Finance
- Arts of Living & Isha Foundation

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