Chapter 6

NATURE AND EXTENT OF BEHAVIOURAL BIAS AMONG EQUITY MUTUAL FUND INVESTORS

Contents

6.1 Introduction

Standard finance theory relies upon two basic assumptions, namely, rationality and market efficiency. As per the assumptions of traditional economists, humans are rational beings who always try to maximise their utility. They believe that all known information has already been priced into an investment. The assumptions of traditional finance have been criticised on the grounds that human beings make decisions based on their emotions and behaviour and not merely on objective factors. These criticisms led to the evolution of behavioural finance.

Behavioural finance is an emerging field that integrates behavioural and cognitive psychology with financial decision-making processes (Parikh, 2009). It explores the "how and why" aspect of the thoughts and feelings of investors. Further, it explores the impact biases have on investors' decisions (Sulphey, 2014).

Behavioural biases can be classified into Cognitive biases and Emotional biases (Fernandes, Pena, & Tabak, 2010). Cognitive biases occur due to faulty reasoning or lack of understanding in the processing of information. Cognitive biases can be further classified into belief perseverance bias and information processing bias. Belief perseverance bias refers to the tendency of an individual to hold on to a set of beliefs even though they come across evidence that proves

otherwise. Belief perseverance bias can be further classified into several biases in which the researcher considers representativeness, confirmation, cognitive dissonance and illusion of control for the study. Information processing bias occurs when people make errors in thinking when processing information related to a financial decision. In information processing bias, anchoring, availability, self-attribution and mental accounting are considered for the study. Emotional biases occur spontaneously based on feelings, perceptions or beliefs that distort cognition and decision-making. Emotional biases include overconfidence, loss aversion, regret aversion and herd behaviour.

For analysing the extent of behavioural bias, data were collected from 390 equity mutual fund investors in Kerala. The present chapter and the following chapter involve primary data analysis regarding behavioural bias and investment performance. The researcher selected gender, age, marital status, educational qualification, occupation and experience in equity mutual fund investment as the socio-economic variables and checked their responses regarding different behavioural biases and investment performance. In the case of gender and marital status, the Independent sample 't-test is used for analysis as these variables have only two levels. As all other socio-economic variables possess more than two levels, ANOVA has been used to test the significant difference among the levels of variables.

The present chapter is divided into two sections, namely Section A and Section B. Section A deals with the profile of sample investors to understand their socio-economic characteristics and Section B deals with the primary data analysis.

SECTION A

6.2 Profile of Sample Investors

It is imperative to analyse the profile of sample investors before conducting the primary data analysis. It is presented below:

6.2.1 Gender-wise Classification of Sample Investors

Kerala has the highest sex ratio in India, which means that females outnumber males. The gender-wise classification of the sample investors is presented in table 6.1.

Table 6.1

Gender-wise Classification of Sample Investors

Gender	Frequency	Percent
Male	281	72.1
Female	109	27.9
Total	**390**	**100**

Source: Survey Data

Table 6.1 makes it clear that 281 (72.1%) of the sample investors are male and the remaining 109 (27.9%) are female. Despite the fact that females outnumber males in Kerala, female participation in equity mutual fund investment is very low.

6.2.2 Age-wise Classification of Sample Investors

Investors belonging to different age group exhibit different behavioural biases. Hence, analysing investors according to their age is inevitable. The age-wise classification of the sample investors is shown in table 6.2.

Table 6.2

Age-wise Classification of Sample Investors

Age (in years)	Frequency	Percent
Below 25	16	4.1
26 - 40	290	74.4
41 - 60	70	17.9
Above 60	14	3.6
Total	**390**	**100**

Source: Survey Data

From table 6.2, it can be inferred that out of 390 investors, 16 (4.1%) belong to the age group "below 25 years," 290 (74.4%) belong to the "26–40 years" category, 70 (17.9%) belong to the "41–60 years" category and 14 (3.6%) belong to “above 60 years” category. This makes it evident that the youth are more involved in equity mutual fund investments in Kerala.

6.2.3 Place of Domicile-wise Classification of the Sample Investors

The researcher categorised the place of domicile of investors as Municipal Corporations, Municipalities and Grama Panchayaths. Presently, there are 6 Municipal Corporations, 87 Municipalities and 941 Grama Panchayaths in Kerala. The investors are classified according to their place of domicile, which is presented in table 6.3.

Table 6.3

Place of Domicile-wise Classification of the Sample Investors

Place of Domicile	Frequency	Percent
Corporation	79	20.3
Municipality	116	29.7
Panchayath	195	50
Total	**390**	**100**

Source: Survey Data

Table 6.3 indicates that 79 (20.3%) of the sample investors reside in Municipal Corporations, 116 (29.7%) reside in Municipalities and 195 (50%) reside in Panchayaths.

6.2.4 Marital Status-wise Classification of Sample Investors

Married people are assumed to be more cautious in making investment decisions compared to the unmarried ones. In order to test this assumption, marital status-wise classification of sample investors is done and is presented in table 6.4.

Table 6.4

Marital Status-wise Classification of Sample Investors

Marital Status	Frequency	Percent
Married	270	69.2
Unmarried	120	30.8
Total	**390**	**100**

Source: Survey Data

The results imply that 270 (69.2%) of the sample investors are married and the remaining are unmarried. It makes it obvious that married individuals are more involved in equity mutual fund investment in Kerala.

6.2.5 Education-wise Classification of Sample Investors

Kerala is the most literate state in India. Education-wise classification of sample investors is presented in table 6.5.

Table 6.5

Education-wise Classification of Sample Investors

Educational Qualification	Frequency	Percent
Higher Secondary and Below	24	6.2
Graduate	118	30.3
Post Graduate	155	39.7
Professional	66	16.9
Vocational/Technical	27	6.9
Total	**390**	**100**

Source: Survey Data

The results indicate that 24 (6.2%) of the sample investors are undergraduates, 118 (30.3%) are graduates, 155 (39.7%) are post graduates, 66 (16.9%) are professionally qualified and 27 (6.9%) are technically qualified. From this, it is obvious that the majority of the sample investors are reasonably educated.

6.2.6 Occupation-wise Classification of Sample Investors

The occupation-wise classification of sample investors is given in table 6.6.

Table 6.6

Occupation-wise Classification of Sample Investors

Occupation	Frequency	Percent
Employed	263	67.4
Professional	70	17.9
Businessman	10	2.6
Retired	19	4.9
Others	28	7.2
Total	**390**	**100**

Source: Survey Data

The results indicate that 263 (67.4%) of the respondents are employed on a salaried basis, 70 (17.9%) are professionals, 10 (2.6%) are businessmen, 19 (4.9%) are retired and the rest 28 (7.2%) belong to other occupations.

6.2.7 Income-wise Classification of Sample Investors

It is imperative to examine the influence of investors' annual income on their investment decisions. To examine whether annual income of investors influence their investment decisions, the respondents are classified on the basis of their annual income which is shown in table 6.7.

Table 6.7
Income-wise Classification of Sample Investors

Annual income (Rs.)	Frequency	Percent
Less than 5,00,000	190	48.7
5,00,000 - 10,00,000	151	38.7
10,00,000 - 15,00,000	19	4.9
More than 15,00,000	30	7.7
Total	**390**	**100**

Source: Survey Data

The results indicate that 190 (48.7%) of the sample investors belong to the 'less than Rs. 5,00,000' category, 151 (38.7%) belong to the 'Rs. 5,00,000-10,00,0000' category, 19 (4.9%) belong to the 'Rs. 10,00,000-15,00,000' category and 30 (7.7%) belong to the 'more than Rs. 15,00,000' category. This indicates that the majority of equity fund investors in Kerala belong to lower-income groups.

6.2.8 Mutual fund Investment-wise Classification of Sample Investors

The amount of savings made by investors in mutual funds varies across individuals. Table 6.8 presents the annual mutual fund investment-wise classification of informants.

Table 6.8
Mutual fund Investment-wise Classification of Sample Investors

Annual Mutual fund Investment (Rs.)	Frequency	Percent
Less than 25,000	193	49.5
25,001 - 50,000	63	16.2
50,001 - 1,00,000	55	14.1
More than 1,00,000	79	20.3
Total	**390**	**100**

Source: Survey Data

It can be inferred from table 6.8, that 193 (49.5%) of the sample investors belong to the 'less than Rs. 25,000' category, 63 (16.2%) belong to the 'Rs. 25,001-50.000' category, 55 (14.1%) belong to the 'Rs. 50,001-1,00,000' category and 79 (20.3%) belong to the 'more than Rs. 1,00,000' category. The majority of investors tend to invest less than Rs. 25,000 in equity mutual funds on an annual basis.

6.2.9 Mutual Fund Investment Mode-wise Classification of Sample Investors

The different modes of investing in equity mutual funds are lumpsum and systematic investment plans. Lumpsum mode of investment refers to investing entire money in one-time. Systematic investment plans refer to investing a fixed amount of money at pre-defined intervals in the selected mutual fund scheme. Investors are classified according to their mode of mutual fund investment and the results are presented in Table 6.9.

Table 6.9

Mutual Fund Investment Mode-wise Classification of Sample Investors

Investment Mode	Frequency	Percent
Lumpsum	69	17.7
SIP	229	58.7
Lump sum and SIP	92	23.6
Total	**390**	**100**

Source: Survey Data

The results indicate that 69 (17.7%) of the sample investors resort to the lumpsum mode of investment, 229 (58.7%) invest through SIPs and 92 (23.6%) invest through both modes of investment. The majority of investors were found to invest through the SIP mode of investment.

6.2.10 Investment Experience-wise Classification of Sample Investors

More experienced investors are assumed to outperform less experienced investors. In order to check this assumption, investors are classified according to their experience in mutual fund investment. The results are presented in table 6.10.

Table 6.10

Investment Experience-wise Classification of Sample Investors

Investment Experience (in years)	Frequency	Percent
Less than 1	82	21.0
1-3	128	32.8
3-5	46	11.8
Above 5	134	34.4
Total	**390**	**100**

Source: Survey Data

It can be inferred that 82 (21%) sample investors have experience of less than 1 year, 128 (32.8%) have experience of 1-3 years, 46 (11.8%) have experience of 3-5 years and 134 (34.4%) have experience of more than 5 years.

SECTION B

In order to analyse the extent of behavioural biases, a five-point Likert scale is developed and the respondents are asked to rate the statements on a scale ranging from strongly agree (5) to strongly disagree (1). Statements B1 to B4 are used to explore representativeness bias, statements B21 to B22 are used to study cognitive dissonance, statements B26 to B29 are used to examine confirmation bias and statements B42 to B44 are used to check illusion of control bias. All these statements collectively represent belief perseverance bias.

Statements B11 to B15 are used to explore anchoring bias, statements B16 to B20 to examine availability bias, statements B23 to B25 to analyse self-attribution bias, and statements B45 and B46 are used to check mental accounting bias. All these statements together constitute information processing bias.

Statements B5 to B10 are used to study overconfidence bias, statements B30 to B33 are used to examine loss aversion bias, statements B34 to B36 are used to analyse regret aversion bias and statements B37 to B41 are used to check herding bias. All these statements collectively constitute emotional bias. The mean values and standard deviations of the statements are given in Table 6.11.

Table 6.11
Statements of Behavioural Bias

Statement code	Statements	Mean	Standard Deviation
B1	I make investment decisions by monitoring the performance of a few samples.	3.62	1.02
B2	I invest in funds that have performed better recently.	3.51	.98
B3	I avoid investing in funds that have performed poorly in the recent past.	3.67	1.06
B4	I prefer to buy hot stocks instead of poorly performed stocks.	3.61	1.04
B5	I have sufficient knowledge about the Indian mutual fund industry.	3.66	.89
B6	My experience in trading with funds helps me choose funds that outperform the market.	3.57	1.00
B7	I have confidence in my ability to pick better funds.	3.64	.91
B8	I never commit mistakes while making investment decisions.	3.28	1.02
B9	I believe that I can master the future trend of my investment.	3.56	.96
B10	I think that market trends are often consistent with my perspectives.	3.50	1.00
B11	I rely heavily on one piece of information in making investment decision.	3.02	1.02
B12	I forecast the changes in net asset value of funds in the future based on the recent net asset values.	3.23	.95
B13	I invest in a fund because I heard good news about it when I decided to make an investment.	3.17	1.19
B14	I become more optimistic when the market rises.	3.47	1.01
B15	I become more pessimistic when the market falls.	3.10	1.00
B16	I make investment decisions based on available information.	3.67	.91
B17	I give more importance to current information when I make investment decisions.	3.47	1.02
B18	I select the funds of companies which I already know.	3.73	.89
B19	I consider the information from friends and relatives as a reliable reference for my investment decisions.	3.17	1.23
B20	I prefer to invest in already known funds.	3.63	.91
B21	I hold the funds when the price decreases, even if it increases the loss.	3.58	1.00
B22	I invest in funds that I already own, even if their NAV goes down, to justify my investment decision.	3.46	.97
B23	I believe that I get profit on investment due to my skill.	3.37	.89
B24	The NAV of funds, which I selected by studying myself, increases.	3.47	.78
B25	The NAV of funds, which I selected due to others' recommendations, falls.	3.07	.73
B26	I collect maximum information from experts about funds, to confirm my investment decisions.	3.53	1.00
B27	I study the nature of funds and search for information while making investments.	3.78	.90
B28	I seek market news that confirms my investment decision as correct.	3.65	.99
B29	When an investment is not going well, I usually seek information that confirms I made the right decision about it.	3.60	1.09

(Contd.)

Statement code	Statements	Mean	Standard Deviation
B30	I seek more risk after a prior gain.	3.30	.94
B31	I become more risk averse after a prior loss.	3.20	.95
B32	The pain of financial loss is greater than the pleasure of financial gain.	3.55	.94
B33	I prefer to invest in high-performing funds.	3.70	.87
B34	I tend to hold onto losing funds too long, hoping for a reversal.	3.39	.90
B35	I used to sell winning funds too soon.	3.19	.934
B36	I feel more sorrow about holding onto losing funds too long than about selling winning funds too soon.	3.26	1.05
B37	I buy funds in times of bullish trends.	3.00	1.09
B38	I sell funds in times of bearish trends.	3.09	1.03
B39	I invest in funds in which my friends invest.	3.15	1.11
B40	My investment decisions are influenced by the investment behaviour of the majority.	3.18	1.06
B41	I would follow the market information to trade.	3.65	.91
B42	I believe I have greater control over my investment.	3.57	.87
B43	I can predict the market in a more logical manner.	3.21	1.05
B44	I tend to invest more when I am successful in my previous investment.	3.49	1.01
B45	I tend to treat each element of my investment portfolio separately.	3.62	.85
B46	I save a part of my income for investing in the stock market.	3.93	.89

Source: Survey Data

Table 6.11 implies that the statement 'I save a part of my income for investing in the stock market' have the highest mean score of 3.93 (SD 0.89) followed by the statement 'I study the nature of funds and search for information while making investments' with mean score of 3.78 (SD 0.90). The statement 'I buy funds in times of bullish trends' has the lowest mean score of 3.00 (SD 1.09).

Table 6.12

Descriptive Statistics of Different Types of Behavioural Bias

Types of Bias	Mean	Standard Deviation
Belief Perseverance Bias	3.56	0.68
Information Processing Bias	3.41	0.63
Emotional Bias	3.38	0.63

Source: Survey Data

The results indicate that the mean scores of all the types of behavioural bias are higher than 3.3 (65%), which implies that the equity mutual fund investors in Kerala possess an above-average level of behavioural bias while making

investment decisions. Belief perseverance bias has the highest mean score of 3.56 (SD 0.68) indicating that it has 71% influence among investors in Kerala. The lowest mean score is in the case of emotional bias which is 3.38 (SD 0.63) which has an average influence of 68% among investors in Kerala.

6.3 Influence of Socio-Economic factors on different types of Behavioural Bias

Behavioural biases may vary across individuals based on their socio-economic characteristics. In this section, socio-economic variables such as gender, age, marital status, education, occupation, annual income and experience in mutual fund investment have been used to examine the variability of behavioural bias among different categories of equity mutual fund investors.

6.3.1 Gender-wise Analysis of Behavioural Bias

Male and female investors may have different levels of behavioural biases. Descriptive analysis has been done to determine the mean score of males and females with regard to behavioural bias. Then, the 't test' was applied to analyse the significance of difference between the means of male and female investors.The homogeneity of variance has been tested using Levene's test. Table 6.13 presents the results of the t-test.

Table 6.13

Gender-wise Analysis of Behavioural Bias

Gender	N	Mean	SD	t value	Max Score	*p*-value	Remarks
Male	281	163.81	28.36				
Female	109	143.95	21.41	7.475**	230	0.000	Equal variances not assumed
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

** Statistically significant at 1% significant level

From table 6.13, it can be seen that out of a maximum score of 230, the mean score of male and female investors combined is 158.26 (SD 28.03), which indicates that on an average the investors are affected 69% by behavioural bias while making investment decisions. The behavioural bias among male investors has a mean score of 163.81 (SD 28.36). The mean score of behavioural bias among female investors is 143.95 (SD 21.41). Independent sample t-test is used to check

whether significant difference exists among the mean scores of male and female investors in respect of behavioural bias. Since the equal variance assumption is rejected, the researcher considers the results that assume unequal variance.

Table 6.13 makes it clear that there is significant difference between male and female investors with regard to behavioural bias, as the *p*-value is significant at 1% level. The results indicate that male investors are more affected by behavioural bias, as the mean score of male investors is higher compared to female investors.

The researcher also tests whether significant difference exists between male and female investors with respect to different types of behavioural bias. In the case of information processing bias and emotional bias, the equal variance assumption is rejected and the results which assume unequal variance have been considered for the study. The results are presented in table 6.14.

Table 6.14
Gender-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Gender	N	Mean	SD	t value	Max Score	*p*-value	Remarks
Belief Perseverance Bias	Male	281	47.78	8.55	5.715**	65	0.000	Equal variances assumed
	Female	109	42.33	8.15				
	Total	**390**	**46.25**	**8.77**				
Information Processing Bias	Male	281	52.65	9.94	6.146**	75	0.000	Equal variances not assumed
	Female	109	47.25	6.77				
	Total	**390**	**51.14**	**9.47**				
Emotional Bias	Male	281	63.40	11.45	8.712**	90	0.000	Equal variances not assumed
	Female	109	54.37	8.14				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data
** Statistically significant at 1% significant level

From table 6.14, it is clear that all three types of behavioural bias have a significant difference between male and female investors as their *p*-values are less than .05.

The mean score of the belief perseverance bias of the male investors, 47.78, with a standard deviation of 8.55, is higher than that of the female investors, with a mean of 42.33 and a standard deviation of 8.15. This implies that male investors are more prone to the belief perseverance bias than female investors. Similarly, in

the case of information processing bias and emotional bias, the mean score of male investors is higher compared to their female counterparts, making it evident that male investors are more affected by belief perseverance bias.

6.3.2 Age-wise Analysis of Behavioural Bias

Investors' levels of behavioural bias may differ across age groups. In order to know the mean score of the behavioural bias of investors among different age categories, a descriptive analysis has been done. Then, ANOVA is applied to check whether there is a significant difference among different age categories of investors with respect to behavioural bias.

Table 6.15 presents the age-wise test of homogeneity of variances of behavioral bias among investors.

Table 6.15

Age-wise Test of Homogeneity of Variances of Behavioural Bias

Variable	Levens's Statistic	*p*-value
Behavioural Bias	15.295**	0.000

Source: Survey Data

** Statistically significant at 1% significant level

Since the *p*-value of the test is less than 0.05, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are shown in table 6.16.

Table 6.16

Age-wise Analysis of Behavioural Bias

Age (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Below 25	16	177.31	41.66	230	3.048*	0.040	Welch
26 – 40	290	158.87	28.47				
41 – 60	70	152.60	22.26				
Above 60	14	152.14	13.96				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

* Statistically significant at 5% significant level

The results indicate that there exists a significant difference among the age group of investors with regard to behavioural bias, as the *p*-value is significant at the 5% level. Investors belonging to the age group below 25 years possess the highest mean score of 177.31 (SD 41.66) and investors who are above 60 years of age have the lowest mean score of 152.14 (SD 13.96). From this, it is obvious that young investors are more influenced by behavioural bias, whereas older investors are least affected by behavioural bias while making investment decisions.

For a more specific analysis, a descriptive analysis of the types of behavioural bias with respect to the age category of investors is performed. ANOVA is applied to determine the significant difference among the age group of investors with regard to different types of behavioural bias. Table 6.17 presents the age-wise test of homogeneity of variances for different types of behavioural bias among investors.

Table 6.17

Age-wise Test of Homogeneity of Variances of Types of Behavioural Bias

Variables	Levens's Statistic	*p*-value
Belief Perseverance Bias	11.995**	0.000
Information Processing Bias	12.058**	0.000
Emotional Bias	14.042**	0.000

Source: Survey Data

** Statistically significant at 1% significant level

Since the *p*-value of the test is less than 0.05 for all the types, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.18.

Table 6.18

Age-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Age (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Belief Perseverance Bias	Below 25	16	50.63	12.34	65	1.525	0.225	Welch
	26 – 40	290	46.36	9.07				
	41 – 60	70	44.87	6.61				
	Above 60	14	45.93	5.84				
	Total	**390**	**46.25**	**8.77**				
Information Processing Bias	Below 25	16	57.00	15.19	75	3.106*	0.038	Welch
	26 – 40	290	51.44	9.32				
	41 – 60	70	49.04	8.55				
	Above 60	14	48.64	4.92				
	Total	**390**	**51.14**	**9.47**				
Emotional Bias	Below 25	16	69.69	15.40	90	4.958**	0.005	Welch
	26 – 40	290	61.07	11.68				
	41 – 60	70	58.69	8.74				
	Above 60	14	57.57	4.05				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.18 shows the significant difference among different age groups of investors with respect to the different types of behavioural bias. The results indicate that there is no significant difference among the age group of investors with regard to belief perseverance bias, as the *p*-value is greater than 0.05. The *p*-values of information processing bias and emotional bias are 0.038 and 0.005, respectively. This makes it evident that a significant difference exists among investors' age categories with regard to information processing bias and emotional bias.

6.3.3 Education-wise Analysis of Behavioural Bias

Investors with different educational qualifications may possess different levels of behavioural bias. In order to know the mean score of different education levels with regard to behavioural bias, descriptive analysis has been done. Further, to test the significant difference among education levels, ANOVA is applied. The homogeneity of variances has been tested using Levene's test, which is presented in Table 6.19.

Table 6.19

Education-wise Test of Homogeneity of Variances of Behavioural Bias

Variable	Levens's Statistic	*p*-value
Behavioural Bias	8.001**	.000

Source: Survey Data

** Statistically significant at 1% significant level

Since the *p*-value of the test is less than 0.05, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.20.

Table 6.20

Education-wise Analysis of Behavioural Bias

Education	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Higher Secondary and Below	24	174.88	33.56	230	19.025**	.000	Welch
Graduate	118	159.45	30.04				
Post Graduate	155	162.28	25.20				
Professional	66	138.41	19.93				
Vocational/Technical	27	163.78	25.53				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

** Statistically significant at 1% significant level

The *p*-value is less than .05 indicating that there is a significant difference among different education levels of investors. While analysing the mean score, it is understood that undergraduates possess the highest mean score of 174.88 (SD 33.56), followed by investors who are technically qualified. Professionally qualified investors have the lowest mean score of 138.41 (SD 19.93). This indicates that investors with the lowest qualifications are more affected by behavioural bias while making investment decisions, whereas professionally qualified investors are least affected by behavioural bias. Post hoc analysis is done for multiple comparisons to find out the exact difference among the groups. Since equal variances are not assumed, Tamhane's T2 test has been used to determine the pair-wise differences among the groups. The results are depicted in table 6.21.

Table 6.21

Education-wise Post Hoc Test – Behavioural Bias

Education (I)	Education (J)	Mean Difference (I-J)	Std. Error	*p*-value
Higher Secondary and Below	Graduate	15.42585	7.38822	.370
	Post Graduate	12.59758	7.14400	.607
	Professional	36.46591**	7.23670	.000
	Vocational/Technical	11.09722	8.43056	.886
Graduate	Higher Secondary and Below	-15.42585	7.38822	.370
	Post Graduate	-2.82827	3.42688	.995
	Professional	21.04006**	3.61616	.000
	Vocational/Technical	-4.32863	5.63748	.997
Post Graduate	Higher Secondary and Below	-12.59758	7.14400	.607
	Graduate	2.82827	3.42688	.995
	Professional	23.86833**	3.08666	.000
	Vocational/Technical	-1.50036	5.31338	1.000
Professional	Higher Secondary and Below	-36.46591**	7.23670	.000
	Graduate	-21.04006**	3.61616	.000
	Post Graduate	-23.86833**	3.08666	.000
	Vocational/Technical	-25.36869**	5.43738	.000
Vocational/Technical	Higher Secondary and Below	-11.09722	8.43056	.886
	Graduate	4.32863	5.63748	.997
	Post Graduate	1.50036	5.31338	1.000
	Professional	25.36869**	5.43738	.000

Source: Survey Data

** Statistically significant at 1% significant level

The results imply that there exists a significant difference in the education of investors between professionally qualified investors with all other categories of investors with regard to behavioural bias. The investors who belong to the 'higher secondary and below' category have the highest mean score, followed by technically qualified investors. Hence, it can be concluded that investors with the lowest educational qualifications are more prone to behavioural bias.

For a more specific analysis, a descriptive analysis of the types of behavioural bias with respect to the educational qualifications of investors is done. Further, ANOVA is used to check whether a significant difference exists among investors belonging to different educational backgrounds with regard to different types of behavioural bias. Levene's test is used to examine the homogeneity of variances in investors' education with regard to various types of behavioural bias.

Table 6.22

Education-wise Test of Homogeneity of Variances of Types of Behavioural Bias

Variables	Levens's Statistic	*p*-value
Belief Perseverance Bias	3.932**	.004
Information Processing Bias	10.874**	.000
Emotional Bias	2.514*	.041

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.22 reveals that the *p*-value of the test is less than 0.05 for all the types of behavioural bias and hence, the assumption of equal variance is rejected. So, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.23.

Table 6.23

Education-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Education	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Belief Perseverance Bias	Higher Secondary and Below	24	48.63	10.24	65	9.456	0.000	Welch
	Graduate	118	46.32	9.28				
	Post Graduate	155	47.80	7.98				
	Professional	66	41.05	7.63				
	Vocational/ Technical	27	47.67	7.69				
	Total	**390**	**46.25**	**8.78**				
Information Processing Bias	Higher Secondary and Below	24	56.92	11.46	75	14.588	0.000	Welch
	Graduate	118	51.63	10.69				
	Post Graduate	155	52	8.48				
	Professional	66	45.61	5.81				
	Vocational/ Technical	27	52.44	9.27				
	Total	**390**	**51.14**	**9.47**				
Emotional Bias	Higher Secondary and Below	24	69.33	12.71	90	22.626	0.000	Welch
	Graduate	118	61.50	11.30				
	Post Graduate	155	62.48	10.56				
	Professional	66	51.76	8.35				
	Vocational/ Technical	27	63.67	8.87				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

** Statistically significant at 1% significant level

The results indicate that there is a significant difference among investors' levels of education, as the *p*-values of all the biases are less than 0.05. Hence it can be concluded that there exists a significant difference among investors' levels of education with regard to the types of behavioural bias.

To find out the exact difference among the categories of education level, multiple comparisons have been done using post hoc analysis.

Education-wise Multiple Comparisons: Types of Behavioural Bias

Welch's F tests show that there exists a significant difference among the educational qualifications of investors with regard to all the types of behavioural bias. Post hoc test is done to explore the exact difference among the educational qualification of investors.

1. Belief Perseverance Bias

Tamhane's T2 test is done to know the exact significant difference among the educational qualification of investors with regard to belief perseverance bias. The results are given in table 6.24.

Table 6.24

Education-wise Post Hoc Test – Belief Perseverance Bias

Education (I)	Education (J)	Mean Difference (I-J)	Std. Error	*p*-value
Higher Secondary and Below	Graduate	2.30297	2.25726	.977
	Post Graduate	.82500	2.18532	1.000
	Professional	7.57955*	2.29064	.023
	Vocational/Technical	.95833	2.55994	1.000
Graduate	Higher Secondary and Below	-2.30297	2.25726	.977
	Post Graduate	-1.47797	1.06785	.840
	Professional	5.27658**	1.26954	.001
	Vocational/Technical	-1.34463	1.70821	.997
Post Graduate	Higher Secondary and Below	-.82500	2.18532	1.000
	Graduate	1.47797	1.06785	.840
	Professional	6.75455**	1.13672	.000
	Vocational/Technical	.13333	1.61195	1.000
Professional	Higher Secondary and Below	-7.57955*	2.29064	.023
	Graduate	-5.27658**	1.26954	.001
	Post Graduate	-6.75455**	1.13672	.000
	Vocational/Technical	-6.62121**	1.75209	.004

(Contd.)

Education (I)	Education (J)	Mean Difference (I-J)	Std. Error	*p*-value
Vocational/Technical	Higher Secondary and Below	-.95833	2.55994	1.000
	Graduate	1.34463	1.70821	.997
	Post Graduate	-.13333	1.61195	1.000
	Professional	6.62121**	1.75209	.004

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The results in table 6.24 indicate that there exists a significant difference between professionally qualified investors with all other categories. The investors who belong to the 'higher secondary and below' category have the highest mean score. Hence, it can be concluded that undergraduates are more prone to belief perseverance bias.

2. Information Processing Bias

As the equal variance assumption is rejected, Tamhane's T2 test is done to explore the exact significant difference among the educational levels of investors with regard to information processing bias. The results are given in Table 6.25.

Table 6.25

Education-wise Post Hoc Test – Information Processing Bias

Education (I)	Education (J)	Mean Difference (I-J)	Std. Error	*p*-value
Higher Secondary and Below	Graduate	5.28955	2.53831	.371
	Post Graduate	4.91667	2.43696	.424
	Professional	11.31061**	2.44657	.001
	Vocational/Technical	4.47222	2.94190	.767
Graduate	Higher Secondary and Below	-5.28955	2.53831	.371
	Post Graduate	-.37288	1.19713	1.000
	Professional	6.02106**	1.21657	.000
	Vocational/Technical	-.81733	2.03694	1.000
Post Graduate	Higher Secondary and Below	-4.91667	2.43696	.424
	Graduate	.37288	1.19713	1.000
	Professional	6.39394**	.98782	.000
	Vocational/Technical	-.44444	1.90915	1.000
Professional	Higher Secondary and Below	-11.31061**	2.44657	.001
	Graduate	-6.02106**	1.21657	.000
	Post Graduate	-6.39394**	.98782	.000
	Vocational/Technical	-6.83838**	1.92141	.011

(Contd.)

Education (I)	Education (J)	Mean Difference (I-J)	Std. Error	*p*-value
Vocational/Technical	Higher Secondary and Below	-4.47222	2.94190	.767
	Graduate	.81733	2.03694	1.000
	Post Graduate	.44444	1.90915	1.000
	Professional	6.83838*	1.92141	.011

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The post hoc test results of information processing bias imply that significant differences exist between professionally qualified investors with all other categories. The mean score is highest for investors with 'higher secondary and below' educational qualification, indicating that investors with the lowest educational qualification are more prone to information processing bias.

3. Emotional Bias

Since the assumption of equal variance is rejected, Tamhane's T2 test is done to explore the exact significant difference among the educational qualification of investors with regard to emotional bias. The results are given in table 6.26.

Table 6.26

Education-wise Post Hoc Test – Emotional Bias

Education (I)	Education(J)	Mean Difference (I-J)	Std. Error	*p*-value
Higher Secondary and Below	Graduate	7.83333	2.79576	.084
	Post Graduate	6.85591	2.73017	.167
	Professional	17.57576**	2.79102	.000
	Vocational/Technical	5.66667	3.10626	.544
Graduate	Higher Secondary and Below	-7.83333	2.79576	.084
	Post Graduate	-.97742	1.34219	.998
	Professional	9.74242**	1.46201	.000
	Vocational/Technical	-2.16667	1.99912	.965
Post Graduate	Higher Secondary and Below	-6.85591	2.73017	.167
	Graduate	.97742	1.34219	.998
	Professional	10.71984**	1.33230	.000
	Vocational/Technical	-1.18925	1.90632	1.000
Professional	Higher Secondary and Below	-17.57576**	2.79102	.000
	Graduate	-9.74242**	1.46201	.000
	Post Graduate	-10.71984**	1.33230	.000
	Vocational/Technical	11.90909**	1.99249	.000

(Contd.)

Education (I)	Education(J)	Mean Difference (I-J)	Std. Error	*p*-value
Vocational/Technical	Higher Secondary and Below	-5.66667	3.10626	.544
	Graduate	2.16667	1.99912	.965
	Post Graduate	1.18925	1.90632	1.000
	Professional	11.90909**	1.99249	.000

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

In the case of emotional bias, there exists a significant difference between professionally qualified investors with all the other categories of investors. The mean score indicates that undergraduates possess the highest mean score. This implies that investors who have the lowest educational qualifications are more prone to emotional bias.

6.3.4 Occupation-wise Analysis of Behavioural Bias

The level of behavioural bias may vary according to investors' occupations. In order to know the mean score of investors with different occupations, descriptive analysis has been done. Levene's test is used to check the homogeneity of variances. Further, ANOVA is applied to test the significant difference among investors' occupations with regard to behavioural bias.

The results of occupation-wise test of homogeneity of variance of behavioural bias among investors are depicted in Table 6.27.

Table 6.27

Occupation-wise Test of Homogeneity of Variances of Behavioural Bias

Variable	Levens's Statistic	*p*-value
Behavioural Bias	5.747**	.000

Source: Survey Data

** Statistically significant at 1% significant level

Since the *p*-value of the test is less than 0.05, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.28.

Table 6.28

Occupation-wise Analysis of Behavioural Bias

Occupation	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Employed	263	160.54	29.79	230	6.073**	.001	Welch
Professional	70	159.56	23.76				
Businessman	10	139.40	15.86				
Retired	19	147.84	21.45				
Others	28	147.43	22.17				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

** Statistically significant at 1% significant level

The results indicate that there exists a significant difference among investors' occupations with regard to behavioural bias, as the *p*-value is less than 0.05. The employed investors have the highest mean score of 160.54 (SD 29.79) and businessmen have the lowest mean score of 139.40 (SD 15.86). The results imply that investors who are employed are more prone to behavioural bias, whereas businessmen are the least affected category. To find out the significant difference among the groups, post hoc analysis has been done. Since there is no equality of variance, Tamhane's T2 test has been used to determine the pair-wise differences among the groups.

Table 6.29

Occupation-wise Post Hoc Test – Behavioural Bias

Occupation (I)	Occupation (J)	Mean Difference (I-J)	Std. Error	*p*-value
Employed	Professional	.98278	3.38229	1.000
	Businessman	21.13992*	5.34170	.020
	Retired	12.69782	5.25223	.214
	Others	13.11135	4.57441	.065
Professional	Employed	-.98278	3.38229	1.000
	Businessman	20.15714*	5.76421	.031
	Retired	11.71504	5.68139	.386
	Others	12.12857	5.06137	.184
Businessman	Employed	-21.13992*	5.34170	.020
	Professional	-20.15714*	5.76421	.031
	Retired	-8.44211	7.02653	.937
	Others	-8.02857	6.53540	.929

(Contd.)

Occupation (I)	Occupation (J)	Mean Difference (I-J)	Std. Error	*p*-value
Retired	Employed	-12.69782	5.25223	.214
	Professional	-11.71504	5.68139	.386
	Businessman	8.44211	7.02653	.937
	Others	.41353	6.46247	1.000
Others	Employed	-13.11135	4.57441	.065
	Professional	-12.12857	5.06137	.184
	Businessman	8.02857	6.53540	.929
	Retired	-.41353	6.46247	1.000

Source: Survey Data

** Statistically significant at 1% significant level

The results in table 6.29 imply that there exists a significant difference in the occupation of investors between businessmen with investors who are employed on a regular basis and professionals. The mean score is highest for employed investors, making it evident that employed investors are more affected by behavioural bias.

For a more specific analysis, a descriptive analysis of different types of behavioural bias with respect to the occupation of investors is done. Further, ANOVA is used to check whether a significant difference exists among investors having different occupations with regard to the types of behavioural bias. Levene's test is used to examine investors' occupation-wise homogeneity of variances with regard to different types of behavioural bias.

Table 6.30

Occupation-wise Test of Homogeneity of Variances of Types of Behavioural Bias

Variables	Levens's Statistic	*p*-value
Belief Perseverance Bias	2.819*	0.025
Information Processing Bias	2.146	0.074
Emotional Bias	7.272**	0.000

Source: Survey Data

*, ** Statistically significant at 5% and 1% significant level

The equality of variance assumption is accepted in the case of information processing bias as the *p*-value is greater than 0.05. So, ANOVA is applied to test

the significance of differences among different occupations of investors with regard to information processing bias. Since the *p*-value of the test is less than 0.05 for belief perseverance bias and emotional bias, the assumption of the equality of variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.31.

Table 6.31

Occupation-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Occupation	N	Mean	SD	Max Score	Welch F/ F Value	*p*-value	Remarks
Belief Perseverance Bias	Employed	263	46.58	9.25	65	1.422	.243	Welch
	Professional	70	46.77	7.25				
	Businessman	10	42.40	7.20				
	Retired	19	44.26	7.06				
	Others	28	44.61	9.01				
	Total	**390**	**46.25**	**8.77**				
Information Processing Bias	Employed	263	52.12	9.73	75	3.829	.005	ANOVA
	Professional	70	50.81	8.92				
	Businessman	10	44.40	5.87				
	Retired	19	46.68	8.80				
	Others	28	48.18	7.72				
	Total	**390**	**51.14**	**9.47**				
Emotional Bias	Employed	263	61.84	12.14	90	11.041	.000	Welch
	Professional	70	61.97	9.54				
	Businessman	10	52.60	4.93				
	Retired	19	56.89	6.31				
	Others	28	54.64	8.71				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.31 shows the significant difference among different occupations of investors with regard to the types of behavioural bias. The results indicate that there is no significant difference among occupations of investors with regard to belief perseverance bias as the *p*-value is greater than 0.05. Whereas, the *p*-values of the ANOVA and Welch F tests of the information processing bias and emotional bias are 0.005 and 0.000, respectively. This shows that there exists a significant difference among investors' occupations with regard to information processing bias and emotional bias. A post hoc test is used to examine the exact difference among the occupations of investors.

Occupation-wise Multiple Comparisons: Types of Behavioural Bias

As the significant difference among investors' occupations with regard to information processing bias and emotional bias is figured out, a post hoc test is done to explore the exact difference among the occupations of investors.

1. Information processing bias

Since equal variances are assumed, the Tukey HSD test is used to check the pair-wise differences among the occupations of investors with regard to information processing bias.

Table 6.32

Occupation-wise Post Hoc Test – Information Processing Bias

Occupation (I)	Occupation (J)	Mean Difference (I-J)	Std. Error	*p*-value
Employed	Professional	1.30359	1.25609	.838
	Businessman	7.71787*	1.95154	.022
	Retired	5.43366	2.21869	.105
	Others	3.93930	1.85659	.213
Professional	Employed	-1.30359	1.25609	.838
	Businessman	6.41429	3.15735	.253
	Retired	4.13008	2.41599	.429
	Others	2.63571	2.08839	.715
Businessman	Employed	-7.71787*	1.95154	.022
	Professional	-6.41429	3.15735	.253
	Retired	-2.28421	3.64879	.971
	Others	-3.77857	3.44064	.807
Retired	Employed	-5.43366	2.21869	.105
	Professional	-4.13008	2.41599	.429
	Businessman	2.28421	3.64879	.971
	Others	-1.49436	2.77600	.983
Others	Employed	-3.93930	1.85659	.213
	Professional	-2.63571	2.08839	.715
	Businessman	3.77857	3.44064	.807
	Retired	1.49436	2.77600	.983

Source: Survey Data

* Statistically significant at 5% significant level

Table 6.32 reveals that there exists significant difference between the investors who are employed and the businessmen with regard to information processing bias, as the *p*-values is less than 0.05.

2. Emotional bias

Since equal variances are not assumed, Tamhane'sT2 test is used to check the pair-wise differences among the occupations of investors with regard to emotional bias.

Table 6.33

Occupation-wise Post Hoc Test – Emotional Bias

Occupation (I)	Occupation (J)	Mean Difference (I-J)	Std. Error	*p*-value
Employed	Professional	-.12732	1.36406	1.000
	Businessman	9.24411**	1.72821	.001
	Retired	4.94937*	1.63060	.049
	Others	7.20125**	1.80821	.003
Professional	Employed	.12732	1.36406	1.000
	Businessman	9.37143**	1.93062	.001
	Retired	5.07669	1.84375	.083
	Others	7.32857**	2.00254	.006
Businessman	Employed	-9.24411**	1.72821	.001
	Professional	-9.37143**	1.93062	.001
	Retired	-4.29474	2.12731	.435
	Others	-2.04286	2.26632	.991
Retired	Employed	-4.94937*	1.63060	.049
	Professional	-5.07669	1.84375	.083
	Businessman	4.29474	2.12731	.435
	Others	2.25188	2.19280	.976
Others	Employed	-7.20125**	1.80821	.003
	Professional	-7.32857**	2.00254	.006
	Businessman	2.04286	2.26632	.991
	Retired	-2.25188	2.19280	.976

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.33 reveals that in the case of emotional bias, there exists a significant difference between employed investors with all other categories of occupations except professionals. Furthermore, a significant difference exists between professionals with businessmen and investors who resort to other occupations. While analysing the mean difference, it is understood that professionals are highly affected by emotional bias and businessmen are the least affected.

6.3.5 Marital Status-wise Analysis of Behavioural Bias

The level of behavioural bias may vary according to the marital status of investors. Descriptive analysis has been done to find out the mean score of behavioural bias of married and unmarried investors. In order to explore the significant difference between married and unmarried investors, 't' test has been applied. The results are presented in table 6.34.

Table 6.34

Marital Status-wise Analysis of Behavioural Bias

Marital Status	N	Mean	SD	t value	Max Score	*p*-value	Remarks
Married	270	154.16	25.98	-4.193**	230	0.000	Equal variances not assumed
Unmarried	120	167.51	30.30				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

** Statistically significant at 1% significant level

From table 6.34, it is understood that the *p*-value of the t-test is less than 0.05. Hence, there exists a significant difference between married and unmarried investors. The mean score of married investors is 154.16 (SD 25.98), whereas, the mean score of unmarried investors is 167.51 (30.30). This indicates that unmarried investors are highly affected by behavioural bias.

Since the *p*-value of the t-test is less than 0.05, a significant difference is found to exist between married and unmarried investors with respect to behavioural bias. Furthermore, unmarried investors are more affected by behavioural bias than married investors.

The researcher also tests whether a significant difference exists between married and unmarried investors with respect to different types of behavioural bias. In the case of information processing bias and emotional bias, the equal variance assumption is rejected and the results that assume unequal variance have been considered for the study. The results are presented in table 6.35.

Table 6.35

Marital Status-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Marital Status	N	Mean	SD	t value	Max Score	*p*-value	Remarks
Belief Perseverance Bias	Married	270	45.16	8.46	-3.748**	65	0.000	Equal variances assumed
	Unmarried	120	48.71	9.02				
	Total	**390**	**46.25**	**8.77**				
Information Processing Bias	Married	270	49.86	8.64	-3.771**	75	0.000	Equal variances not assumed
	Unmarried	120	54.02	10.61				
	Total	**390**	**51.14**	**9.47**				
Emotional Bias	Married	270	59.13	10.71	-4.471**	90	0.000	Equal variances not assumed
	Unmarried	120	64.78	11.86				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

** Statistically significant at 1% significant level

The results make it evident that all three types of behavioural bias show a significant difference between married and unmarried investors since the *p*-values are less than 0.05. The results imply that the mean score of unmarried investors is higher than that of the married investors. Hence, it can be concluded that unmarried investors are more prone to behavioural bias.

6.3.6 Income-wise Analysis of Behavioural Bias

Investors with different income levels may possess different levels of behavioural bias. To know the mean score of the behavioural bias of investors among different income levels, a descriptive analysis has been done. Then ANOVA is applied to check whether there is a significant difference among the annual income categories of investors with respect to behavioural bias. Levene's test is used to check the homogeneity of variances.

Table 6.36

Income-wise Test of Homogeneity of Variances of Behavioural Bias

Variable	Levens's Statistic	*p*-value
Behavioural Bias	3.607*	0.014

Source: Survey Data

*Statistically significant at 5% significant level

Since the *p*-value of Levene'stest is less than 0.05, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.37.

Table 6.37

Income-wise Analysis of Behavioural Bias

Annual Income(Rs.)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Less than 5,00,000	190	163.06	27.91	230	3.863*	0.013	Welch
5,00,000 - 10,00,000	151	153.89	28.40				
10,00,000- 15,00,000	19	154.16	14.45				
More than 15,00,000	30	152.43	29.39				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

* Statistically significant at 5% significant level

The results indicate that there exists a significant difference among the annual income categories of investors with regard to behavioural bias, as the *p*-value is significant at a 5% level. The mean score is maximum for investors having an annual income of 'less than Rs. 5,00,000,' which is 163.06 (SD 27.91), whereas the mean score is minimum for investors having an annual income of 'more than Rs. 15,00,000,' which is 152.43 (SD 29.39). This indicates that investors with lower incomes are more affected by behavioural bias. Multiple comparisons through post hoc analysis are done in order to examine the exact significance between the annual income categories of investors. Since equal variances are not assumed, Tamhane's T2 test is used to examine the pair-wise differences among investors with regard to behavioural bias. The results are presented in table 6.38.

Table 6.38

Income-wise Post Hoc Test – Behavioural Bias

Annual Income (Rs.) (I)	Annual Income (Rs.) (J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 5,00,000	5,00,000 - 10,00,000	9.16912*	3.07284	.018
	10,00,000- 15,00,000	8.90526	3.88370	.158
	More than 15,00,000	10.62982	5.73591	.360
5,00,000 - 10,00,000	Less than 5,00,000	-9.16912*	3.07284	.018
	10,00,000- 15,00,000	-.26386	4.04070	1.000
	More than 15,00,000	1.46071	5.84336	1.000

(Contd.)

Annual Income (Rs.) (I)	Annual Income (Rs.) (J)	Mean Difference (I-J)	Std. Error	*p*-value
10,00,000- 15,00,000	Less than 5,00,000	-8.90526	3.88370	.158
	5,00,000 - 10,00,000	.26386	4.04070	1.000
	More than 15,00,000	1.72456	6.30758	1.000
More than 15,00,000	Less than 5,00,000	-10.62982	5.73591	.360
	5,00,000 - 10,00,000	-1.46071	5.84336	1.000
	10,00,000- 15,00,000	-1.72456	6.30758	1.000

Source: Survey Data

* Statistically significant at 5% significant level

The results indicate that there exists a significant difference between the 'less than 5,00,000' and '5,00,000-10,00,000' annual income categories, as the *p*-values are less than 0.05. While analysing the mean difference, it is understood that investors with less than Rs. 5,00,000 of annual income are more prone to behavioural bias. Hence, we can arrive at the conclusion that as the income level decreases, behavioural bias among investors increases.

For a more specific analysis, a descriptive analysis of the types of behavioural bias with respect to the annual income of investors is done. ANOVA is applied to determine the significant difference among income of investors with regard to different types of behavioural bias. Table 6.39 presents the income-wise test of homogeneity of variances for different types of behavioural bias among investors.

Table 6.39

Income-wise Test of Homogeneity of Variances -Types of Behavioural Bias

Variables	Levenes's Statistic	*p*-value
Belief Perseverance Bias	2.909*	0.034
Information Processing Bias	2.796*	0.040
Emotional Bias	6.467**	0.000

Source: Survey Data

*, ** Statistically significant at 5% and 1% significant level

Since the *p*-value of the test is less than 0.05 for all the biases, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study. The results are presented in table 6.40.

Table 6.40

Income-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Annual Income (Rs.)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Belief Perseverance Bias	Less than 5,00,000	190	47.39	8.82	65	2.151	.102	Welch
	5,00,000 - 10,00,000	151	45.01	8.99				
	10,00,000- 15,00,000	19	46.42	5.12				
	More than 15,00,000	30	45.17	8.56				
	Total	**390**	**46.25**	**8.78**				
Information Processing Bias	Less than 5,00,000	190	52.94	9.76	75	4.626**	.006	Welch
	5,00,000 - 10,00,000	151	49.67	8.87				
	10,00,000- 15,00,000	19	49.63	7.40				
	More than 15,00,000	30	48.07	9.97				
	Total	**390**	**51.13**	**9.48**				
Emotional Bias	Less than 5,00,000	190	62.73	10.97	90	4.600**	.005	Welch
	5,00,000 - 10,00,000	151	59.21	11.87				
	10,00,000- 15,00,000	19	58.11	5.12				
	More than 15,00,000	30	59.20	12.69				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.40 shows the significant difference among investors with different levels of annual income with regard to the types of behavioural bias. The results indicate that there is no significant difference among the annual income of investors with regard to belief perseverance bias, as the *p*-value is greater than 0.05. Whereas, the *p*-values of the Welch F tests for the information processing bias and emotional bias of 0.006 and 0.005, respectively, indicate the existence of a significant difference among investors' annual income with regard to the information processing bias and emotional bias. To examine the exact difference among the annual income of investors, a post hoc test is used for multiple comparisons.

Income-wise Multiple Comparisons: Types of Behavioural Bias

Because there is a significant difference in investors' income in terms of information processing bias and emotional bias, a post hoc test is performed to investigate the exact difference in investors' annual income.

1. Information processing bias

Since equal variances are not assumed, Tamhane's T2 test is used to check the pair-wise differences among the annual income levels of investors with regard to information processing bias.

Table 6.41

Income-wise Post Hoc Test – Information Processing Bias

Annual Income (Rs.) (I)	Annual Income (Rs.) (J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 5,00,000	5,00,000 - 10,00,000	3.27323*	1.01070	.008
	10,00,000 - 15,00,000	3.31053	1.83989	.410
	More than 15,00,000	4.87544	1.95280	.098
5,00,000 - 10,00,000	Less than 5,00,000	-3.27323*	1.01070	.008
	10,00,000 - 15,00,000	.03730	1.84523	1.000
	More than 15,00,000	1.60221	1.95783	.961
10,00,000- 15,00,000	Less than 5,00,000	-3.31053	1.83989	.410
	5,00,000 - 10,00,000	-.03730	1.84523	1.000
	More than 15,00,000	1.56491	2.48933	.990
More than 15,00,000	Less than 5,00,000	-4.87544	1.95280	.098
	5,00,000 - 10,00,000	-1.60221	1.95783	.961
	10,00,000 - 15,00,000	-1.56491	2.48933	.990

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The results indicate that there is a significant difference between investors belonging to the 'less than 5,00,000' and investors belonging to the '5,00,000 - 10,00,000' annual income categories, as the *p*-values are less than 0.05. While analysing the mean difference, it is understood that investors with less than Rs. 5,00,000 of annual income are more prone to behavioural bias.

2. Emotional bias

Tamhane's T2 test is used to check the pair-wise differences among the annual income levels of investors with regard to emotional bias as the equal variance assumptions are rejected.

Table 6.42

Income-wise Post Hoc Test – Emotional Bias

Annual Income (Rs.) (I)	Annual Income (Rs.) (J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 5,00,000	5,00,000 - 10,00,000	3.50777*	1.25073	.032
	10,00,000 - 15,00,000	4.62105*	1.41852	.014
	More than 15,00,000	3.52632	2.45025	.645
5,00,000 - 10,00,000	Less than 5,00,000	-3.50777*	1.25073	.032
	10,00,000 - 15,00,000	1.11328	1.52025	.977
	More than 15,00,000	.01854	2.51051	1.000
10,00,000- 15,00,000	Less than 5,00,000	-4.62105*	1.41852	.014
	5,00,000 - 10,00,000	-1.11328	1.52025	.977
	More than 15,00,000	-1.09474	2.59818	.999
More than 15,00,000	Less than 5,00,000	-3.52632	2.45025	.645
	5,00,000 - 10,00,000	-.01854	2.51051	1.000
	10,00,000 - 15,00,000	1.09474	2.59818	.999

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The results indicate that there is a significant difference between investors having income 'less than 5,00,000' and investors belonging to '5,00,000 - 10,00,000' and '10,00,000 – 15,00,000' annual income categories, as the *p*-values are less than 0.05. The mean difference reveals that investors with less than Rs. 5,00,000 of annual income are more affected by behavioural bias.

6.3.7 Investment Experience-wise Analysis of Behavioural Bias

Investors' behavioural biases may differ depending on their mutual fund investment experience. In order to know the mean score of the behavioural bias of investors among different levels of experience in mutual fund investment, a descriptive analysis has been done. Then ANOVA is applied to check whether there exists a significant difference among investors' experiences in mutual fund

investment with respect to behavioural bias. Table 6.43 presents the mutual fund investment experience-wise test of homogeneity of variances of behavioural bias among investors.

Table 6.43

Investment Experience-wise Test of Homogeneity of Variances of Behavioural Bias

Variable	Levens's Statistic	*p*-value
Behavioural Bias	2.546*	0.056

Source: Survey Data

* Statistically significant at 5% significant level

Since the *p*-value of Levene's test is greater than 0.05, the assumption of equal variance is not rejected. Hence, ANOVA can be used to examine the significance of differences among investors' experiences in mutual fund investment with regard to behavioural bias. The results of the ANOVA are presented in table 6.44.

Table 6.44

Investment Experience-wise Analysis of Behavioural Bias

Investment Experience (Years)	N	Mean	SD	Max Score	F Value	*p*-value	Remarks
Less than 1	82	164.37	26.86	230	3.292*	0.021	ANOVA
1-3	128	152.63	30.42				
3-5	46	161.48	30.64				
Above 5	134	158.80	24.50				
Total	**390**	**158.26**	**28.03**				

Source: Survey Data

* Statistically significant at 5% significant level

Table 6.44 indicates that the *p*-value of the test is less than 0.05. This indicates that there exists a significant difference among the investors' experience regarding mutual fund investment with regard to behavioural bias. The mean score is maximum for the investors having investment experience of 'less than 1 year' 164.37 (SD 26.86). Investors with experience of '1 – 3 years' possess the lowest mean score of 152.63 (SD 30.42). This indicates that investors with the least experience in mutual fund investment are more prone to behavioural bias. Multiple

comparisons through post hoc analysis are done in order to examine the exact significance of the investors' experience in mutual fund investment. Since equal variances are assumed, the Tukey HSD test is used to examine the pair-wise differences among investors' experiences with regard to behavioural bias. The results are presented in table 6.45.

Table 6.45

Investment Experience-wise Post Hoc Test – Behavioural Bias

Investment Experience (Years) (I)	Investment Experience (Years)(J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 1	1-3	11.73304*	3.93026	.016
	3-5	2.88759	5.11849	.943
	Above 5	5.56735	3.89575	.482
1-3	Less than 1	-11.73304*	3.93026	.016
	3-5	-8.84545	4.77654	.251
	Above 5	-6.16569	3.43413	.277
3-5	Less than 1	-2.88759	5.11849	.943
	1-3	8.84545	4.77654	.251
	Above 5	2.67975	4.74819	.943
Above 5	Less than 1	-5.56735	3.89575	.482
	1-3	6.16569	3.43413	.277
	3-5	-2.67975	4.74819	.943

Source: Survey Data

* Statistically significant at 5% significant level

From table 6.45, it is clear that there exists a significant difference between investors with investment experience of 'less than 1 year' and '1-3 years' as the *p*-values are less than 0.05. While analysing the mean difference, it is understood that investors with 'less than 1 year' experience are more prone to behavioural bias.

A descriptive analysis of the types of behavioural bias with regard to investment experience is performed for a more specific analysis. ANOVA is applied to determine the significant difference among the investment experiences of investors with regard to different types of behavioural bias. Table 6.46 presents the investors' experience-wise test of homogeneity of variances for different types of behavioural bias among themselves.

Table 6.46

Investment Experience-wise Test of Homogeneity of Variances of Types of Behavioural Bias

Variables	Levens's Statistic	*p*-value
Belief Perseverance Bias	4.291**	.005
Information Processing Bias	0.950	.416
Emotional Bias	3.475*	.016

Source: Survey Data

*, ** Statistically significant at 5% and 1% significant level

Since the *p*-value of the test is less than 0.05 for belief perseverance bias and emotional bias, the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value can be used for analysis. In the case of information processing bias, ANOVA can be applied to test the significant differences among investment experiences, as the *p*-value is greater than 0.05. The results are presented in table 6.47.

Table 6.47

Investment Experience-wise Analysis of Types of Behavioural Bias

Types of Behavioural Bias	Investment Experience (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Belief Perseverance Bias	Less than 1	82	48.00	8.30	65	5.663	.001	Welch
	1-3	128	43.56	9.45				
	3-5	46	47.87	9.489				
	Above 5	134	47.19	7.539				
	Total	**390**	**46.25**	**8.77**				
Information Processing Bias	Less than 1	82	53.29	9.48	75	2.675*	.047	ANOVA
	1-3	128	49.55	9.82				
	3-5	46	51.48	10.65				
	Above 5	134	51.22	8.484				
	Total	**390**	**51.13**	**9.474**				
Emotional Bias	Less than 1	82	63.07	10.65	90	1.907	.131	Welch
	1-3	128	59.52	12.50				
	3-5	46	62.13	12.32				
	Above 5	134	60.38	10.13				
	Total	**390**	**60.87**	**11.37**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The findings show a significant difference in investors' experiences with mutual fund investment with regard to the types of behavioural bias. The results reveal that, with *p*-values of 0.001 and 0.047, there is a significant difference among the investors' experiences in the cases of belief perseverance bias and information processing bias. The results indicate that there is no significant difference among investment experiences with regard to emotional bias, as the *p*-value is greater than 0.05. To examine the exact difference among the investment experiences of investors, a post hoc test is used for multiple comparisons.

Investment Experience Multiple Comparisons: Types of Behavioural Bias

Since a significant difference in investors' experiences with regard to belief perseverance bias and information processing bias has been discovered, a post hoc test is performed to investigate the exact difference in investors' investment experiences.

1. Belief Perseverance Bias

Since equal variances are not assumed, Tamhane'sT2 test is used to check the pair-wise differences among the experiences of investors with regard to belief perseverance bias.

Table 6.48

Investment Experience-wise Post Hoc Test – Belief Perseverance Bias

Investment Experience (Years) (I)	Investment Experience (Years) (J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 1	1-3	4.43750*	1.24032	.003
	3-5	.13043	1.67267	1.000
	Above 5	.80597	1.12465	.979
1-3	Less than 1	-4.43750*	1.24032	.003
	3-5	-4.30707	1.62935	.058
	Above 5	-3.63153*	1.05916	.004
3-5	Less than 1	-.13043	1.67267	1.000
	1-3	4.30707	1.62935	.058
	Above 5	.67554	1.54313	.999
Above 5	Less than 1	-.80597	1.12465	.979
	1-3	3.63153*	1.05916	.004
	3-5	-.67554	1.54313	.999

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The results indicate that there exists a significant difference between investors with investment experience of '1-3 years' and investors with experience of 'less than 1 year' and 'above 5 years', since the *p*-values are less than 0.05. While analysing the mean difference, it is understood that investors with experience below 1 year are more prone to behavioural bias.

2. Information Processing Bias

The Tukey HSD test is used to check the pair-wise differences among the experiences of investors with regard to information processing bias, as there is equality of variances. The results are presented in table 6.49.

Table 6.49

Investment Experience-wise Post Hoc Test – Information Processing Bias

Investment Experience (Years) (I)	Investment Experience (Years) (J)	Mean Difference (I-J)	Std. Error	*p*-value
Less than 1	1-3	3.74581*	1.33157	.026
	3-5	1.81442	1.73415	.722
	Above 5	2.06880	1.31988	.399
1-3	Less than 1	-3.74581*	1.33157	.026
	3-5	-1.93139	1.61829	.631
	Above 5	-1.67701	1.16348	.474
3-5	Less than 1	-1.81442	1.73415	.722
	1-3	1.93139	1.61829	.631
	Above 5	.25438	1.60869	.999
Above 5	Less than 1	-2.06880	1.31988	.399
	1-3	1.67701	1.16348	.474
	3-5	-.25438	1.60869	.999

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The results indicate that there exists a significant difference between investors with investment experience of 'less than 1 year' and investors with investment experience of '1-3 years' as the *p*-values are less than 0.05. While analysing the mean difference, it is understood that investors with investment experience below 1 year are more affected by behavioural bias.

6.4 Influence of Socio-Economic factors on different sub-types of Behavioural Bias

In this section, the relation between socio-economic variables and different sub-types of behavioural bias is examined. These types of behavioural biases are components of previously studied types. The components of belief perseverance bias are representativeness, confirmation, cognitive dissonance and illusion of control. Information processing bias consists of anchoring, availability, self-attribution and mental accounting. Emotional biases include overconfidence, loss aversion, regret aversion and herd behaviour. The different types of behavioural bias and their sub-types are as follows:

Cognitive Bias

Cognitive bias is a systematic error in thinking that occurs when individuals process and interpret information around them and affects the decisions and judgments made by them. Cognitive biases are classified into belief perseverance bias and information processing bias.

I. Belief Perseverance Bias

Belief perseverance bias refers to the tendency of people to hold their beliefs as true even though there is sufficient evidence to discredit the belief. Here, representativeness, confirmation, cognitive dissonance and illusion of control are considered for the study.

1. Representativeness

Representativeness refers to the tendency of investors to view events as representative of some specific class, that is, to see patterns where none exist. It is a judgement on the basis of stereotypes (Shefrin, 2000). An important consequence of representative bias is that investors tend to assume that recent events will continue in the near future, and therefore they try to buy "hot" stocks and avoid stocks that have performed poorly in the recent past.

2. Confirmation

Confirmation bias occurs when people selectively acquire information that allows them to continue believing what they initially believe (Nickerson, 1998). Here, investors tend to consider what confirms their beliefs and ignore what contradictsthem.

3. Cognitive Dissonance

Cognitive dissonance refers to the mental conflict that occurs when an individual's behaviour and beliefs contradict each other (Festinger, 1957). It occurs when a person voluntarily engages in some unpleasant activities to achieve a goal.

4. Illusion of Control

Illusion of control bias occurs due to the belief of people that they have sufficient control over the outcome of uncontrollable events (Langer, 1975). This is common among online traders.

II. Information Processing Bias

Information processing bias arises when information is processed and used irrationally or illogically. In studying information processing biases, the researcher considers anchoring, availability, self-attribution and mental accounting for the study.

1. Anchoring

People often have the tendency to make judgements starting with a certain initial reference point called an "anchor" and then making further adjustments to arrive at the final decision. This is called "anchoring bias" (Kahneman & Tversky, 1974).

2. Availability

Individuals tend to make judgements on the basis of pieces of information that are readily available or that they can recall easily. This is termed availability

bias. Investors often rely on availability when judging the frequency of events (Kahneman & Tversky, 1973).

3. Self-Attribution

Self-attribution bias refers to the tendency of people to attribute their success in some activity to their own talents and blame their failures on bad luck rather than their personal incompetence (Heider, 2013).

4. Mental Accounting

Mental accounting bias is the tendency of individuals to place events into mental accounts on the basis of their superficial attributes (Shiller, 1998). It is a process by which the brain maintains separate goals and proceeds towards those goals independently of each other (Thaler, 1999).

Emotional Bias

Emotional biases occur spontaneously based on the personal feelings of an individual at the time of making decisions. It is a distortion in cognition and decision-making due to emotional factors. In analysing emotional biases, overconfidence, loss aversion, regret aversion and herd behaviour are taken into account.

1. Overconfidence

Overconfidence is an emotional bias in which people possess unwarranted faith in their intuitive thinking, cognitive abilities and judgements (Pompain & Wood, 2006). Overconfident investors become too confident about their skills and underestimate the risks associated with the investment.

2. Loss Aversion

Loss aversion is the tendency of individuals to avoid losses over achieving equivalent gains. It is the thought that the pain of loss is greater than the pleasure from an equal amount of gain (Barberis & Thaler, 2003).

3. Regret Aversion

Regret aversion refers to the tendency of investors to avoid actions that have the potential to create discomfort over faulty investment decisions. Furthermore, investors tend to regret holding losing stocks for too long rather than selling winning stocks too soon (Lehenkari & Perttunen, 2004).

4. Herd Behaviour

Herd behaviour is the tendency of people to do what others do instead of using their own information or making independent decisions (Shiller, 1995). It simply refers to how individual decisions are influenced by the decisions of groups.

A descriptive analysis of the different sub-types of behavioural bias has been done and the results are presented in Table 6.50.

Table 6.50

Descriptive Statistics of Sub-Types of Behavioural Bias

Types of Behavioural Bias	Sub-Types of Behavioural Bias	Mean	Standard Deviation
Belief Perseverance Bias	Representativeness	3.59	0.82
	Confirmation	3.53	0.70
	Cognitive Dissonance	3.20	0.81
	Illusion of Control	3.53	0.73
Information Processing Bias	Anchoring	3.52	0.90
	Availability	3.31	0.67
	Self-Attribution	3.64	0.82
	Mental Accounting	3.44	0.71
Emotional Bias	Overconfidence	3.28	0.80
	Loss Aversion	3.21	0.82
	Regret Aversion	3.42	0.80
	Herding	3.78	0.78

Source: Survey Data

According to table 6.50, all sub-types of behavioural bias have mean scores greater than 3, indicating that all behavioural biases have an above-average level of influence on investors in Kerala. Herding bias has the highest mean score of 3.78 (SD 0.78) and cognitive dissonance bias has the lowest mean score of 3.20 (SD

0.81). This makes it obvious that herding bias has the most influence among the investors, whereas cognitive dissonance bias has the least influence among the investors in Kerala.

6.4.1 Gender-wise Analysis of Different Sub-Types of Behavioural Bias

Different sub-types of behavioural bias may have a different level of influence on investors based on their gender. Descriptive analysis has been done to determine the mean score of males and females with regard to behavioural bias. To check whether significant difference exists between male and female investors in Kerala, the 't' test is applied. Table 6.51 presents the results of t-test.

Table 6.51

Gender-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Gender	N	Mean	SD	Max Score	t value	*p*-value	Remarks
Representativeness	Male	281	14.99	3.28	20	6.162**	.000	Equal Variances Assumed
	Female	109	12.79	2.85				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Male	281	15.03	3.14	20	4.590**	.000	Equal Variances Assumed
	Female	109	13.37	3.38				
	Total	**390**	**14.56**	**3.29**				
Cognitive Dissonance	Male	281	7.15	1.88	10	1.823	.069	Equal Variances Assumed
	Female	109	6.7	1.55				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Male	281	10.61	2.40	15	4.560**	.000	Equal Variances Assumed
	Female	109	9.39	2.21				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Male	281	16.44	4.39	25	4.272**	.000	Equal Variances not Assumed
	Female	109	14.85	2.78				
	Total	**390**	**16.00**	**4.06**				
Availability	Male	281	18.21	3.74	25	5.297**	.000	Equal Variances not Assumed
	Female	109	16.26	3.07				
	Total	**390**	**17.67**	**3.67**				
Self Attribution	Male	281	10.14	2.19	15	4.427**	.000	Equal Variances not Assumed
	Female	109	9.34	1.31				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Male	281	7.84	1.55	10	6.241**	.000	Equal Variances Assumed
	Female	109	6.79	1.30				
	Total	**390**	**7.55**	**1.55**				

(Contd.)

Sub-Types of Behavioural Bias	Gender	N	Mean	SD	Max Score	t value	*p*-value	Remarks
Overconfidence	Male	281	22.17	4.79	30	8.193**	.000	Equal Variances not Assumed
	Female	109	18.71	3.24				
	Total	**390**	**21.20**	**4.67**				
Loss Aversion	Male	281	14.33	2.84	20	6.790**	.000	Equal Variances Assumed
	Female	109	12.26	2.33				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Male	281	10.17	2.53	15	5.225**	.000	Equal Variances not Assumed
	Female	109	8.99	1.76				
	Total	**390**	**9.84**	**2.40**				
Herding	Male	281	16.72	4.26	25	5.792**	.000	Equal Variances not Assumed
	Female	109	14.40	3.22				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

From table 6.51, it is understood that all the sub-types of behavioural bias except cognitive dissonance have a significant difference between male and female investors, as the *p*-values are less than 0.05.

Representativeness bias shows a significant difference between male and female investors. While analysing the mean score, it is understood that male investors are more affected by representativeness bias. This makes it clear that male investors give more importance to their recent experience when taking decisions regarding equity mutual fund investments.

In the case of confirmation bias, the *p*-value is less than 0.05, which means that there is a significant difference between male and female investors. The mean score of male investors is 15.03 (SD 3.14), which is higher than that of female investors, at 13.37 (SD 3.38). This means that male investors are more prone to confirmation bias.

Illusion of control bias shows a significant difference between male and female investors, as the *p*-value is less than 0.05. The mean score of male investors is high, making it evident that the illusion of control bias is higher among male investors than their female counterparts.

Since the *p*-value of anchoring bias is less than 0.05, there is a significant difference between male and female investors. Male investors show a higher degree of anchoring bias than female investors.

In the case of availability bias, there is a significant difference between male and female investors. Male investors seem to be more affected by anchoring bias since their mean score is higher compared to female investors.

Self-attribution bias shows a significant difference between male and female investors. The mean scores indicate that male investors are more prone to self-attribution bias than their female counterparts. They tend to attribute their success in investment decisions to their own talents while blaming their failures on outside influences more than female investors.

In mental accounting bias, a significant difference exists between male and female investors. The results imply that male investors are more prone to mental accounting bias than female investors.

Overconfidence bias shows a significant difference between male and female investors. Male investors are found to be more overconfident than female investors. This is on par with many studies in this field. Barber and Odean (2001) and Mishra and Metilda (2015) found that men are more overconfident than women and trade more.

Since the *p*-value of loss aversion bias is less than 0.05, there exists a significant difference between male and female investors. Male investors are more prone to loss aversion bias than female investors.

Regret aversion bias also shows a significant difference between male and female investors. The mean score of male investors being higher than female investors indicate that male investors are more prone to regret aversion bias.

Herding bias shows a significant difference between male and female investors. The mean score of male investors is higher than that of female investors,

which means male investors are more affected by herding bias. It makes it evident that male investors are more likely to follow the market trend when making investment decisions than female investors. Kumar and Goyal (2016) found that male investors are more prone to herding bias.

6.4.2 Age-wise Analysis of Different Sub-Types of Behavioural Biases

Investors belonging to different age groups may have different types of behavioural biases while making investment decisions. Descriptive analysis has been done to determine the mean score of sub-types of behavioural bias among investors belonging to different age categories. ANOVA was applied to check whether a significant difference exists among investors of different age groups with regard to different behavioural biases. Levene's test is done to examine the homogeneity of variances. The results are shown in Table 6.52.

Table 6.52

Age-wise Test of Homogeneity of Variances - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Levene's Statistic	*p*-value
Representativeness	6.085	.000
Confirmation	6.957	.000
Cognitive Dissonance	3.405	.018
Illusion of Control	3.323	.020
Anchoring	8.685	.000
Availability	5.092	.002
Self Attribution	6.029	.001
Mental Accounting	2.932	.033
Overconfidence	3.084	.027
Loss Aversion	8.894	.000
Regret Aversion	4.084	.007
Herding	2.652	.048

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.52 shows that the *p*-valuesof the variables are less than 0.05 for all the sub-types of behavioural bias and the assumption of equal variance is rejected. Hence, instead of ANOVA, Welch's F value is considered in the study for all the biases. The results are presented in table 6.53.

Table 6.53

Age-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Age (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Representativeness	Below 25	16	14.13	4.40	20	0.086	0.967	Welch
	26 – 40	290	14.42	3.37				
	41 – 60	70	14.24	3.01				
	Above 60	14	14.29	2.27				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Below 25	16	16.88	4.18	20	1.773	0.169	Welch
	26 – 40	290	14.44	3.34				
	41 – 60	70	14.50	2.91				
	Above 60	14	14.79	1.85				
	Total	**390**	**14.5**	**3.29**				
Cognitive Dissonance	Below 25	16	7.88	2.22	10	2.382	0.086	Welch
	26 – 40	290	7.13	1.70				
	41 – 60	70	6.56	2.09				
	Above 60	14	6.79	1.25				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Below 25	16	11.75	2.46	15	4.508*	0.009	Welch
	26 – 40	290	10.36	2.47				
	41 – 60	70	9.57	2.09				
	Above 60	14	10.07	1.49				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Below 25	16	18.13	6.33	25	3.773*	0.019	Welch
	26 – 40	290	16.21	3.96				
	41 – 60	70	14.98	3.72				
	Above 60	14	14.29	3.12				
	Total	**390**	**16.00**	**4.06**				
Availability	Below 25	16	19.25	4.81	25	1.665	0.191	Welch
	26 – 40	290	17.72	3.55				
	41 – 60	70	17.21	4.11				
	Above 60	14	16.93	1.64				
	Total	**390**	**17.67**	**3.67**				
Self Attribution	Below 25	16	11.38	2.78	15	4.157*	0.012	Welch
	26 – 40	290	9.97	1.94				
	41 – 60	70	9.47	2.14				
	Above 60	14	9.36	.84				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Below 25	16	8.25	1.84	10	2.463	0.078	Welch
	26 – 40	290	7.53	1.55				
	41 – 60	70	7.37	1.57				
	Above 60	14	8.07	.92				
	Total	**390**	**7.55**	**1.55**				

(Contd.)

Sub-Types of Behavioural Bias	Age (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Overconfidence	Below 25	16	23.19	6.10	30	2.756	0.057	Welch
	26 – 40	290	21.40	4.61				
	41 – 60	70	20.41	4.52				
	Above 60	14	19.00	3.96				
	Total	**390**	**21.21**	**4.67**				
Loss Aversion	Below 25	16	15.13	4.11	20	2.221	0.102	Welch
	26 – 40	290	13.83	2.84				
	41 – 60	70	13.21	2.72				
	Above 60	14	13.14	1.41				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Below 25	16	11.75	2.57	15	3.787*	0.018	Welch
	26 – 40	290	9.84	2.40				
	41 – 60	70	9.37	2.37				
	Above 60	14	10.00	1.36				
	Total	**390**	**9.84**	**2.40**				
Herding	Below 25	16	19.63	4.50	25	3.878*	0.016	Welch
	26 – 40	290	16.00	4.21				
	41 – 60	70	15.69	3.63				
	Above 60	14	15.43	1.99				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.53 shows the significant difference among age categories of investors with regard to different behavioural biases. The results indicate that illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among age categories of investors.

Illusion of control bias shows a significant difference among different age categories of investors, as the *p*-value is less than 0.05. The age category 'below 25 years' has the highest mean score of 11.75 (SD 2.46). This indicates that younger investors are more prone to illusion of control bias.

The *p*-value of anchoring bias is less than 0.05, which indicates the presence of a significant difference among different age categories of investors. The age category 'below 25 years' has the highest mean score of 18.13 (SD 6.33), whereas the lowest mean score of 14.29 (SD 3.12) belongs to the age category

'above 60 years'. This implies that anchoring bias decreases among investors with an increase in their age.

In the case of self-attribution bias, there is a significant difference among the different age categories of investors. The age category 'below 25 years' has the highest mean score of 11.38 (SD 2.78). This suggests that younger investors are more affected by self-attribution bias.

Regret aversion bias shows significant differences among different age categories of investors. The highest mean score belongs to the age category 'below 25 years' 11.75 (SD 2.57). This means that younger investors are more prone to regret aversion bias.

In the case of herding bias, a significant difference exists among different age categories of investors. The mean score is highest in the case of investors belonging to the 'below 25 years' age category and lowest in the case of 'above 60 years' age category. From this, it is understood that younger investors are more affected by herding bias. Moreover, herding bias decreases with an increase in their age.

6.4.3 Education-wise Analysis of Different Sub-Types of Behavioural Bias

Investors with different educational qualifications may be affected by different behavioural biases while making investment decisions. A descriptive analysis was performed to determine the mean score of behavioural bias among investors with varying educational qualifications. ANOVA was applied to examine whether a significant difference exists among investors belonging to different levels of education with regard to different behavioural biases.

The results of Levene's test of homogeneity of variances are shown in table 6.54.

Table 6.54

Education-wise Test of Homogeneity of Variances - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Levene's Statistic	*p*-value
Representativeness	3.212*	.013
Confirmation	3.436**	.009
Cognitive Dissonance	5.954**	.000
Illusion of Control	1.463	.213
Anchoring	2.032	.089
Availability	10.172**	.000
Self Attribution	1.425	.225
Mental Accounting	8.840**	.000
Overconfidence	5.389**	.000
Loss Aversion	2.470*	.044
Regret Aversion	3.071*	.016
Herding	4.089**	.003

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Illusion of control bias, anchoring bias and self-attribution bias show the homogeneity of variances. Therefore, ANOVA can be applied in the case of these biases and for the rest of them, the Welch F value can be considered as there is no equality of variances. The results are presented in table 6.55.

Table 6.55

Education-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Education Level	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Representativeness	Higher Secondary and Below	24	14.70	4.15	20	8.933**	.000	Welch
	Graduate	118	14.47	3.24				
	Post Graduate	155	15.12	3.02				
	Professional	66	12.39	3.11				
	Vocational/ Technical	27	14.22	3.14				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Higher Secondary and Below	24	14.79	2.77	20	11.697**	.000	Welch
	Graduate	118	14.80	3.49				
	Post Graduate	155	15.34	2.86				
	Professional	66	12.17	3.26				
	Vocational/ Technical	27	14.67	2.59				
	Total	**390**	**14.56**	**3.29**				

(Contd.)

Sub-Types of Behavioural Bias	Education Level	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Cognitive Dissonance	Higher Secondary and Below	24	7.63	1.41	10	4.913**	.001	Welch
	Graduate	118	6.63	2.02				
	Post Graduate	155	6.98	1.86				
	Professional	66	7.65	1.42				
	Vocational/ Technical	27	7.22	.93				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Higher Secondary and Below	24	11.50	2.83	15	10.399**	.000	ANOVA
	Graduate	118	10.42	2.30				
	Post Graduate	155	10.35	2.31				
	Professional	66	8.83	2.23				
	Vocational/ Technical	27	11.56	1.93				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Higher Secondary and Below	24	18.88	3.27	25	16.038**	.000	ANOVA
	Graduate	118	16.42	4.17				
	Post Graduate	155	16.42	3.78				
	Professional	66	12.86	3.29				
	Vocational/ Technical	27	16.89	3.54				
	Total	**390**	**16.00**	**4.06**				
Availability	Higher Secondary and Below	24	18.92	5.12	25	6.420**	.000	Welch
	Graduate	118	17.75	4.10				
	Post Graduate	155	18.08	3.30				
	Professional	66	16.14	2.51				
	Vocational/ Technical	27	17.56	3.72				
	Total	**390**	**17.67**	**3.67**				
Self-Attribution	Higher Secondary and Below	24	11.67	2.12	15	8.410**	.000	ANOVA
	Graduate	118	10.11	2.08				
	Post Graduate	155	9.72	1.86				
	Professional	66	9.18	1.86				
	Vocational/ Technical	27	10.44	1.80				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Higher Secondary and Below	24	7.46	2.15	10	1.547	.195	Welch
	Graduate	118	7.34	1.83				
	Post Graduate	155	7.78	1.38				
	Professional	66	7.42	1.33				
	Vocational/ Technical	27	7.56	.85				
	Total	**390**	**7.55**	**1.55**				

(Contd.)

Sub-Types of Behavioural Bias	Education Level	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Overconfidence	Higher Secondary and Below	24	23.25	5.15	30	3.347*	.013	Welch
	Graduate	118	21.53	4.64				
	Post Graduate	155	21.23	4.90				
	Professional	66	20.32	4.54				
	Vocational/ Technical	27	20.00	2.15				
	Total	**390**	**21.21**	**4.67**				
Loss Aversion	Higher Secondary and Below	24	15.33	3.37	20	10.344**	.000	Welch
	Graduate	118	13.59	2.83				
	Post Graduate	155	14.32	2.77				
	Professional	66	12.06	2.50				
	Vocational/ Technical	27	13.89	1.89				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Higher Secondary and Below	24	11.67	2.39	15	31.687**	.000	Welch
	Graduate	118	9.78	2.29				
	Post Graduate	155	10.27	2.15				
	Professional	66	7.68	1.79				
	Vocational/ Technical	27	11.33	1.98				
	Total	**390**	**9.84**	**2.40**				
Herding	Higher Secondary and Below	24	19.08	2.83	25	28.764**	.000	Welch
	Graduate	118	16.60	3.56				
	Post Graduate	155	16.65	3.44				
	Professional	66	11.70	4.17				
	Vocational/ Technical	27	18.44	3.26				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

The *p*-values of all the sub-types of behavioural bias except mental accounting bias are less than 0.05. From this, it is obvious that all the behavioural biases except the mental accounting bias have significant differences among different educational qualifications.

In The case of representativeness bias, there exists a significant difference among various educational levels of equity mutual fund investors. The 'post graduate' category of investors has the highest mean score of 15.12 (SD 3.02)

while the 'professional' category of investors has the lowest mean score of 12.39 (SD 3.11).

As the *p*-value of confirmation bias is less than 0.05, there is a significant difference among various educational levels of investors. The 'post graduate' category possesses the highest mean score of 15.34 (SD 2.86), whereas the 'professional' education possesses the lowest mean score of 12.17 (SD 3.26). This implies that post graduates are more prone to confirmation bias.

In the case of cognitive dissonance bias, there is a significant difference among various educational levels of investors. The mean scores indicate that professionally qualified investors are more affected by cognitive dissonance bias, whereas, graduate investors are less prone to cognitive dissonance bias.

Illusion of control bias shows a significant difference among various educational levels of investors. By analysing the mean scores of different educational categories, it is evident that technically qualified investors are more affected by illusion of control bias, while professionally qualified investors are less affected by illusion of control bias.

As the *p*-value of the test is less than 0.05, anchoring bias shows a significant difference among various educational levels of investors. The 'higher secondary and below' category has the highest mean score of 18.88 (SD 3.27), whereas, the 'professional' category has the lowest mean score of 12.86 (SD 3.29). This implies that investors with lower educational qualifications are more susceptible to anchoring bias than highly qualified investors.

The availability bias demonstrates the existence of a significant difference in investor education levels. The investors who belong to the 'higher secondary and below' category possess the highest mean score of 18.92 (SD 5.12), while the 'professional' category possesses the lowest mean score of 16.14 (SD 2.51). This indicates that investors with low education are more prone to availability bias.

Since the *p*-value of self-attribution bias is less than 0.05, this bias shows a significant difference among various educational levels of investors. In this case, investors who belong to lower education levels are more affected by self-attribution bias than highly qualified investors.

Overconfidence bias shows a significant difference among different educational levels of investors. Investors belonging to 'higher secondary and below' category has the highest mean score of 23.25 (SD 5.15). This indicates that investors with lowest educational qualification are more overconfident than others.

In the case of loss aversion bias, there exists a significant difference among various educational levels of investors. The mean scores indicate that the undergraduates are more affected by loss aversion bias, whereas, professionally qualified investors are less prone to loss aversion bias.

Since the *p*-value of the regret aversion bias is less than 0.05, this bias shows a significant difference among various educational levels of investors. Investors who belong to the 'higher secondary and below' category have the highest mean score of 11.67 (SD 2.39), whereas investors with 'professional' education have the lowest mean score of 7.68 (SD 1.79). This demonstrates that investors with the least education are more susceptible to regret aversion bias than others.

Herding bias reveals a significant difference in investor education levels. According to the mean scores, investors with higher secondary and below-qualification levels are more vulnerable to herding bias, whereas professionally qualified investors are less vulnerable.

6.4.4 Occupation-wise Analysis of Different Sub-Types of Behavioural Bias

Behavioural bias may vary across investors according to their occupation. The researcher has done descriptive analysis to know the mean score of sub-types of behavioural bias among investors with different occupations. Further, ANOVA was applied to examine whether there exists a significant difference among

investors belonging to different occupations with regard to different behavioural biases.

The results of Levene's test of homogeneity of variances are shown in Table 6.56.

Table 6.56

Occupation-wise Test of Homogeneity of Variances - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Levene's Statistic	*p*-value
Representativeness	2.184	.070
Confirmation	6.578**	.000
Cognitive Dissonance	2.453*	.046
Illusion of Control	2.036	.089
Anchoring	3.291*	.011
Availability	3.191*	.013
Self Attribution	.994	.411
Mental Accounting	2.796*	.026
Overconfidence	1.249	.290
Loss Aversion	2.705*	.030
Regret Aversion	5.334**	.000
Herding	3.870**	.004

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Representativeness, illusion of control, self-attribution and overconfidence show the homogeneity of variances. Hence, ANOVA can be applied in the case of these biases. As the *p*-values of other biases are less than 0.05, the assumption of equality of variances is rejected. So, Welch's F value can be considered to check the significance of difference among the variables. The results are presented in table 6.57.

Table 6.57

Occupation-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Occupation	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Representativeness	Employed	263	14.51	3.35	20	.751	.558	ANOVA
	Professional	70	14.27	3.25				
	Businessman	10	13.00	3.59				
	Retired	19	14.42	2.09				
	Others	28	13.82	3.68				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Employed	263	14.41	3.50	20	1.881	.132	Welch
	Professional	70	15.24	2.40				
	Businessman	10	13.80	2.53				
	Retired	19	14.00	2.92				
	Others	28	15.00	3.55				
	Total	**390**	**14.56**	**3.29**				
Cognitive Dissonance	Employed	263	7.20	1.82	10	7.602	.000	Welch
	Professional	70	7.11	1.74				
	Businessman	10	6.00	.67				
	Retired	19	6.26	1.59				
	Others	28	6.36	1.87				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Employed	263	10.46	2.46	15	1.927	.105	ANOVA
	Professional	70	10.14	2.43				
	Businessman	10	9.60	1.58				
	Retired	19	9.58	1.61				
	Others	28	9.43	2.36				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Employed	263	16.25	4.26	25	4.449	.004	Welch
	Professional	70	16.11	3.57				
	Businessman	10	12.00	3.33				
	Retired	19	14.37	3.89				
	Others	28	15.93	2.68				
	Total	**390**	**16.00**	**4.06**				
Availability	Employed	263	17.97	3.53	25	3.986	.007	Welch
	Professional	70	17.87	3.89				
	Businessman	10	16.60	1.43				
	Retired	19	15.53	3.98				
	Others	28	16.18	4.05				
	Total	**390**	**17.67**	**3.67**				

(Contd.)

Sub-Types of Behavioural Bias	Occupation	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Self-Attribution	Employed	263	10.31	1.93	15	8.556	.000	ANOVA
	Professional	70	9.03	2.23				
	Businessman	10	8.80	1.81				
	Retired	19	9.11	1.33				
	Others	28	9.39	1.64				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Employed	263	7.59	1.54	10	1.956	.120	Welch
	Professional	70	7.80	1.30				
	Businessman	10	7.00	2.11				
	Retired	19	7.68	1.06				
	Others	28	6.68	2.06				
	Total	**390**	**7.55**	**1.55**				
Overconfidence	Employed	263	21.84	4.52	30	4.401	.002	ANOVA
	Professional	70	20.17	4.82				
	Businessman	10	20.80	4.69				
	Retired	19	19.58	3.55				
	Others	28	19.00	5.24				
	Total	**390**	**21.21**	**4.67**				
Loss Aversion	Employed	263	13.95	2.95	20	6.069	.001	Welch
	Professional	70	14.23	2.28				
	Businessman	10	11.20	2.62				
	Retired	19	12.68	2.73				
	Others	28	12.32	2.55				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Employed	263	9.89	2.38	15	9.282	.000	Welch
	Professional	70	10.59	2.57				
	Businessman	10	8.00	1.33				
	Retired	19	9.21	2.20				
	Others	28	8.61	1.69				
	Total	**390**	**9.84**	**2.40**				
Herding	Employed	263	16.15	4.49	25	7.416	.000	Welch
	Professional	70	16.99	3.26				
	Businessman	10	12.60	2.55				
	Retired	19	15.42	1.98				
	Others	28	14.71	2.95				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Since the *p*-values of cognitive dissonance bias, anchoring bias, availability bias, self-attribution bias, overconfidence bias, loss aversion bias, regret aversion

bias and herding bias are less than 0.05, these biases have significant differences among different occupations.

Cognitive dissonance bias shows a significant difference among different occupations. Investors who are employed have the highest mean score of 7.20 (SD 1.82), while investors who are engaged in business have the lowest mean score of 6 (SD 0.67). This indicates that salaried investors are more prone to cognitive dissonance bias.

Since the *p*-value of anchoring bias is less than 0.05, it shows a significant difference among different occupations. The highest mean score of 16.25 (SD 4.26) belongs to the 'employed' category, whereas the lowest mean score of 12 (SD 3.33) belongs to the 'businessman' category. This means that investors who are employed on a regular basis are more affected by the anchoring bias.

In the case of availability bias, there exists a significant difference among different occupations. The 'employed' category possesses the highest mean score of 17.97 (SD 3.53), while the 'retired' category possesses the lowest mean score of 15.53 (SD 3.98). This indicates that employed investors are the most affected by availability bias, whereas, retired investors are the least affected.

There is a significant difference among different occupations of investors with regard to self-attribution bias. Investors who are employed have the highest mean score of 10.31 (SD 1.93), while investors who are engaged in business have the lowest mean score of 8.80 (SD 1.81). This indicates that employed investors are more affected by self-attribution bias.

Overconfidence bias shows a significant difference among different occupations. In this case, the highest mean score of 21.85 (SD 4.52) belongs to the 'employed' category, whereas, the lowest mean score of 19 (SD 5.24) belongs to the 'others' category. From this, it is obvious that employed investors are more overconfident when making investment decisions.

Since the *p*-value of loss aversion bias is less than 0.05, it shows a significant difference among different occupations. In this case, the 'professional' category of investors has the highest mean score of 14.23 (SD 2.28), while the lowest mean score of 11.20 (SD 2.62) belongs to the 'businessman' category. This clearly shows that professionals are more prone to loss aversion bias.

There exists a significant difference in regret aversion bias among different investor occupations. Investors belonging to the 'professional' category possess the highest mean score of 10.59 (SD 2.57). This implies that professionally occupied investors are more affected by the regret aversion bias.

There exists a significant difference among different occupations of investors with regard to herding bias, as the *p*-value is less than a 5% level of significance. The highest mean score of 16.99 (SD 3.26) belongs to the 'professional' category and the lowest mean score of 12.60 (SD 2.55) belongs to the 'businessman' category of occupation. This indicates that professionally occupied investors are more prone to herding bias.

6.4.5 Marital Status-wise Analysis of Different Sub-Types of Behavioural Bias

Behavioural bias may have a different level of influence on the investors based on their marital status. Descriptive analysis has been done to determine the mean score of married and unmarried investors with regard to different sub-types of behavioural bias. To check whether a significant difference exists between married and unmarried investors in Kerala, Independent Sample 't' test was applied. Table 6.58 presents the results of the t-test.

Table 6.58

Marital Status-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Marital Status	N	Mean	SD	Max Score	t value	*p*-value	Remarks
Representativeness	Married	270	14.13	3.22	20	-2.200*	.028	Equal Variances Assumed
	Unmarried	120	14.93	3.47				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Married	270	14.38	3.25	20	-1.630	.104	Equal Variances not Assumed
	Unmarried	120	14.98	3.35				
	Total	**390**	**14.56**	**3.29**				
Cognitive Dissonance	Married	270	6.83	1.87	10	-3.967**	.000	Equal Variances not Assumed
	Unmarried	120	7.54	1.53				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Married	270	9.82	2.30	15	-5.619**	.000	Equal Variances Assumed
	Unmarried	120	11.27	2.36				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Married	270	15.53	3.79	25	-3.256**	.001	Equal Variances not Assumed
	Unmarried	120	17.06	4.47				
	Total	**390**	**16.00**	**4.06**				
Availability	Married	270	17.39	3.59	25	-2.283*	.023	Equal Variances Assumed
	Unmarried	120	18.30	3.80				
	Total	**390**	**17.67**	**3.67**				
Self Attribution	Married	270	9.62	1.91	15	-4.451**	.000	Equal Variances Assumed
	Unmarried	120	10.58	2.09				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Married	270	7.32	1.57	10	-4.760**	.000	Equal Variances not Assumed
	Unmarried	120	8.08	1.39				
	Total	**390**	**7.55**	**1.55**				
Overconfidence	Married	270	20.60	4.64	30	-3.905**	.000	Equal Variances Assumed
	Unmarried	120	22.57	4.48				
	Total	**390**	**21.20**	**4.67**				
Loss Aversion	Married	270	13.33	2.80	20	-4.432**	.000	Equal Variances Assumed
	Unmarried	120	14.69	2.78				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Married	270	9.59	2.32	15	-3.049**	.003	Equal Variances not Assumed
	Unmarried	120	10.41	2.49				
	Total	**390**	**9.84**	**2.40**				
Herding	Married	270	15.61	3.77	25	-3.114**	.002	Equal Variances not Assumed
	Unmarried	120	17.12	4.68				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.58 represents the t-test results among different behavioural biases. The results indicate that all the behavioural biases except confirmation bias have a significant difference between married and unmarried investors, as their *p*-values are less than 0.05.

In representativeness bias, there exists a significant difference between married and unmarried investors. The mean score of married investors is 14.13 (SD 3.22), whereas the mean score of unmarried investors is 14.93 (SD 3.47). This implies that unmarried investors are more prone to representativeness bias.

Cognitive dissonance bias shows a significant difference between married and unmarried investors. Married investors have a mean score of 6.83 (SD 1.87), while the mean score of unmarried investors is 7.54 (SD 1.53). This means that unmarried investors are more dissonant than married investors.

In the case of illusion of control bias, a significant difference exists between married and unmarried investors. The mean score is higher among unmarried investors, 11.27 (SD 2.36), whereas it is lower among married investors, 9.82 (SD 2.30). From this, it is clear that unmarried investors are more affected by the illusion of control bias.

Since the *p*-value of anchoring bias is less than 0.05, there exists a significant difference between married and unmarried investors. The mean score of married investors is 15.53 (SD 3.79), whereas, the mean score of unmarried investors is 17.06 (SD 4.47). This implies that unmarried investors are more prone to anchoring bias.

Availability bias shows a significant difference between married and unmarried investors. Married investors have a mean score of 17.39 (SD 3.59), while the mean score of unmarried investors is 18.30 (SD 3.80). This means that unmarried investors are more affected by the availability bias.

In self-attribution bias, a significant difference exists between married and unmarried investors. The mean score of married investors is 9.62 (SD 1.91),

whereas, the mean score of unmarried investors is 10.58 (SD 2.09). This implies that unmarried investors are more prone to self-attribution bias.

Since the *p*-value of mental accounting bias is less than 0.05, there exists a significant difference between married and unmarried investors. The mean score of married investors is 7.32 (SD 1.57), whereas the mean score of unmarried investors is 8.08 (SD 1.39). This implies that mental accounting bias is higher in the case of unmarried investors than in married investors.

Overconfidence bias shows a significant difference between married and unmarried investors. Unmarried investors possess a higher mean value of 20.60 (SD 4.64), whereas, married investors have a lower mean value of 22.57 (SD 4.48). From this, it is understood that unmarried investors are more overconfident than married investors while making investment decisions.

In the case of loss aversion bias, a significant difference exists between married and unmarried investors. The mean score of married investors is 13.33 (SD 2.80), whereas the mean score of unmarried investors is 14.69 (SD 2.78). This implies that unmarried investors are more prone to loss aversion bias.

Since the *p*-value of regret aversion bias is less than 0.05, there exists a significant difference between married and unmarried investors. Married investors have a mean score of 9.59 (SD 2.32), while the mean score of unmarried investors is 10.41 (SD 2.49). This means that unmarried investors are more affected by the regret aversion bias.

Herding bias shows a significant difference between married and unmarried investors. The mean score is higher in the case of unmarried investors, 17.12 (SD 4.68), while the mean score is lower in the case of married investors, 15.61 (SD 3.77). This implies that unmarried investors tend to follow the crowd more than married investors when making investment decisions.

6.4.6 Income-wise Analysis of Different Sub-Types of Behavioural Bias

Behavioural bias may vary across individuals according to the annual income they have. In order to find out the mean score of each annual income category, descriptive analysis has been done. ANOVA was applied to determine whether a significant difference exists among these categories of annual income. The homogeneity of variance has been examined using Levene's test and the results are given in Table 6.59.

Table 6.59

Income-wise Test of Homogeneity of Variances - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Levene's Statistic	*p*-value
Representativeness	2.688*	.046
Confirmation	5.659**	.001
Cognitive Dissonance	.439	.725
Illusion of Control	2.192	.089
Anchoring	1.946	.122
Availability	5.347**	.001
Self Attribution	7.216**	.000
Mental Accounting	3.812*	.010
Overconfidence	.376	.770
Loss Aversion	4.240**	.006
Regret Aversion	1.518	.209
Herding	4.522**	.004

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Cognitive dissonance bias, illusion of control bias, anchoring bias, overconfidence bias, and regret aversion bias show the homogeneity of variances. Hence, ANOVA can be applied in the case of these biases. As the assumption of equality of variances is rejected, Welch's F value can be considered to check the significance of differences among them. Table 6.60 presents the results.

Table 6.60

Income-wise Analysis - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Annual Income (Rs.)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Representativeness	Less than 5,00,000	190	14.44	3.29	20	1.913	.136	Welch
	5,00,000 - 10,00,000	151	14.03	3.41				
	10,00,000- 15,00,000	19	15.21	2.18				
	More than 15,00,000	30	15.17	3.45				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Less than 5,00,000	190	15.11	3.13	20	3.709*	.016	Welch
	5,00,000 - 10,00,000	151	13.97	3.54				
	10,00,000- 15,00,000	19	14.68	3.32				
	More than 15,00,000	30	14.03	2.40				
	Total	**390**	**14.56**	**3.29**				
Cognitive Dissonance	Less than 5,00,000	190	7.16	1.72	10	2.130	.096	ANOVA
	5,00,000 - 10,00,000	151	7.09	1.90				
	10,00,000- 15,00,000	19	6.68	1.49				
	More than 15,00,000	30	6.33	1.84				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Less than 5,00,000	190	10.69	2.46	15	4.000**	.008	ANOVA
	5,00,000 - 10,00,000	151	9.91	2.36				
	10,00,000- 15,00,000	19	9.84	1.46				
	More than 15,00,000	30	9.63	2.43				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Less than 5,00,000	190	17.07	3.53	25	10.168**	.000	ANOVA
	5,00,000 - 10,00,000	151	15.03	4.25				
	10,00,000- 15,00,000	19	16.10	3.36				
	More than 15,00,000	30	14.07	4.87				
	Total	**390**	**16.00**	**4.06**				
Availability	Less than 5,00,000	190	18.16	3.89	25	2.452	.071	Welch
	5,00,000 - 10,00,000	151	17.22	3.51				
	10,00,000- 15,00,000	19	16.84	2.69				
	More than 15,00,000	30	17.27	3.26				
	Total	**390**	**17.67**	**3.67**				

(Contd.)

Sub-Types of Behavioural Bias	Annual Income (Rs.)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Self-Attribution	Less than 5,00,000	190	10.28	2.21	15	4.847**	.004	Welch
	5,00,000 - 10,00,000	151	9.74	1.59				
	10,00,000- 15,00,000	19	9.16	1.71				
	More than 15,00,000	30	9.00	2.36				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Less than 5,00,000	190	7.43	1.72	10	.801	.498	Welch
	5,00,000 - 10,00,000	151	7.67	1.30				
	10,00,000- 15,00,000	19	7.53	1.81				
	More than 15,00,000	30	7.73	1.48				
	Total	**390**	**7.55**	**1.55**				
Overconfidence	Less than 5,00,000	190	21.26	4.63	30	.977	.403	ANOVA
	5,00,000 - 10,00,000	151	21.33	4.60				
	10,00,000- 15,00,000	19	19.42	4.71				
	More than 15,00,000	30	21.30	5.27				
	Total	**390**	**21.21**	**4.67**				
Loss Aversion	Less than 5,00,000	190	13.84	2.73	20	.327	.806	Welch
	5,00,000 - 10,00,000	151	13.64	3.07				
	10,00,000- 15,00,000	19	14.05	1.84				
	More than 15,00,000	30	13.53	3.15				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Less than 5,00,000	190	10.25	2.28	15	4.894**	.002	ANOVA
	5,00,000 - 10,00,000	151	9.64	2.47				
	10,00,000- 15,00,000	19	8.95	1.78				
	More than 15,00,000	30	8.87	2.65				
	Total	**390**	**9.84**	**2.40**				
Herding	Less than 5,00,000	190	17.37	3.48	25	13.753**	.000	Welch
	5,00,000 - 10,00,000	151	14.60	4.55				
	10,00,000- 15,00,000	19	15.68	1.89				
	More than 15,00,000	30	15.50	4.15				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.60 shows the significant difference among the annual income categories of investors with regard to different sub-types of behavioural bias. The results indicate that confirmation bias, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among different annual income categories of investors.

Confirmation bias shows a significant difference among investors with different annual incomes. The mean score of the annual income category 'less than Rs. 5,00,000' is 15.11 (SD 3.13) and the mean score of the annual income category '5,00,000-10,00,000' is 13.97 (SD 3.54). This implies that investors belonging to the lowest income category are more prone to confirmation bias.

Illusion of control bias reveals a significant difference among different annual income categories. The mean score of the annual income category 'less than Rs. 5,00,000' is 10.69 (SD 2.46) while the mean score of the annual income category 'more than Rs. 15,00,000' is 9.63 (SD 2.43). This implies that illusion of control bias increases with a decrease in the annual income of investors.

Anchoring bias shows a significant difference among different annual income categories. The annual income category 'less than Rs. 5,00,000' possesses the highest mean score of 17.07 (SD 3.53), whereas the category 'more than Rs. 15,00,000' possesses the lowest mean score of 14.07 (SD 4.87). This indicates that investors with lower annual income are highly affected by anchoring bias.

Self-attribution bias shows a significant difference among different annual income categories of investors. The mean score of the annual income category 'less than Rs. 5,00,000' is 10.28 (SD 2.21), while the mean score of the annual income category 'more than Rs. 15,00,000' is 9 (SD 2.36). This makes it evident that self-attribution bias increase with a decrease in the annual income of investors.

In regret aversion bias, a significant difference exists among different annual income categories of investors. The annual income category 'less than Rs. 5,00,000' has the highest mean score of 10.25 (SD 2.28), whereas the category 'more than Rs. 15,00,000' has the lowest mean score of 8.87 (SD 2.65). This

implies that investors with lower annual income are more affected by regret aversion bias.

Herding bias shows a significant difference among different annual income categories of investors. In this case, the highest mean score of 17.37 (SD 3.48) belongs to the annual income category 'less than Rs. 5,00,000', while the lowest mean score of 14.60 (SD 4.55) belongs to the annual income category 'Rs. 5,00,000 – 10,00,000'. This indicates that investors with lower annual income are highly prone to herding bias.

6.4.7 Investment Experience-wise Analysis of Different Sub-Types of Behavioural Bias

Behavioural bias may vary across individuals according to the experience they have in equity mutual fund investment. Descriptive analysis has been done to find out the mean score of mutual fund investment experience of investors. ANOVA was applied to know whether a significant difference exists among investors having different levels of experience. Homogeneity of variance has been examined using Levene's test and the results are given in Table 6.61.

Table 6.61

Investment Experience-wise Test of Homogeneity of Variances - Sub-Types of Behavioural Bias

Sub-Types of Behavioural Bias	Levene's Statistic	*p*-value
Representativeness	4.288**	.005
Confirmation	5.198**	.002
Cognitive Dissonance	1.577	.194
Illusion of Control	5.090**	.002
Anchoring	.549	.649
Availability	5.897**	.001
Self Attribution	1.775	.151
Mental Accounting	2.297	.077
Overconfidence	15.426**	.000
Loss Aversion	6.045**	.000
Regret Aversion	3.010*	.030
Herding	3.221*	.023

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Cognitive dissonance bias, anchoring bias, self-attribution bias and mental accounting bias show the homogeneity of variances. Hence, ANOVA can be applied in the case of these biases. As the *p*-values of other biases are less than 0.05, the assumption of equality of variances is rejected. So, the Welch's F value can be considered to check the significance of differences among them. Table 6.62 presents the significance of differences in various behavioural biases among different levels of investment experience in mutual funds.

Table 6.62

Investment Experience-wise Analysis - Sub-Types of Behavioural Bias

Types of Behavioural Bias	Investment Experience (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Representativeness	Less than 1	82	14.30	2.97	20	4.370**	.006	Welch
	1-3	128	13.56	3.61				
	3-5	46	15.17	3.38				
	Above 5	134	14.92	3.04				
	Total	**390**	**14.37**	**3.31**				
Confirmation	Less than 1	82	15.16	3.48	20	9.059**	.000	Welch
	1-3	128	13.34	3.39				
	3-5	46	15.54	3.10				
	Above 5	134	15.04	2.80				
	Total	**390**	**14.56**	**3.29**				
Cognitive Dissonance	Less than 1	82	7.45	1.53	10	1.823	.142	ANOVA
	1-3	128	6.91	1.87				
	3-5	46	7.04	2.04				
	Above 5	134	6.93	1.79				
	Total	**390**	**7.05**	**1.80**				
Illusion of Control	Less than 1	82	11.09	2.15	15	5.564**	.001	Welch
	1-3	128	9.75	2.58				
	3-5	46	10.11	2.93				
	Above 5	134	10.31	2.06				
	Total	**390**	**10.27**	**2.41**				
Anchoring	Less than 1	82	17.29	3.82	25	5.243**	.001	ANOVA
	1-3	128	15.16	3.95				
	3-5	46	16.63	4.48				
	Above 5	134	15.81	3.98				
	Total	**390**	**16.00**	**4.06**				

(Contd.)

Types of Behavioural Bias	Investment Experience (Years)	N	Mean	SD	Max Score	F Value/ Welch F	*p*-value	Remarks
Availability	Less than 1	82	18.07	3.63	25	.979	.405	Welch
	1-3	128	17.20	4.13				
	3-5	46	17.76	4.16				
	Above 5	134	17.83	2.99				
	Total	**390**	**17.67**	**3.67**				
Self-Attribution	Less than 1	82	10.44	1.93	15	3.686*	.012	ANOVA
	1-3	128	9.88	1.77				
	3-5	46	9.24	2.32				
	Above 5	134	9.87	2.11				
	Total	**390**	**9.92**	**2.01**				
Mental Accounting	Less than 1	82	7.49	1.33	10	2.248	.082	ANOVA
	1-3	128	7.30	1.52				
	3-5	46	7.85	1.63				
	Above 5	134	7.72	1.66				
	Total	**390**	**7.55**	**1.55**				
Overconfidence	Less than 1	82	21.22	3.74	30	.213	.887	Welch
	1-3	128	20.99	4.58				
	3-5	46	21.09	6.50				
	Above 5	134	21.44	4.57				
	Total	**390**	**21.21**	**4.67**				
Loss Aversion Bias	Less than 1	82	13.83	2.56	20	.316	.814	Welch
	1-3	128	13.77	3.35				
	3-5	46	14.00	2.66				
	Above 5	134	13.60	2.60				
	Total	**390**	**13.75**	**2.86**				
Regret Aversion	Less than 1	82	10.56	2.13	15	4.780**	.003	Welch
	1-3	128	9.67	2.62				
	3-5	46	10.15	2.48				
	Above 5	134	9.46	2.23				
	Total	**390**	**9.84**	**2.40**				
Herding	Less than 1	82	17.46	4.01	25	6.149**	.001	Welch
	1-3	128	15.09	4.58				
	3-5	46	16.89	3.41				
	Above 5	134	15.88	3.69				
	Total	**390**	**16.07**	**4.12**				

Source: Survey Data

*, ** Statistically significant at 5%, and 1% significant level

Table 6.62 shows the significant difference in the investment experience of mutual fund investors with regard to different behavioural biases. The results indicate that representativeness bias, confirmation bias, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among investors with different levels of investment experience.

Representativeness bias shows a significant difference among investors' experiences in mutual fund investment. Investors with experience levels of 3-5 years have the highest mean score of 15.17 (SD 3.38), while investors belonging to '1-3 years' experience category have the lowest mean score of 13.56 (SD 3.61). This indicates that investors with 3–5 years of experience are more prone to representativeness bias.

In confirmation bias, a significant difference exists among investors' experiences in mutual fund investment. The mean score of the mutual fund investment experience category of '3-5 years' is 15.54 (SD 3.10), while the mean score of the category '1-3 years' is 13.34 (SD 3.39). This implies that investors with 3-5 years of experience are more affected by confirmation bias.

Since the *p*-value of illusion of control bias is less than 0.05, there is a significant difference in investors' experience in mutual fund investment. The mean score of the mutual fund investment experience category 'less than 1 year' is 11.09 (SD 2.15), while the mean score of the category '1-3 years' is 9.75 (SD 2.58). This makes it clear that investors with the lowest experience level in investment are more prone to illusion of control bias.

Anchoring bias shows a significant difference among investors' experiences in mutual fund investment. The mean score of mutual fund investment experience category 'less than 1 year' is 17.29 (SD 3.82), while the mean score of the category '1-3 years' is 15.16 (SD 3.95). From this, it is understood that investors with the lowest experience level in investment are more affected by anchoring bias.

In the case of self-attribution bias, a significant difference exists among investors' experiences in mutual fund investment. The mean score is the highest for the experience level category ‘less than 1 year’ 10.44 (SD 1.93), whereas the mean score is the lowest for the category ‘3-5 years’ 9.24 (SD 2.32). This indicates that investors with less than one year of experience are more prone to self-attribution bias.

Since the *p*-value of regret aversion bias is less than 0.05, there is a significant difference among investors’ experiences in mutual fund investment. Investors with an experience level of ‘less than 1 year’ have the highest mean score of 10.56 (SD 2.13), while investors belonging to the ‘above 5 years’ experience category have the lowest mean score of 9.46 (SD 2.23). This implies that regret aversion bias decreases with increase in mutual fund investment experience.

Herding bias shows a significant difference among investors’ experiences in mutual fund investment. The mean score of mutual fund investment experience category ‘less than 1 year’ is 17.46 (SD 4.01), while the mean score of the category ‘1-3 years’ is 15.09 (SD 4.58). This makes it clear that investors with less experience in investment are more prone to herding bias.

6.5 Conclusion

Based on the above analysis, it can be concluded that, on an average, investors are 65% affected by behavioural bias when making investment decisions. It is found that investors are most affected by belief perseverance bias (71%), whereas investors are least affected by emotional bias (68%).

Significant difference exists between male and female investors with regard to behavioural bias. The results imply that male investors are more affected by behavioural bias than female investors. While analysing the types of behavioural bias, there exists significant difference between male and female investors with regard to various behavioural biases. In this case, male investors tend to be more prone to belief perseverance bias, information processing bias and emotional bias compared to their female counterparts.

In age-wise analysis, a significant difference exists among investors belonging to different age categories with regard to behavioural bias. The results indicate that young investors are more prone to behavioural bias. In the case of different types of behavioural biases, young investors are more affected by belief perseverance bias, information processing bias and emotional bias compared to older investors.

While analysing the education of investors, it is understood that there exists a significant difference among investors belonging to different educational levels with regard to behavioural bias. Investors with lowest educational qualification are the most affected by behavioural bias whereas, the professionally qualified investors are the least affected by behavioural bias. Belief perseverance bias, information processing bias and emotional bias show significant differences among investors belonging to various educational qualifications.

In occupation-wise analysis, significant difference exists among investors having different occupations with regard to behavioural bias. Behavioural bias is highest among employed investors while it is lowest in the case of businessmen. Regarding the types of behavioural bias, information processing bias and emotional bias show significant differences among different occupations. Information processing bias is highest among employed investors, whereas, emotional bias is highest in the case of professionals.

Regarding marital status, there is a significant difference between married and unmarried investors with regard to behavioural bias. All three types of behavioural bias show a significant difference between married and unmarried investors and these biases are higher among unmarried investors.

In the income-wise analysis, a significant difference exists among investors belonging to different annual income categories. Investors with lower incomes are found to be more affected by behavioural bias. Analysing the types of behavioural bias, information processing bias and emotional bias shows significant differences among different annual income categories. Investors belonging to the lowest income level are more prone to these biases.

In the case of mutual fund investment experience, there is a significant difference among investors with regard to behavioural bias. Further, the investors with the least experience in mutual fund investment are more prone to behavioural bias. Analysing the types of behavioural bias, belief perseverance bias and emotional bias show significant differences among investors' experiences. Investors with the least experience in mutual fund investment are more affected by these biases.

It can be concluded that all the types of behavioural biases have an above-average level of influence among investors, as their mean values are higher than 3. Herding bias has the most influence among the equity mutual fund investors in Kerala, whereas cognitive dissonance bias has the least influence.

It is found that all the sub-types of behavioural bias except cognitive dissonance have a significant difference between male and female investors.

Representativeness bias shows a significant difference between male and female investors. Since the mean score is higher for male investors, they are more affected by representativeness bias.

In confirmation bias, there is a significant difference between male and female investors. The results indicate that male investors are more prone to confirmation bias.

In the case of illusion of control bias, there exists a significant difference between male and female investors. The mean score is higher among male investors, making it clear that the illusion of control bias is higher among male investors than their female counterparts.

Anchoring bias shows a significant difference between male and female investors. The mean score indicates that male investors show a higher degree of anchoring bias than female investors.

In availability bias, there exists a significant difference between male and female investors. Male investors are more affected by anchoring bias since their mean score is higher compared to female investors.

In the case of self-attribution bias, there exists a significant difference between male and female investors. Male investors are more prone to self-attribution bias than their female counterparts.

Mental accounting bias shows a significant difference between male and female investors. The results imply that male investors are more affected by mental accounting bias than female investors.

Overconfidence bias shows a significant difference between male and female investors. Male investors are found to be more overconfident than female investors.

In loss aversion bias, there exists a significant difference between male and female investors. Male investors are more prone to loss aversion bias than female investors.

Regret aversion bias shows a significant difference between male and female investors. The results indicate that male investors are more prone to regret aversion bias.

Herding bias shows a significant difference between male and female investors. The mean score of male investors is higher than that of female investors, indicating that male investors are more affected by herding bias.

It can be concluded that illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among age categories of investors.

Illusion of control bias shows a significant difference among different age categories of investors. The results indicate that younger investors are more prone to illusion of control bias.

In the case of anchoring bias, there exists a significant difference among the different age categories of investors. The results imply that anchoring bias decreases among investors according to an increase in their age.

In self-attribution bias, a significant difference exists among different age categories of investors. The results suggest that younger investors are more affected by self-attribution bias.

Regret aversion bias shows a significant difference among different age categories of investors. The findings show that younger investors are more prone to regret aversion bias.

In the case of herding bias, a significant difference exists among different age categories of investors. The results indicate that younger investors are more affected by herding bias and herding bias decreases among investors with an increase in their age.

From the results, it can be concluded that all the behavioural biases except the mental accounting bias have significant differences among different educational qualifications.

Representativeness bias shows a significant difference among various educational levels of investors. The results indicate that the post graduates are more prone to representative bias.

In the case of confirmation bias, there exists a significant difference among various educational levels of investors. The results exhibit that post graduates are more prone to confirmation bias.

In the case of cognitive dissonance bias, there exists a significant difference among various educational levels of investors. The results indicate that professionally qualified investors are more affected by cognitive dissonance bias, whereas graduates are less prone to cognitive dissonance bias.

In illusion of control bias, there exists a significant difference among various educational levels of investors. The results make it evident that technically qualified investors are more affected by the illusion of control bias, while professionally qualified investors are less affected by the illusion of control bias.

Anchoring bias shows a significant difference among investors with various educational qualifications. The results imply that investors with lower educational qualifications are more prone to anchoring bias than highly qualified investors.

In the case of availability bias, there exists a significant difference among different educational levels of investors. The results show that investors with lower educational levels are more prone to availability bias.

Self-attribution bias shows a significant difference among various educational levels of investors. In this case, investors with lower educational levels are more affected by self-attribution bias than highly qualified investors.

Overconfidence bias shows a significant difference among the different educational levels of investors. It is found that investors with the lowest educational qualifications are more overconfident than others.

In the case of loss aversion bias, there is a significant difference among various educational levels of investors. The results indicate that the investors with the lowest qualifications are more affected by loss aversion bias, whereas, professionally qualified investors are less prone to loss aversion bias.

Regret aversion bias shows a significant difference among various educational levels of investors. The results show that investors with the lowest educational qualification are more prone to regret aversion bias than others.

In the case of herding bias, there exists a significant difference among the different educational levels of investors. It is found that the investors with the lowest qualification are more prone to herding bias, whereas professionally qualified investors are less prone to herding bias.

The results imply that cognitive dissonance bias, anchoring bias, availability bias, self-attribution bias, overconfidence bias, loss aversion bias, regret aversion bias and herding bias show significant differences among investors with different occupations.

Cognitive dissonance bias shows a significant difference among different occupations. The results revealed that employed investors are more prone to cognitive dissonance bias than others.

In anchoring bias, there exists a significant difference among investors with different occupations. It is found that investors who are employed on a regular basis are more affected by anchoring bias.

In the case of availability bias, there exists a significant difference among different occupations. The results indicate that employed investors are the most affected by availability bias, whereas retired investors are the least affected.

Self-attribution bias shows a significant difference among different occupations. The results show that employed investors are more affected by self-attribution bias.

Overconfidence bias shows a significant difference among different occupations. The results imply that employed investors are more overconfident when making investment decisions.

In the case of loss aversion bias, there exists a significant difference among different occupations of investors. It is found that professionally occupied investors are more prone to loss aversion bias.

In regret aversion bias, there exists a significant difference among different occupations of investors. The results show that professionally occupied investors are more affected by regret aversion bias.

Herding bias shows a significant difference among different occupations of investors. Professionally occupied investors are found to be more prone to herding bias.

In marital status-wise analysis, all the behavioural biases except confirmation bias have significant differences between married and unmarried investors.

Representativeness bias shows a significant difference between married and unmarried investors. The results suggest that unmarried investors are more prone to representativeness bias.

In cognitive dissonance bias, there exists a significant difference between married and unmarried investors. It is found that unmarried investors are more prone to cognitive dissonance bias than married investors.

In the case of illusion of control bias, a significant difference exists between married and unmarried investors. The results show that unmarried investors are more affected by illusion of control bias.

Anchoring bias shows a significant difference between married and unmarried investors. The results indicate that unmarried investors are more prone to anchoring bias.

In availability bias, a significant difference exists between married and unmarried investors. The results make it evident that unmarried investors are more affected by availability bias.

In the case of self-attribution bias, a significant difference exists between married and unmarried investors. Unmarried investors are found to be more prone to self-attribution bias.

Mental accounting bias shows the existence of a significant difference between married and unmarried investors. The results suggest that mental accounting bias is higher in the case of unmarried investors than married investors.

Overconfidence bias shows a significant difference between married and unmarried investors. Unmarried investors are found to be more overconfident than married investors when making investment decisions.

In the case of loss aversion bias, a significant difference exists between married and unmarried investors. The results indicate that unmarried investors are more prone to loss aversion bias.

In regret aversion bias, there is a significant difference between married and unmarried investors. The results suggest that unmarried investors are more affected by the regret aversion bias.

Herding bias shows a significant difference between married and unmarried investors. The results indicate that unmarried investors are more prone to herding bias than married investors.

The results show that confirmation bias, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among different annual income categories of investors.

Confirmation bias shows a significant difference among different annual income categories of equity mutual fund investors. The results indicate that investors belonging to the lowest income category are the most affected by confirmation bias.

In the case of illusion of control bias, there exists a significant difference among different annual income categories. The results make it evident that the illusion of control bias increases with a decrease in the annual income of investors.

In anchoring bias, a significant difference exists among different annual income categories. From the results, it is understood that investors with lower annual income are highly affected by anchoring bias.

Self-attribution bias shows a significant difference among different annual income categories. The results suggest that self-attribution bias increases with a decrease in the annual income of investors.

In regret aversion bias, a significant difference exists among different annual income categories of investors. It is found that investors with lower annual incomes are more affected by the regret aversion bias.

Herding bias shows a significant difference among different annual income categories of investors. The results indicate that investors with lower annual income are highly prone to herding bias.

The results indicate that representativeness bias, confirmation bias, illusion of control bias, anchoring bias, self-attribution bias, regret aversion bias and herding bias have significant differences among different investment experience levels of investors.

Representativeness bias shows a significant difference among investors' experiences in mutual fund investment. The results indicate that investors with 3-5 years of experience are more prone to representativeness bias.

In confirmation bias, a significant difference exists among investors' experiences in mutual fund investment. The results show that investors with 3-5 years of experience are more affected by confirmation bias.

In the case of illusion of control bias, there exists a significant difference among investors' experiences in mutual fund investment. The results suggest that investors with the lowest experience level in investment are the most affected by illusion of control bias.

Anchoring bias shows significant differences among investors' experiences in mutual fund investment. The results show that investors with the lowest experience level in investment are more affected by anchoring bias.

In the case of self-attribution bias, a significant difference exists among investors' experiences in mutual fund investment. The results indicate that investors with less than one year of experience are more prone to self-attribution bias.

In regret aversion bias, there exists a significant difference among investors' experiences in mutual fund investment. It is found there exists a significant difference among investors' experience in mutual fund investment.

Herding bias shows a significant difference among investors' experiences in mutual fund investment. The findings imply that investors with little investment experience are more vulnerable to herding bias.