

***The Need of Cognitive Behavioural Therapy (CBT) for
Capital Market Investors of Northern India – An
Empirical Analysis***

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Abstract

The sudden and rapid growth of Indian capital markets has not only attracted global attention but has also propelled Indian people to invest in the markets, but there is a sizeable portion of such investors who have not actually been supposedly rational at making investment decisions and have ended up committing behavioural blunders with their capital market investment decisions which are giving them mental trauma and sleepless nights.

This study is the first of its kind on a global level where a total of 168 randomly selected capital market investors were asked to fill up a survey questionnaire aimed at testing the presence of five most prominent cognitive disorders (anxiety, panic attack, addiction, anger and eating disorder) among the capital market investors of India and the extent to which these disorders impact the stock investment decisions of Indian investors.

The results of the study show that cognitive disorders are not only closely associated with the investment decisions of Indian investors but also carry a significant impact on their market investment decisions. Moreover, there are considerable differences in opinions of investors across their socio-demography at 95% significance level ($p < 0.05$) which gives a clear indication that Indian investors do need cognitive behavioural therapy to become more refined and sagacious at making capital market investments.

CBT has proven to be very helpful in treating a variety of mental illnesses in the past. Therefore, owing to the presence of cognitive disorders among capital market investors of India CBT can be of great help in developing an understanding of capital markets among investors by making them mindful of the unfavorable and frequently unreasonable considerations which adversely affect their sentiments, temperaments and subsequent market earnings.

Keywords: cognitive disorders, cognitive behavioural therapy, capital market investment, behavioural finance

I. Introduction

Behavioral Finance

It's undeniably true that neither can all stock market investors retrieve the best market information, nor can they soundly utilize every piece of available data to settle on sophisticated stock picks. If the truth be said, majority of the choices made by stock market investors in the capital market depend on behavioural elements. Frankly speaking there exist broad assortments of mental cycles and cognitive predispositions that come into play and impact the very process of stock selection by an investor. Moreover, such psychic cycles and predispositions get clarified in the field of behavioural economics. Generally, behavioural finance is a perfect combination of financial management and behavior related psychology. The complete ideology of value investment relies upon the ideas emanated from the field of behavioural finance. The value investing proposition believes that in a short time frame, markets cannot be adjudged as efficient. In the markets, voracity and dread dominate and propel investors to settle on nonsensical choices. Thus, if an investor focuses on the principles of behavioural economics, they will be able to recognize and comprehend the market set offs. Behavioural economics assists an investor from becoming a prey to basic psychic snares. All things considered, it assists investors in exploiting stock overvaluations and undervaluations that occur in capital markets in light of the fact that an enormous quantum of stock market investors makes choices inwardly.

Cognitive Behavioural Therapy (CBT)

In the world of therapeutics Cognitive Behavioural Therapy (CBT) is generally referred to as a

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basic form of "Talk Therapy". The method of treatment in a CBT centers on the antagonistic or negative feelings which we come across in our everyday life and attempts to make a passage for our feelings and our perspectives to act in a constructive manner for our overall betterment. CBT helps in accomplishing this through a progression of meetings with an advisor or a therapist or it may also be done in the form of self-directed therapy. CBT is claimed to be extremely compelling in treating psychic issues like anxiety, phobia, post-traumatic issues and even uncommon cases like a dietary problem. CBT is fundamentally tendered in order to ensure that our life gets into a state of equilibrium and we could carry on with our life in the

most productive manner. Thus, in the present scenario CBT is being brought in to practice in various functional areas for finding out solutions for many psychological disorders.

II. Literature Review

Hofmann et al. (2013) have conducted a comprehensive review on the basis of meta-analysis of 106 previously held studies to inspect the efficiency of cognitive behavioural therapy (CBT) in figuring out a solution for various kinds of psychological and health disorders like depression, schizophrenia, anger and other psychotic disorders. It is concluded that CBT is apparently a broadly concentrated on type of psychotherapy and obviously the proof for efficiency of CBT is colossal. Moreover, despite the significant expense adequacy of this intercession, it is astounding that numerous countries, involving quite a few advanced countries, lack behind embracing CBT as the primary mediation for psychological problems.

Butler et al. (2006) carried out a survey which measures the impact of cognitive behavioural therapy with results of different benchmark groups for every issue. This gives an outline of the viability of intellectual treatment as evaluated through meta-examination. Huge impact proportions were discovered for CBT with respect to panic, anxiety, phobia and stress related disorders. Impact proportions for CBT for anger, excessive pain and marital distress were classified under the middling radius. CBT was to some degree better than antidepressants in the treatment of grown-up wretchedness. Finally, CBT was similarly viable as conduct treatment in the therapy of wretchedness in grown-ups and OCDs.

Bados et al. (2007) have stated that drop-out from medications stands to be a typical issue in daily operation of mental therapy. Under the intellectual-emotional writings in psychology, the amount of available information on drop-out from treatment is meagre. Moreover, the information accessible differs broadly as per by the meaning of opt-out and force of medication. The review shows inferences generated in University of Barcelona's behavioural therapy unit. In aggregate, albeit the intellectual social methodology offers powerful medications for a scope of problems this efficiency is short of what it appears when opt-out percentages are considered. Moreover, opt-out is by all accounts highly normal in ordinary medical operation in comparison to regulated exploration experiments.

Beck et al. (1998) have seconded the view that scientists have progressively concentrated on CBT as a potential medication in context of outrage problems. In the course of the last two decades, numerous singular examinations have proposed that CBT has definitely emerged as a powerful, time-restricted methodology for outrage issues. The meta-examination conducted by the researchers show on 1,640 participants uncovered a reminiscent of modest treatment attainments. Such discoveries suggest that there is an evident prominence of CBT as far as treatment of outrage issues is concerned and it is further proved by its viability in accomplishing the required objectives of treatment.

Borkovec et al. (1993) conducted an analysis to conclude that applied relaxation and cognitive behavioural therapy were found better than non-directive therapies post appraisal. This was confirmed by inter group correlations, inside group alterations, level of medical significances alters and recurrence of future supplementary medication. This happened in spite of the fact that situations didn't contrast essentially over validity and hope or on customer impression of association elements. Generally significant for systematic regulation, non-directives created predominant levels of profundity in behavior handling. Albeit the inferences of this research are empowering, the development of applied relaxation and CBT strategies for eradicating generalized anxiety disorders should proceed.

Leahy (2008) has put forth a view that it is possible that intellectual conduct treatment is interestingly capable of providing assistance in synthesis of an issue and in systems to viably use, mediate and help with settling stalemates in the remedial connection. In a very long time, psychodynamic treatment has earned high esteem in connection to its comprehension of remedial relationship. Nonetheless, the concepts and synthesis proposed are many times witless and hard to utilize as manual for viable activity. In the research paper, the researcher has illustrated various components of opposition, stalemates, clashes and disarrays in restorative relationship which are amiable to CBT.

Luaces et al. (2016) conclude that under various existing literatures it has been widely taken into consideration that describing the course of alteration in psychotherapy can be incredibly difficult. Further, under a given treatment direction, any given restorative package shall empower a bunch of remedial methods, like improving stimulation levels for emotional alterations. Although a few of these might extend over the available treatment packages, internal or external to that direction. Besides, any previously available methodology probably won't influence the thinking procedures which it is actually scheduled to pick out, and may rather influence any instrument which does not really feature in its expected objective. Lastly the authors conclude by stating that the available literature on CBT is still scarce and confined in its capabilities.

Ehde et al. (2014) have claimed on the basis of primary analysis that CBT is a mental treatment of the highest quality level for people having multiple issues related to pain. The efficiency of CBT in decreasing agony, trouble, torment impedance with exercises and dysfunction has already been set up in organized researches and meta-investigations. Shockingly, many people with ongoing pain do not get CBT. Thus combining CBT with clinical settings i.e. places where people with constant agony are generally seen offers much guarantee in extending use of CBT.

Waller et al. (2011) discussed that execution of explicit CBT procedures was found to be much lesser than proposed by conventions, especially for medical practitioners who were restless,

more established, or much knowledgeable about working along dietary problems. Further, the utilization of medical instructions was related with more noteworthy utilization of suggested CBT procedures. Lastly, authors state that conclusions should be reached out to different treatments and different problems, yet they show the requirement for more grounded preparation.

David et al. (2018) have stated that due to its unmistakable exploration aid, CBT overwhelms the worldwide rules for mental therapy, rising to become the primary therapy for quite a few mental problems, as verified by the code of conduct of NIHCE, United States of America and American Psychological Association. Thus, CBT for sure is the best quality psychological therapy in the area of psychotherapy. Moreover, CBT has also been incorporated as a part of many medical prescriptions dependent on its thorough observational premise.

Edinger et al. (2005) have conducted a study which contemplates on the features and comparative benefits of CBT in dealing with patients of primary insomnia. Furthermore, the paper considers researches fostering the overall viability and medical adequacy of CBT in providing therapy for insomnia patients. Problems concerned with therapy execution just as variables which arbitrate reaction of patients towards CBT and anticipate therapy inference/result are likewise appraised. CBT tends to such propagating systems and has arisen as a cutting edge therapy decision for primary insomnia.

Holtforth et al. (2005) opined that persuasive correction is introduced as a group of core values which may be utilized to cultivate the restorative coalition in CBT. Observational examination has proved that a pair of specialized mediations and treatment connection is a significant supporter of psychotherapy results, both overall and explicitly in cognitive behavioural therapy.

III. Research Methodology

Objective of Research

The current research is by far the only study of its kind in India with the twin objectives of attaining inference to comprehend the extent of presence of different cognitive disorders in capital market investors of India and the level of impact of these cognitive disorders on investments. This research also aims to figure out the differences in the magnitude of presence of cognitive disorders among investors based on their socio-demography.

Hypothesis of Research

Hypothesis 1: Cognitive disorders are significantly associated and related with the investment decisions of Indian capital market investors.

Hypothesis 2: Cognitive disorders have a significant effect on the market investment decisions of Indian capital market investors.

Hypothesis 3: Cognitive disorders are present in different magnitude among capital market investors of India.

Sample and Collection of Data

In this research a five-point Likert scale has been used for the sake of data collection. Further, keeping in mind the nature of study, snowball sampling technique was used to collect data from the sample population. Although the survey questionnaire was distributed among 200 capital market investors from north India, only 175 responses were returned back by the respondents. Moreover, out of the total received responses 7 had some or the other discrepancies and had to be turned down. This led to the final figure of researchable responses as 168. The research has utilized IBM SPSS 25.0 for analysis of the collected data.

Instruments and Variables

As far as analysis of the collected data is concerned the study has put to use statistical techniques like Descriptive statistics, Cronbach's alpha, Chi-square test, Ordinal regression, Mann-Whitney U test and Kruskal-Wallis H test. Moreover, the study contains five dependent variables representing Anxiety (CD1), Panic Attacks (CD2), Addiction (CD3), Anger (CD4) and Eating Disorder (CD5) whose effects are analyzed on independent socio-demographic variables namely Gender, Age Group, Marital Status, Current Profession and Educational Qualification of capital market investors in India.

IV. Results and Conclusion

Cronbach's Alpha

Since there were no previous studies available specifically on this subject, the researchers developed a compact scale to collect data from the target audience. Cronbach's alpha is one of the most widely practiced technique for ascertaining the reliability, validity and consistency of the scale used for collection of data from respondents. The general rule of thumb is that a cronbach's alpha with its value greater than 0.7 can be considered an acceptable scale. The cronbach's alpha of the current study is under mentioned:

Table 1

Reliability Statistics

No. of Items	Cronbach's Alpha
05	0.833

Table 1 shows that the cronbach's alpha of the study was computed as 0.833 which is definitely much greater than the permissible limit of 0.7. This proves that the scale constructed for the study is a valid and reliable scale to conduct further research.

KMO and Bartlett's Test

The Kaiser-Meyer-Olkin test of sampling adequacy and Bartlett's test of sphericity have been conducted to check the sufficiency of sample taken for research and the measure of correlation among dependent variables of the study. The results are as under:

Table 2

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.809
Bartlett's Test of Sphericity	Approx. Chi-Square	308.817
	Df	10
	Sig.	.000

The KMO test value is 0.809 which is much greater than the accepted norm of 0.5 and therefore proves that the sample size of the present study is adequate and capable of further analysis. The results of Bartlett's sphericity test show the Approx. Chi-Square as 308.817 and Sig. value as .000 which is significant and shows that in the present study variables as a set are correlated and differ significantly. This gives us a sense of confidence that further analysis can be conducted with the same sample and variables.

Descriptive Statistics

In any research work it is descriptive statistics which provides a view of the basic characteristics of the data and gives a composite summary and measures about the sample. The following table presents the percentage responses categories and the value of mean and standard deviation of the responses.

Table 3

Descriptive Statistics

Code	Questionnaire Items	Category wise response from respondents (%)					Mean	S.D.
		SA	A	N	D	SD		
CD1	The pain of losing money in the stock market always runs on my mind and even interferes in my daily activities.	25.6	37.5	20.2	12.5	4.2	3.68	1.112
CD2	Sometimes the name "stock market" instills a feeling of fear in my mind prompting me to think about giving up on stock market altogether.	13.7	41.7	16.7	19.6	8.3	3.33	1.181
CD3	I am often unable to stop myself from thinking about my current stock market investments and future portfolio decisions.	13.7	50.0	18.5	16.7	1.2	3.58	0.963
CD4	The thought of losing money in the stock market fills me with a sense of excessive anger even causing health issues at times.	15.5	30.4	16.7	23.8	13.7	3.10	1.307
CD5	I do not feel like having my meal on the days when losses are incurred by me in the capital market.	13.1	29.8	20.2	24.4	12.5	3.07	1.253

Table 3 given above displays the category wise percentage responses of survey participants with reference to the likert-scale questionnaire items. In the survey items CD1 represents Anxiety, CD2 represents Panic Attacks, CD3 represents Addiction, CD4 represents Anger and CD5 represents Eating Disorder. From the results of the survey it is fairly evident that because all the mean values are greater than 2.5 it can be safely concluded that there is a strong presence of cognitive disorders among capital market investors of India.

Chi-Square test

In order to test hypothesis 1, the current study utilizes chi-square test for ascertaining the strength of relationship between socio-demographic variables i.e. gender, marital status, age groups, educational qualification and current profession with the five cognitive disorders namely anxiety, panic attacks, addiction, anger and eating disorder. The results are given as under:

Table 4

Chi-Square result for degree of association between cognitive disorders and capital market investment of Indian investors

Gender			Marital Status			Age Group			Educational Qualification			Current Profession		
Item	χ^2	p	Item	χ^2	p	Item	χ^2	p	Item	χ^2	p	Item	χ^2	p
CD1	12.07	.00***	CD3	8.87	.04**	CD1	15.53	.05**	CD1	19.65	.03**	CD3	11.54	.05**
CD2	10.31	.05**	CD5	7.99	.05**	CD5	15.19	.05**	CD2	24.88	.00***			
CD3	9.08	.04**							CD3	20.17	.03**			
									CD4	16.47	.05**			
									CD5	19.69	.03**			

***represents significance at 99% level of significance, **represents significance at 95% level of significance, χ^2 indicates chi-square test statistic, CD1-Anxiety, CD2-Panic Attack, CD3-Addiction, CD4-Anger, CD5-Eating Disorder.

The results of chi-square test show that educational qualification is most strongly associated with the five cognitive disorders considered under this study as the values for all the cognitive disorders are found to be significant at 99% and 95% confidence interval while gender has a relationship with anxiety, panic attack and addiction. Marital status of investors is significantly associated with addiction and eating disorder while age groups of investors are in association with anxiety and eating disorder. Finally the current profession of investors is found to be associated with addiction disorder only. Thus, it can be concluded that cognitive disorders are moderately associated with socio-demography of investors and on this basis the null hypothesis (H0) can be partially rejected and alternate hypothesis (H1) can be partially accepted.

Ordinal Logistic Regression

In order to test hypothesis 2, ordinal logistic regression has been used with the aim of confirming whether there is any significant impact/effect of five cognitive disorders namely anxiety, panic

attack, addiction, anger and eating disorder on the capital market investment decisions of Indian investors. The under mentioned model has been developed for applying ordinal logistic regression where ANX represents anxiety, PAN represents panic attack, ADD represents addiction, ANG represents anger and EAT represents eating disorder.

$$CBTi = \beta_0 + \beta_1ANXi + \beta_2PANI + \beta_3ADDi + \beta_4ANGi + \beta_5EATi + ei$$

An analysis of ordinal logistic regression dispensed under table 5 clearly presents the result based on which it can be safely assumed that anxiety, addiction, anger and eating disorder have a statistically impact on stock market investments of Indian investors while panic attack disorder does not have a statistically significant impact on Indian investors. Thus, Indian investors appear to be affected by four out five cognitive disorders. Therefore, null hypothesis (H₀) can be partially rejected and alternate hypothesis (H₂) can be partially accepted implying that cognitive disorders have a considerable impact on stock market investments of Indian investors.

Table 5

Effect of cognitive disorders on capital market investment of Indian investors

Model	Coefficient	Std. Err.	z	Sig.
Anxiety (ANX)	0.263	0.249	2.021	0.04
Panic Attack (PAN)	0.056	0.435	0.542	0.55
Addiction (ADD)	0.289	0.231	1.997	0.03
Anger (ANG)	0.288	0.232	1.968	0.03
Eating Disorder (EAT)	0.315	0.201	2.546	0.01

Constant	-2.463	1.094	5.812	0.47
LR Chi ²		94.58		
Prob> Chi ²		0.02		
Log Likelihood		175.01		
Pseudo R ²		29.60%		

Mann-Whitney U Test

In order to test hypothesis 3, Mann-Whitney U test has been applied on two socio-demographic variables namely gender and marital status for comparing the difference in the opinion of investors with respect to five cognitive disorders i.e. anxiety, panic attack, addiction, anger and eating disorder. Tables 6 and 7 present the Mann-Whitney test statistic as given under:

Table 6

Difference in investor opinion regarding the presence of cognitive disorders based on Gender

Cognitive Disorder	Mean Rank	Mann-Whitney U	Wilcoxon W	Test Statistic	p
Anxiety	M-75.01; F-88.75	3509.50	10295.50	1.765	0.030
Panic Attack	M-87.32; F-78.20	3343.50	10129.50	1.175	0.240

Addiction	M-88.03; F-76.62	3426.00	10212.00	1.512	0.050
Anger	M-85.72; F-81.79	3157.00	9943.00	0.497	0.619
Eating Disorder	M-87.12; F-78.64	3320.50	10106.50	1.074	0.283

Where, N=168, M-Male & F-Female, p – Level of Significance, Confidence Interval – 95% (p<0.05)

The results of Mann-Whitney U test show that:

- On the basis of gender there is a statistically significant difference in opinion of male and female investors with respect to anxiety and addiction disorders.
- On the basis of marital status there is a statistically significant difference in opinion of married and unmarried investors in relation to panic attack, addiction, anger and eating disorder.

Table 7

Difference in investor opinion regarding the presence of cognitive disorders based on Marital Status

Cognitive Disorder	Mean Rank	Mann-Whitney U	Wilcoxon W	Test Statistic	p
Anxiety	M-86.17; U-83.09	3375.00	7561.00	0.426	0.670

Panic Attack	M-89.64; U-79.15	3108.00	7294.00	-1.318	0.050
Addiction	M-79.01; U-91.14	3926.00	8112.00	1.449	0.040
Anger	M-90.45; U-75.46	3045.00	7231.00	-1.499	0.030
Eating Disorder	M-91.56; U-73.52	2959.00	7145.00	-1.779	0.010

Where, N=168, M-Married & U-Unmarried, p – Level of Significance (2-tailed), Confidence Interval – 95% ($p < 0.05$)

Kruskal-Wallis H Test

In order to test hypothesis 3, Kruskal-Wallis H test has been applied on the remaining three socio-demographic variables namely age, educational qualification and current profession for comparing the difference in the opinion of investors with respect to five cognitive disorders i.e. anxiety, panic attack, addiction, anger and eating disorder. Tables 8, 9 and 10 present the Kruskal-Wallis test statistic as under:

Table 8

Difference in investor opinion regarding the presence of cognitive disorders based on Age Groups

Cognitive Disorder	Test Statistic	d.f.	P
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Anxiety	8.439	3	0.038
Panic Attack	8.043	3	0.043
Addiction	2.699	3	0.440
Anger	2.197	3	0.533
Eating Disorder	7.848	3	0.050

Where, N=168, d.f. – Degree of Freedom, p – Level of Significance (2-tailed), Confidence Interval – 95% ($p < 0.05$), Age Groups – Group I (18-30 years), Group II (31-40 years), Group III (41-50 years) and Group IV (51-60 years).

Table 9

Difference in investor opinion regarding the presence of cognitive disorders based on Educational Qualifications

Cognitive Disorder	Test Statistic	d.f.	P
Anxiety	3.833	3	0.280
Panic Attack	12.872	3	0.005

Addiction	2.598	3	0.458
Anger	1.853	3	0.604
Eating Disorder	9.455	3	0.050

Where, N=168, d.f. – Degree of Freedom, p – Level of Significance (2-tailed), Confidence Interval – 95% ($p < 0.05$), Educational Qualifications – Doctorate, Post Graduates, Graduates and Under Graduates.

The results of Kruskal-Wallis H test show that:

- On the basis of age there is a statistically significant difference in opinion of investors among different age groups with respect to anxiety, panic attack and eating disorder.
- On the basis of educational qualification there is a statistically significant difference in opinion of investors belonging to different categories of educational qualifications with respect to panic attack and eating disorder.
- On the basis of current profession there is no statistically significant difference in opinion of investors irrespective of their classes of profession with respect to any of the cognitive disorder under the purview of study.

Table 10

Difference in Investor Opinion based on Current Profession

Cognitive Disorder	Test Statistic	d.f.	P
Anxiety	0.855	2	0.652
Panic Attack	0.916	2	0.633
Addiction	1.780	2	0.411

Anger	0.710	2	0.701
Eating Disorder	0.585	2	0.747

Where, N=168, d.f. – Degree of Freedom, p – Level of Significance (2-tailed), Confidence Interval – 95% ($p < 0.05$), Current Profession – Government Services, Private Sector Job, Business.

Conclusions and Discussions

The basic idea driving cognitive behavioural therapy is that ideologies and sentiments assume a major part in investor decisions. For instance, an investor who invests a great deal of energy contemplating stock market crashes, investment mishaps and several other capital market debacles might keep away from stock market investment subsequently. The objective of CBT is to develop a sense of understanding among investors that although it is not possible for them to handle every single dimension of their capital market investment, they can assume responsibility for the manner in which they decipher and manage their overall investment decisions.

Cognitive Behavioural Therapy permits investors to make better investment choices by turning them mindful of the unfavorable and frequently unreasonable considerations which adversely affect their sentiments and temperaments because CBT is a proven and successful transient choice of treatment wherein refinements have been visualized in limited sessions. Moreover, CBT has frequently been observed to be more reasonable and effective in both one-on-one and online therapy in comparison to different sorts of treatment.

The results of the study can be interpreted as under:

- (a) There is a moderate to high level of association between investor decision making and cognitive disorders which shows the existence of a definite relationship between them.
- (b) There is a moderate to high level impact/effect of cognitive disorders on investment decisions of capital market investors of India.
- (c) Female investors are more prone to anxiety disorder in comparison to male investors while male investors have greater presence of addiction disorder rather than females.
- (d) Married investors are more affected by panic attack, eating disorder and anger while unmarried investors show higher addiction disorder in comparison to married investors.

- (e) Investors in the age group of 41-50 years are least affected by anxiety disorder but have a strongest presence of eating disorder. Lastly, investors hailing from the age group 51-60 years are more prone to panic attack disorder.
- (f) Investors having under graduate qualification are least affected by panic attack disorder but investors who are doctorate degree holders show presence of eating disorder.
- (g) Presence of all five cognitive disorders is by and large equally distributed among capital market investors across all streams of profession.

On the basis of above discussions and results it can be inferred that there is a prevalence of cognitive disorders among capital market investors of India and therefore require cognitive behavioural therapy (CBT) as a method of treatment. Further, owing to specificity of goals and easier result measurements the assistance provided by CBT can prove to be a game changer in developing subsistence prowess in investors which will again help them in making rational asset investment choices in the present as well as future.

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