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Keywords : behaviour modification therapy, effective managers, ineffective managers, managerial effectiveness, need for achievement, observation and suggestion technique, personality traits and risk adaptiveness.

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Risk Adaptiveness and Need for Achievement Leads to Managerial Effectiveness

Dr. Rishipal [α] & Nidhi Jain [σ]

Abstract - Fast and frequent change in technology has put the present day managers under pressure. This pressure has impact on their personality dimensions and consequently on their capabilities to perform. So, one of the most critical issue of modern era is to study the impact of changing psychological dimensions on managerial effectiveness. This research was aimed to study effects of improved psychological traits like need for achievement and risk adaptiveness on managerial effectiveness. Statistical universe for this study was the managers having experience of more than three years from governmental and non-governmental organizations. Managerial Effectiveness, Need for achievement and Risk adaptiveness among managers were assessed by using the Index of Managerial Effectiveness test devised by Walter W. Hudson (1993) Achievement Motive Test (AMT) developed by Bhargava, V.P. (1994) and Risk Adaptiveness Test (RAT) developed by Rishipal & Jain, N (2012) respectively. A cross-sectional and longitudinal study was conducted by using the before and after with control group research design to compare the effectiveness of treatment group consisting of ineffective managers having lower tendency of need for achievement and risk adaptiveness and control group consisting of the effective managers having higher degree of need for achievement and risk adaptiveness. Control and treatment group were formed by adopting the sampling technique of randomization on availability basis. Before treatment both the control and treatment group were tested. The mean scores for managerial effectiveness (ME), need for achievement (N-ach) and risk adaptiveness (RA) for control group were 174, 39 and 26 respectively whereas the mean scores of test group before treatment for managerial effectiveness (ME), need for achievement (N-ach) and risk adaptiveness (RA) were 73, 18 and 9 respectively. There was significant difference between the pre and post treatment mean scores values of managerial effectiveness ($Mean_{pre\text{-}treatment}$ = 73 & $Mean_{post\text{-}treatment}$ = 110), need for achievement ($Mean_{pre\text{-}treatment}$ = 18 & $Mean_{post\text{-}treatment}$ = 25) and risk adaptiveness ($Mean_{pre\text{-}treatment}$ = 9 & $Mean_{post\text{-}treatment}$ = 14) of treatment group. Before and after application of treatment to treatment group, relationship between the managerial effectiveness, need for achievement and risk adaptiveness among treatment and control group were also tested and analyzed. Findings revealed that there was positive and significant relationship between the managerial effectiveness and psychological traits of need for achievement and risk adaptiveness among control as well as the treatment group. Findings related to the personality dimensions and managerial effectiveness proved that the personality traits of need for achievement and risk adaptiveness were predictive of managers capability to effectively perform and enhanced need for achievement and risk adaptiveness among managers have enhanced their effectiveness.

Keywords : behaviour modification therapy, effective managers, ineffective managers, managerial effectiveness, need for achievement, observation and suggestion technique, personality traits and risk adaptiveness.

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I. Managerial Effectiveness

Managerial effectiveness is manager's ability to achieve desired results. How well managers apply their knowledge, skills and abilities in working with, guiding and directing others determines whether they can meet those results effectively, if they can, their achievements are poised to help the organization gain a competitive edge against competing organizations heading into the future (Robbins SP, 1988).

A manager should have a combination of technical, interpersonal and conceptual skills that can make him an effective manager, according to theoretical models of management, technical skills include specialized training, skilled performance of specific tasks, expertise in a specific field or industry and the ability to apply specialized knowledge to tasks and objectives (Shermon G. 1999). Interpersonal skills include the ability to work well with others, motivate workers, resolve conflicts, delegate roles and communicate objectives clearly (Howell JP, DE Bowen, PW Dorfman and S Kerr, 1997). Conceptual skills are broader and more self-actualized. They include the ability to see the organization in the context of its industry, the ability to understand how each part of the organization functions as a whole, the ability to visualize, imagine, think, remember and process information for future course of action based on current organizational and industry trends, the ability to analyze and diagnose complex situations and the ability to understand the interrelationships at work in the organization (Zhang, L.F., & Sternberg, R.J., 2006).

a) Role of Psychological Traits in Managerial Effectiveness

Organizational effectiveness and Manager's capability to perform is very much affected by various factors like their profile, technology, work environment, relationship with other employees, physical fitness, psychological development, personal life, personality dimensions and health of managers. According to Rishipal (2012), managerial effectiveness and mature

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style of defense mechanism are positively associated. In another research Rishipal (2012) has revealed that cognitive style is a predicator of managerial effectiveness. Performance by manager could be influenced by psychological factors such as locus of control, agreeableness, need for achievement, cognitive style, neuroticism, risk adaptiveness, self image, openness to experience, extraversion, emotional stability, conscientiousness etc. and interaction between these factors. A manager's personality will help to shape their reputation within the workplace and it may also affect teamwork or collaboration. Salgado J.F. (1997) indicates that agreeableness has close relationship with job performance. Other theorists and researchers have argued that agreeable people can better regulate their behavior (Graziano & Eisenberg, 1997; Jensen-Campbell, 2002) and self regulation has been causally associated with more constructive conflict resolution strategies (Finkel & Campbell, 2001).

Rishipal (2011) has pointed that individual's behavior is a function of the values and attitudes he/she holds. If value and attitude can be changed, behavior will change itself. Various personality traits may interact with each other to blend and result in desirable, as well as undesirable workplace behaviors. Goldberg (1993) also came across in his research that indicated personnel's personality traits are valid predictors for different dimensions of job performance. Psychological features describe and predict human behavior. Rishipal and Chand P.K (2012) have pointed that personality traits of middle and senior level managers in private organizations has positive relationship with work behavior. Although there are many psychological factors attributed to effectiveness of managers, this study will focus on effect of need for achievement and risk adaptiveness on managerial effectiveness. One of the personality traits that may indicate the success of a manager may be need for achievement. In the present study, researchers have found out the consequences of change in degree of need for achievement and risk adaptiveness upon managerial effectiveness.

b) Need for Achievement

David McClelland (1961) and his associates have proposed McClelland's Theory of Needs/-Achievement Motivation Theory. This theory states that human behavior is affected by three needs – Need for Power, Achievement and Affiliation. Need for achievement is the urge to excel, to accomplish in relation to a set of standards, to struggle for success.

Need for power is the desire to influence others behavior as per personal wish. In other words, it is the desire to have control over others and to be influential. Need for affiliation is a need for open and sociable interpersonal relationships. It is a desire for relationship based on cooperation and mutual understanding.

The individuals with high achievement needs are highly motivated by competing and challenging work such as business and entrepreneurship. They look for promotional opportunities. They have a strong urge for feedback on their achievement (Mc Clelland, 1961). Such individuals try to get satisfaction in performing things better. High achievement is directly related to high performance. McClelland called such individuals as gamblers (risk takers) as they set challenging targets in unforeseen circumstances for themselves and they take deliberate risk to achieve those set targets. Such individuals look for innovative ways of performing job. They perceive achievement of goals as a reward, and value it more than a financial reward. The individuals who are motivated by power have a strong urge to be influential and controlling. They want their views and ideas should dominate and thus, they want to lead.

Such individuals are motivated by need for reputation and self-esteem. Individuals with greater power and authority will perform better than those possessing less power. The individuals who are motivated by affiliation have an urge for a friendly and supportive environment. Such individuals are effective performers in a team. These people want to be liked by others (Rishipal & Jain N, 2012).

c) Risk Adaptiveness

Risk inducing situations or circumstances are resultant of combined feeling of fear, excitement, uncertainty, insecurity, danger, threat, pressure and expectation for loss. There are various factors, circumstances, situations, duties, responsibilities and events which can induce different type of risks in day to day work life. Risk is an uncertain event or condition, if occurs, has a positive or negative consequential effect on individual.

The degree of risk in individual's work life may differ but no one can be identified and specified as a person, working in a risk free environment. A businessman's or entrepreneur's work life is always full of different kind of risks. One of the definitions of business is "the process of taking risk and converting it into profit". Or simply, "logical and rational risk in business is equal to profit". One of the prime and important characteristics of entrepreneur is 'Risk Taker'. Relationship of risk and entrepreneur is always positive and very significant.

Without risk, business is not possible; starting from the commencement of business to the reception of profit (dividend), every moment of business is full of risk creating circumstances. So for the successful establishment, conduction and management of the business, an entrepreneur should be adaptable to risk.

In other words, an entrepreneur should have a strong trait of 'Risk Adaptiveness'. Risk Adaptiveness may be defined as the psychological trait which empowers entrepreneurs to remain least affected by the negative consequential effects of the risk taking in business. It may also be explained as the effectiveness and capability of an entrepreneur by virtue of which

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entrepreneur is rationally affected by the resulting negative elements of risk taking such as fear, excitement, uncertainty, insecurity, danger, threat, pressure and expectation for loss (Rishipal & Jain N, 2012).

In the competitive world, achievement of organizational success is very difficult. It requires effective and optimum utilization of all resources including managers. Managers effectiveness is a major factor influencing organizational performance and it might be affected by various factors including the degree of various personality dimensions and traits such as locus of control, risk adaptiveness, agreeableness, need for achievement, cognitive style, neuroticism, self image, openness to experience, extraversion, emotional stability, conscientiousness etc. According to Rishipal & Jain N. (2012) the individuals who are motivated by affiliation have an urge for a friendly and supportive environment. Such individuals are effective performers in a team. Most of the previous studies of managers performance have examined the moderating influence of mental ability (Boshoff, C. & Arnolds, C 1995) or situational variables, such as autonomy (Barrick & Mount, 1993) and organizational politics (Hochwarter, Witt, & Kacmar, 2000) not the relationship among variables studied in present research. So, there was need to conduct such study which could analyze the impact of psychological traits on managerial effectiveness. Present study is an effort to investigate and understand the dimensions of managerial effectiveness, need for achievement and risk adaptiveness with a new perspective of enquiring the relationship among these and how they can influence each other. Besides this, present study has also investigated how Behavior Modification Therapy can affect the psychological traits of need for achievement and risk adaptiveness and consequently the impact of enhanced degree of need for achievement and risk adaptiveness improves the managerial effectiveness.

II. Objectives of Study

The study was aimed to investigate and understand the relationship between need for achievement, risk adaptiveness and managerial effectiveness. Conduction of present research has achieved the following three specific objectives.

- To enquire the relationship of need for achievement and risk adaptiveness with managerial effectiveness.
- To understand the difference of the relationship between need for achievement and managerial effectiveness of effective and ineffective managers and also the relationship between risk adaptiveness and managerial effectiveness among effective and ineffective managers.
- To enquire the affect of Behaviour Modification Therapy on the psychological traits of need for achievement and risk adaptiveness and also their simultaneous consequential impact on the managerial effectiveness.

III. Research Method

a) *Research Design*

Present research has been conducted by using before and after with control group type of research design. Research design can be better understood with the help of following table.

Table 1 : Research Design

Treatment Group	Control Group	
Before treatment (X_{t1})	Without treatment (Y_{t1})	Treatment Effect (X_{t2}-X_{t1}) – (Y_{t2}-Y_{t1})
Application of treatment ⇩		
After treatment (X_{t2})	Without treatment (Y_{t2})	

To conduct the research a sample of 220 managers having experience of more than three years and working with various governmental and non-governmental organizations was taken randomly on availability basis. Selected managers were tested for their capability of management and categorized as effective and ineffective managers. Subjects included in the category of effective managers were managers whose score was twenty percent more than the mean managerial effectiveness score. Ineffective manager's category included the managers whose score was twenty percent less than the mean managerial effectiveness score. After such categorization, subjects from effective and ineffective manager's categories were tested for need for achievement and risk adaptiveness. After testing the subjects of the effective and ineffective manager's category for managerial effectiveness, need for achievement and risk adaptiveness, two groups were formed. From the effective manager's category a group of 20 such subjects was selected which were having high degree of need for achievement and risk adaptiveness. Similarly from the ineffective manager's category a group of 20 subjects was selected which were having low degree of need for achievement and risk adaptiveness. For deciding the high and low degree of need for achievement and risk adaptiveness, same criteria was used as it was used in the case of managerial effectiveness i.e. twenty percent more and less than mean scores for high and low degree of need for achievement and risk adaptiveness respectively. By

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this method two groups were formed each consisting of 20 subjects. First group of effective managers was having higher degree of managerial effectiveness, need for achievement and risk adaptiveness. Second group was also having 20 subjects with lower degree of managerial effectiveness, need for achievement and risk adaptiveness. The first group having the tendency of high managerial effectiveness, need for achievement and risk adaptiveness was declared as control group whereas second group i.e. the subjects having lower tendency of managerial effectiveness, need for achievement and risk adaptiveness was considered as treatment group. The treatment group was then given the "Behavior Modification Therapy" based upon the techniques of observation and suggestion for a period of four months. On completion of the therapy, after four months, both the control and treatment group were re-tested for managerial effectiveness, need for achievement and risk adaptiveness by using the same research tools. Pre and post treatment results and findings of treatment and control group were analyzed and compared.

a) Method of Data Collection

Data was collected by using questionnaire method. Index of Managerial Effectiveness test devised by Walter W. Hudson (1993), Achievement Motive Test (AMT) developed by Bhargava, V.P. (1994) and Risk Adaptiveness Test (RAT) developed by Rishipal & Jain, N (2012) for measuring managerial effectiveness, need for achievement and risk adaptiveness respectively. The stability of items included in all scales used in the research has been measured by using Cronbach's alpha technique. The reliability of various scales was found 0.815, 0.910 and 0.722 for managerial effectiveness, need for achievement and risk adaptiveness respectively.

Collected data was analyzed by using various descriptive and inferential statistical techniques and methods to work out the results and findings for research. Statistical calculation and analysis was carried out with the help of SPSS software. Descriptive statistics such as mean and standard deviation etc. were used to analyze the results. Cronbach alpha coefficients and inter-item correlations were used to assess the internal consistency of the measuring scales. Karl Pearson correlation coefficient, coefficient of determination (r^2), regression analysis and t test were used to find out inter and intra group and variable relationship analysis. Multivariate regression technique was also used to analyze the relationship among managerial effectiveness, need for achievement and risk adaptiveness.

IV. Results and Findings

Results and findings for the research were obtained by using descriptive and inferential statistical techniques.

Table 2 : Descriptive Statistics Showing Mean Score Values of Managerial Effectiveness (ME), Need for Achievement (N-ach) and Risk Adaptiveness (RA)

Variables ⟹	Managerial Effectiveness	Need for Achievement	Risk Adaptiveness
N	220	220	220
Min.	61	11	5
Max.	183	41	29
Range	122	22	14
Mean	135	30	16
Std. Dev.	30.53	5.72	2.03

Table (2) exhibits the statistical values of mean score, range and standard deviation calculated by using the data collected from 220 subjects (managers) chosen randomly on availability basis from different governmental and non-governmental organizations. Mean score values for Managerial Effectiveness (ME), Need for Achievement (N-ach) and Risk Adaptiveness (RA) were found to be 135 for ME, 30 for N-ach and 16 for RA. Higher value of mean score for ME, N-ach & RA indicates the higher tendency of psychological traits of Managerial Effectiveness, Need for Achievement and Risk Adaptiveness. Standard deviation calculated with respect to the mean scores of various psychological traits taken as variables for the research like Managerial Effectiveness, Need for Achievement and Risk Adaptiveness was 30.53, 5.72 and 2.03 respectively. Standard deviation measures the dispersion of individual scores around mean score of all the scores. Higher value of standard deviation with respect to mean score point out a wide spread of scores among data and considered as inconsistent data whereas low value of standard deviation shows the consistency of the data i.e. the scores of the subjects were scattered near to the mean score of the group.

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Table 3 : Co-relationship between Managerial Effectiveness & Need for Achievement, Managerial Effectiveness & Risk adaptiveness and Need for Achievement & Risk Adaptiveness

Variables ⇨	ME & N-ach	ME & RA	N-ach & RA
N	589	589	589
Pearson Correlation (r)	0.764	0.809	0.795
Coefficient of Determination (r^2)	0.583	0.654	0.632
Adjusted r^2	0.402	0.356	0.590
Standard Error	10.1824	3.1343	8.030
t value	3.59	3.04	3.17
P value	.031	.048	.043

Table (3) depicts the values of coefficient of correlation, coefficient of determination and adjusted r^2 calculated by using Karl Pearson method with t value, standard error and p value. The value of coefficient of correlation was found to be r = 0.764 between the variables of Managerial Effectiveness & Need for Achievement and the r^2 value between these two variables was found to be 0.583 with adjusted r^2= 0.402, these values show a positive and significant relationship between the Managerial Effectiveness and degree of Need for Achievement. The t value between Managerial Effectiveness and Need for Achievement shown in the same table (2) was found to be (t = 3.59, p = 0.031) which supports the finding of positive and significant correlation between the Managerial Effectiveness and the degree of Need for Achievement.

The value of coefficient of correlation between the variables of Managerial Effectiveness and Risk Adaptiveness was found, r = 0.809 and the r^2 value between these two variables was 0.654 with adjusted r^2 = 0.356, which again shows a positive and significant correlation between the Managerial Effectiveness and Risk Adaptiveness. The t value between these two variables i.e. ME & RA shown in the table (3) was found to be (t = 3.04, p = 0.048) which supports the findings of a positive and significant correlation between Managerial Effectiveness and Risk Adaptiveness.

The value of coefficient of correlation among Need for Achievement and Risk Adaptiveness was found to be r=0.795 and the r^2 value between these two variables was found to be 0.632 with adjusted r^2 = 0.590, this shows a positive and significant correlation between Need for Achievement and Risk Adaptiveness. The t value between these two variables (t = 3.17, p = 0.043) also supports the findings of positive and significant correlation. Present research was an effort to find out the effect of enhancement in the tendency of Need for Achievement and Risk Adaptiveness upon the Managerial Effectiveness. So the subjects were divided into the two categories of Effective Managers and Ineffective managers on the basis of their managerial capabilities. Subjects scored 20% more than the mean Managerial Effectiveness score were taken as effective managers and subjects having Managerial Effectiveness score 20% less than the mean Managerial Effectiveness score were categorized as Ineffective Managers. Total 62 subjects were found Effective managers, 83 Ineffective managers and 75 were in others category. Subjects were further grouped on the basis of higher tendencies of N-ach &. 62 subjects selected as effective managers were further grouped on the basis of their higher tendency of N-ach and RA. Subjects among effective managers, who were having higher tendency of N-ach & RA i.e. who scored 20% more than mean N-ach & RA score values were grouped as effective managers group. Whereas from low managerial effectiveness category subjects with lower tendency of N-ach & RA i.e. who scored 20% less than the mean N-ach & RA score values were grouped as Ineffective Managers group.

Out of total 62 subjects of effective manager's group, 47 were found with higher tendency of N-ach & RA and from Ineffective manager's group of 83 subjects 60 subjects were found with lower tendency of N-ach & RA. Subjects selected so were asked to participate in the research and undergo the Behaviour Modification Therapy (for the treatment group) based on the observation and self suggestions and researchers instructions. Only 80 managers from both the categories (53 from control group and 27 from test group) gave the consent to participate in the research. So, lastly two groups of 20 subjects each were formed both from the effective and ineffective managers on random basis by use of lottery draw.

Being the cross-sectional and longitudinal study, selected subjects were lastly divided into two groups i.e. Control Group and Treatment Group of 20 subjects each on the basis of degree of tendency for ME, N-ach & RA. Control group was formed of the subjects having higher tendency of ME, N-ach & RA and treatment group was formed of subjects with lower tendency of ME, N-ach & RA. Now the groups formed so, i.e. control and treatment group were re-tested for all the dimensions of ME, N-ach and RA and finding were tabulated in the Table (4).

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Table 4 : Descriptive Statistics for Pre-treatment Measure of Managerial Effectiveness, Need for Achievement & Risk Adaptiveness

Groups	Variables	N	Min.	Max.	Range	Mean	Std. Dev.
Control Group	Managerial Effectiveness	20	162	183	21	174	2.56
	Need for Achievement	20	36	41	5	39	0.42
	Risk Adaptiveness	20	20	29	9	26	0.79
Treatment Group	Managerial Effectiveness	20	61	96	35	73	3.79
	Need for Achievement	20	11	24	13	18	1.13
	Risk Adaptiveness	20	5	13	8	9	0.83

Table (4) shows the pre-treatment values of mean scores of ME, N-ach & RA as 174, 39 & 26 respectively for control group and for treatment group 73, 18 & 9 for ME, N-ach & RA respectively. It is clear from the comparison of values of mean scores of control group and treatment group that the mean scores of control group were higher than the mean scores of treatment group for all the variables i.e. ME (Mean $_{cg}$ = 174 & Mean $_{tg}$ = 73), N-ach (Mean $_{cg}$ = 39 & Mean $_{tg}$ = 18) and RA (Mean $_{cg}$ = 26 & Mean $_{tg}$ = 9). The comparative analysis of pre-treatment values of Standard deviation in control group and treatment group for ME (Std. dev $_{cg}$=2.56, Std. dev $_{tg}$ = 3.79), N-ach (Std. dev $_{cg}$=0.42, Std. dev $_{tg}$ = 1.13) and RA (Std. dev $_{cg}$=0.79, Std. dev $_{tg}$ = 0.83) shows that there is difference in the dispersion of individual score values among control group in comparison to treatment group.

Table 5 : Descriptive Statistics for Control Group and Treatment Group after Treatment

Groups	Variables	N	Min.	Max.	Range	Mean	Std. Dev.
Control Group	Managerial Effectiveness	20	166	182	16	177	1.15
	Need for Achievement	20	34	43	9	40	0.41
	Risk Adaptiveness	20	20	28	8	25	0.75
Treatment Group	Managerial Effectiveness	20	86	165	79	110	11.98
	Need for Achievement	20	13	35	22	25	2.05
	Risk Adaptiveness	20	7	22	15	14	1.56

Table (5) presents descriptive statistical results of control and treatment group after application of treatment on subjects of test group only by using the techniques of observation and suggestion based upon the Behaviour Modification Therapy. After giving the treatment to the specified group, both the control and treatment groups were re-tested after a period of 4 months for the dimensions of ME, N-ach and RA. When the results of control group were compared (this group was not given any treatment) with their mean scores recorded four months back, there was no significant difference in the mean scores of this group even after the duration of 4 months. Table (5) also shows that there was no significant difference between the mean score of ME, N-ach & RA among the control and treatment group which means that the managers performance of treatment group has improved because of positive impact of the Behaviour Modification Therapy. Comparison of score values shown at Table (4) and Table (5) exhibits that there was significant difference between the mean scores of pre-treatment and post treatment test results of treatment group for all the dimensions such as ME (Mean $_{pre\text{-}treatment}$ = 73 & Mean $_{post\text{-}treatment}$ = 110), N-ach (Mean $_{pre\text{-}treatment}$ = 18 & Mean $_{post\text{-}treatment}$ = 25) and RA (Mean $_{pre\text{-}treatment}$ = 9 & Mean $_{post\text{-}treatment}$ = 14). The increased mean score for ME, N-ach & RA of test group after treatment proved that observation and suggestion technique of Behaviour Modification Therapy has enhanced the degree of Need for Achievement and Risk Adaptiveness among managers and consequently it has improved managerial effectiveness. Rishipal, (2011) has also stated in his book that managers behavior can be changed by providing them with new knowledge for example in some aspect of their profession, by providing them with new skills, say in the area of human relations. From Table (5) the analysis of Standard deviation values of control and treatment group for ME (Std. dev$_{cg}$=1.15, Std. dev$_{tg}$ = 11.98), N-ach (Std. dev$_{cg}$=0.41, Std. dev$_{tg}$ = 2.05) and RA (Std. dev$_{cg}$=0.75, Std. dev$_{tg}$ = 1.56) shows that there was difference in the dispersion of individual score values among control and treatment group, this is because of change in degree of personality dimensions among managers of treatment group and the individual values in treatment group were less closer to the mean score value in comparison to the values of treatment group before applying treatment.

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Table 6 : Inferential Statistics for Relationship between Managerial Effectiveness & Need for Achievement after Treatment

Groups	Control Group	Treatment Group
Pearson Correlation(r)	.872	.890
Coefficient of Determination (r^2)	.760	.792
Adjusted r^2	.657	.723
t value	2.10	3.16
P value	.032	.027

Table (6) shows inter and intra group relationship between ME & N-ach in between the results of pre and post treatment score values among control and treatment group. The results revealed that ME & N-ach were positively and highly correlated (r_{cg} = 0.872, r^2_{cg} =0.760 and r_{tg} = 0.890, r^2_{tg} = 0.792) among both groups findings. The t values (t_{cg} = 2.10 p = 0.032, t_{tg} = 3.16 p = 0.027) also supported that there is positive and significant relationship between ME & N-ach.

Table 7 : Inferential Statistics for Relationship between Managerial Effectiveness & Risk Adaptiveness after treatment

Groups	Control Group	Treatment Group
Pearson Correlation (r)	.772	.801
Coefficient of Determination (r^2)	.595	.641
Adjusted r^2	.411	.631
t value	3.11	2.59
P value	.028	.044

Table (7) shows inter and intra group relationship between ME & RA among control and treatment group after using the treatment on test group. The results revealed that ME & RA were positively and significantly correlated (r_{cg} = 0.772, r^2_{cg} = 0.595 and r_{tg} = 0.801, r^2_{tg} = 0.641) among both the groups. The t values (t_{cg} = 3.11 p = 0.028, t_{tg} = 2.59 p = 0.044) have also supported the findings.

Table 8 : Inferential Statistics for Relationship between N-ach & RA after Treatment

Groups	Control Group	Treatment Group
Pearson Correlation (r)	.753	.695
Coefficient of Determination (r^2)	.567	.483
Adjusted r^2	.503	.362
t value	3.53	3.59
P value	.043	.039

Table (8) shows inter and intra group relationship between N-ach & RA among control group and Treatment group after applying the treatment on test group. The results revealed that N-ach & RA were positively and highly correlated (r_{cg} = 0.753, r^2_{cg} = 0.567 and r_{tg} = 0.695, r^2_{tg} = 0.483) among both groups. The t values (t_{cg} = 3.53 p = 0.043, t_{tg} = 3.59 p = 0.039) also supported the results.

Table 9 : Inferential Statistics to Measure Inter-relationship between Managerial Effectiveness, Need for Achievement and Risk Adaptiveness

Groups	Control Group	Treatment Group
Pearson Correlation (r)	0.805	0.790
Coefficient of Determination (r^2)	0.648	0.624
Adjusted r^2	0.596	0.601

The interrelationship between Managerial Effectiveness, Need for Achievement and Risk Adaptiveness was calculated by using multivariate regression technique. Need for Achievement and Risk Adaptiveness were independent variables and Managerial Effectiveness was dependent variable. Coefficient of determination (r^2_{cg} = 0.648, adjusted r^2_{cg} = 0.596 and r^2_{tg} = 0.624, adjusted r^2_{tg} = 0.601) shows that Managerial Effectiveness is dependent on Need for Achievement and Risk Adaptiveness in both control group and treatment group.

Table 10 : Impact of Behaviour Modification Therapy on Treatment Group

Treatment Group	Control Group	
Before treatment ($X_{t=73}$)	Without treatment ($Y_{t1=174}$)	Treatment Effect $(X_{t2}-X_{t1}) - (Y_{t2}-Y_{t1})$ (110-73)-(177-174) = 34
Application of treatment ⇩		
After treatment ($X_{t2=110}$)	Without treatment ($Y_{t2=177}$)	

The critical analysis of Table (4), (5) and (10) shows that the mean scores of need for achievement and risk adaptiveness have improved as a result of Behaviour Modification Therapy and accordingly this improvement in N-ach and RA has further improved the managerial effectiveness. Table (10) has also proved that there is significant impact of treatment on the test group (Treatment Effect = 34).

- **Abbreviations : BMT** – Behaviour Modification Therapy, **ME** – Managerial Effectiveness, N-ach – Need for Achievement, **RA** – Risk Adaptiveness, **cg** – control group, **tg** – treatment group.

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