STUDIES ON THE EFFECT OF YOGIC PRACTICES ON A PSYCHOLOGICAL AND ACADEMIC-RELATED VARIABLE OF THE TOBACCO SMOKING MALE STUDENTS

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Abstract

The current study attempted to explore the impact of yogic practices on tobacco smoking male students. Thirty numbers of students from the different engineering colleges in the age group of 18-22 are randomly selected as a sample. Pre-test, post-test random group design is followed in the sample by branched into the experimental group (15 Nos.) and control group (15 Nos.). The impact of yogic practices after twelve weeks is tested on the selected (i) psychological variables viz., perception about the smoking habit and the ability to quit the cigarette smoking and (ii) studies related variable, i.e., Academic performance. The pre-test scores and post-test scores are statistically analyzed for the test of significance using Analysis of Variance (ANOVA). It is concluded from the results of the current study that the yogic practices are proved its ability to enhance the possibilities to quit smoking habits and improves their academic performance.

Keywords: Tobacco smoking, yogic practices, quit smoking, academic performance, statics design

I. INTRODUCTION

The definition given by the World Health Organization (WHO) about health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." If a person can balance the physical, mental and social challenges during the life span, then it is believed that he is healthy [1].

Cigarettes are an item devoured through smoking and fabricated out of relieved and finely cut tobacco leaves and reconstituted tobacco, regularly joined with different added substances, which are then folded or stuffed into a paper-wrapped chamber. Cigarettes are lighted and breathed in, as a rule through a cellulose acetic acid derivation channel, into the mouth and lungs. Cigarette smoking is a sequence of actions viz., burning the tobacco and inhaling the solid smoke particles dispersed in the gas medium. [2].

Tobacco smoke conveys over 4000 chemicals. 250 of these are known to be hurtful. Furthermore, more than 50 are known to cause malignant growth. As indicated by a reality sheet distributed by WHO, tobacco executes about 6 million individuals consistently. Above 5 million of these passing is the consequence of direct tobacco use. Nearly 6,00,000 non-smokers are died because of inhaling the second-hand cigarette smoke [3].

The smoking habit begins in many lives during their school or college period. It makes them feel pleasure combined with suppressing stress, relaxation though they experience adverse symptoms like cough, nausea as a beginner. Over a period, the neglect of withdrawal symptoms, social-status and peer pressure makes the smokers proceed with this habit. From the research finding, it is observed that the advertisements related to cigarette smoking, movies, smoking by parents, friends are acted as the driving force for the students to experience the same. And while smoking can thrill in the beginning, its charm fades in a while. In no time at all, many health problems insidiously creep in. And then the smoker ends up wanting to shake off the habit. Smoking gives temporary happiness and leads to misery and pain [4].

Cigarette smoking is the primary source of preventable demise and significant general well-being concerns. Tobacco use leads most usually to ailments influencing the heart and lungs, with smoking being a significant hazard factor for coronary episodes, strokes, ceaseless obstructive pneumonic infection (COPD), Idiopathic Pulmonary Fibrosis (IPF), emphysema, and cancer. Dependence on nicotine causes premature aging and a host of other pressing issues [5].

Yoga is a gathering of physical, mental, and profound practices or trains which began in ancient India. Yoga advises us to do a specific practice and afterward to feel the impact of that training. Yoga is a science of awareness. The reasons for the addiction to smoking may be sheer enjoyment, fashion, peer pressure, stress, or any other such root factors. To solve the problem, the identification of the reason is mandatory [6].

It is suggested to follow any of the three steps given to quit an addiction viz., fear of disease, greed and love. Without the co-operation of the user, it's highly complicated to come out of an addiction. It is essential to create awareness about how to harm the habit is to the well-being. Yoga plays a vital role in solving the withdrawal symptoms [7].

Along with the rehabilitation treatment, Yoga gives a supportive mechanism to get out of the smoking habit. It helps to reduce stress, stimulates hormones, middles area of the brain, increases energy and stamina, eliminates toxins and helps to control the cravings. The improvement in the overall well-being, immune system, lung capacity, blood circulation, heart rate, attainment of full energy, calmness

in mind and vitality are gained through the surrender of the smoking habit. Con-currently the causes for the cancer are also reduced [8].

Studies have been attempted to examine the smoking frequency among current college student smokers, factors related to readiness to quit smoking [9], smoking habits and attitudes among university students in Palestine [10], factors associated with smoking behavior [11], characteristics of social smoking among college students [12] by researchers.

An experiment has been made to notice the effect of Yoga (i) on academic performance concerning stress [13], (ii) on relaxation among college students with high stress [14] and (iii) on immune responses in examination stress [15].

The objective of the current study is to inspect the effect of yogic practices on selected psychological variables (perception about the smoking, ability to quit smoking) studies related variable (Academic performance) among the cigarette smoking male students of age group 18-22 using Global youth tobacco survey. The pre-test, post-test outcomes are statically analyzed using ANOVA. The workflow of the current study is given in Fig.1 [16].

The delimitations of the currents study are summarized as (i) male smokers of age group 18-22 (ii) samples are selected from engineering colleges located in Chengelpet district (iii) 12 weeks of yogic practices, Six days per week and one hour per day (iv) 15 numbers of samples in the control group and experimental group each (v) independent variable is yogic practices and (vi) dependent variables are psychological variables and academic performance. The limitations of the studies are neglect of the socio-economic status, life-style, body structure, personal habit, routine work, medication and family hereditary of the samples.

II. MATERIALS AND METHODS

2.1. Sample

For the current study, thirty numbers of male students with tobacco smoking habits are selected from different Engineering colleges located in Chengelpet district at random. The samples are with the age group of 18-22 years. They are made into two groups, namely the control group and the experimental group, with 15 numbers in each.

2.2. Variables selection

The selection of variables is based on the literature and feasibility criteria.

Dependent variables

Perception about the smoking habit and the ability to quit tobacco smoking are selected as Psychological variables and the academic performance of the students is taken as a study-related variable.

Independent variables

Yogic practices, including loosening exercises, Suryanamaskar, Asanas, Pranayama and Mudra, are considered as an independent variable.

2.3. Experimental design

The experimental group of fifteen students underwent yogic practices for twelve weeks. Pre-test, post-test random group design is followed in this study. They practiced Yoga during evening sessions between 5.00 to 6.00 am daily except Sunday, warming-up and loosening express are given before starting a yoga practice. The intensity of yogic practice is increased every week by increasing the number of asanas, Yoga Nidra and repetition.

2.4. Reliability data

The reliability of the data is established before initiating the experiment. For this purpose, 15 engineering college students of 18-22 age groups are enrolled. To ensure reliability, test and retest method is followed. All the dependent variables tested for all the 15 students using the same testing methodology under similar are conditions. The scores are tested to ensure reliability. All the criterion variables are significant at the 0.01 level. It is implied that all the test items are reliable.

2.5. Schedules for yogic practices

The yogic practices include the Loosening exercise, Suryanamaskar - Bihar school of Yoga, Asanas viz., Trikonasana, Sarvangasana, Sethu bandhasana, Bhujangasana, Shishuasana, Marjaryasana/Bitilasana, Dhanurasana and Savasana. Pranayama includes Yogendra Pranayama, Kapal Bhati Pranayama, Nadi Shodhan Pranayama and Kaleshwar mudra is also practiced [17, 18].

All the planned asanas could help ex-smokers avoid cigarettes. One of the foundations of Yoga is the guideline of breathing, and that is the reason it's an incredible instrument for ex-smokers to surrender the propensity for good. Yoga presents include stomach or diaphragmatic breathing, or shallow breathing through thoracic and clavicular techniques. These connect with the whole oxygen channel and give

improved gracefully of blood and oxygen to vital organs, which keeps them restored [19].

2.6. Test Administration

2.6.1. Psychological variables

Purpose: To find out the perception about the smoking habit and the ability to quit cigarette smoking.

Method: Global youth tobacco survey (GYTS) [10].

Procedure: The Questionnaire is distributed in a group setting. The meaning and procedure are explained and made the subjects to select the appropriate answer.

Scoring: The Questionnaire contains 20 questions; each consists of 2-4 responses. The students are asked to select only one option. The maximum score is 50. The score for each option varies.

2.6.2. Study-related variable

Academic performance

Purpose: To find out the academic performance of the cigarette smoking student before and after the treatment.

Method: Conventional exam pattern and manual correction.

Procedure: Class tests are conducted in the subject named "Numerical methods" for all the 30 students of the control group and experimental group before and after the treatment.

Scoring: The Question paper subsists of (i) ten number of Multiple-choice questions, (ii) four number of short answers each carries 4 marks and (iii) two number of detailed answers each brings 12 marks. The maximum grade is fixed as 50. The answer scripts are evaluated manually.

2.7. Collection of data

The study's goal is to audit the effect of yogic practices on selected psychological variables and study-related variables among the samples. The investigator collected the original scores before the experiment from both groups as the procedure mentioned in the test administration. After the experimental period, final test scores are collected on the criterion variable.

2.8. Statistical technique

The data collected from the subjects are treated statistically. The convincing difference among the results of the control group and the experimental group are examined by Analysis of variance (ANOVA).

The level of significance is fixed as 0.05 level. The standard statistical package is used to analyze the data.

III. RESULTS AND DISCUSSIONS

3.1. Test of significance

This system of testing the hypothesis is finished by tolerating the theory or dismissing the equivalent as per the outcomes corresponding to the level of confidence fixed at 0.05. In the event that the got esteem is more noteworthy than the table worth, the theory acknowledges that there existed massive contrast among the methods for the gatherings analyzed and if they got qualities are lesser than there is no considerable distinction between the methods. The likelihood level underneath which the hypothesis is dismissed is named as the level of significance.

3.2. Psychological variable

The raw scores of the Global Youth Tobacco Survey of the control group and the experimental group (pre-test, post-test) are used for comparative studies. The statistical analysis comparing the initial and final (after twelve weeks) scores of the control and experimental groups is discussed. The total scores earned in the GYTS by the control group (Fig.2) and the experimental group (Fig.3) before and after the treatment are compared. The pre-test, post-test mean value of each group is compared in Fig. 4.

The mean value of the control-initial group and the final group are 7.4 and 8, respectively. The significance value is 0.566 (i.e., $p = 0.566$), which is above 0.05 and, therefore, there is a statistically no significant difference in the psychological behavior among the control group (Table 1). At the confidence level of 95%, the lower and upper bound lies between 3 and 11 for the first score, 3 and 16 for the final score in the case of the control group (Table 2).

In the case of the experimental group, the p-value is 6.65x10-22, which is below 0.05 and, therefore, concludes that there is a statistically significant difference in the psychological behavior among the experimental group before and after the yogic practice (Table 3).

Table 3 and 4 clearly indicates the betterment in the experimental group when the yogic practices are taken. The mean score of the raw data significantly boosted from 12.7 to 43. The lower and upper bound at the 95% level of confidence is hiked from 7-19 and 36-46 before and after the yogic practices. The smaller standard error value confirms that the sample mean closer enough with the population means and there is a less spread.

Standard deviation is calculated in order to interpret the spread out a data. The excellent standard deviation is confirmed through the value of the coefficient of variation (CV), which is the ratio between standard deviation and mean. The less than 1 value of CV denotes that the data are distributed around mean,

which is expected.

The results are acknowledged that the yogic practices uplift the mood to quit smoking and enable them to think about the impact of smoking on health. Akin results have been noticed in the study carried out among the first-year MBBS students. There is a highly significant difference in physiological parameters in the experimental group who practiced Yoga for 12 weeks [15, 20].

3.3. Study-related variable

The academic performance of the control group and experimental groups are evaluated by conducting the exam. For the engineering college students irrespective of the discipline, a subject named "Numerical methods" is standard. The reasons for the selection of this subject are it involves (i) a lot of concentration (ii) memorization of formulas and rules and (iii) regular practice. To confirm the uniformity in the mode of conducting the exam, a common subject "Numerical methods" is selected.

Though the control group is not given yogic practices, along with the experimental group they have also participated in the exam both initially and at the end of the twelfth week. The pre-test, post-test scores of the control group and the experimental group, are given in figures 5 and 6.

From the figure, it is clearly understood that there is a notable difference in the academic performance of the experimental group after the completion of twelve-week yogic practices. To perform well in the subject like mathematics, it is mandatory to have concentration, memory power and orientation. The results indicate that the prescribed yogic practices could boosted-up all these qualities.

The mean of the academic performance of the control group is calculated as 25.7 (pre-test) and 26.8 (post-test). It is found as no significant difference among them (Table 5-6). Similarly, the academic performance means of the experimental group before and after the yogic treatment is calculated (27.67, 38.27) (Table 7-8) and shown in figure 7. The difference is excellent for the sample size of 15. The sum of the scores of all the 15 in the experimental group is raised from 418 (pre-test) to 574 (post-test) out of 750. The improvement is expanded from 55.7% to 76.53%, which is a notable change during these 12 weeks. To weigh the lack of symmetry of data, Skewness is detected and the value of Kurtosis expresses the resemblance of the data either heavy-tailed or light-tailed proportionate to a normal distribution.

Variables	**Research Hypothesis**	**Null Hypothesis**
Psychological variable	Accepted	Rejected
Study-related variable	Accepted	Rejected

It is found in the present study that for the experimental group, the perception about the smoking habit, ability to quit cigarette smoking and academic performance have reduced significantly due to the regular practice of Yoga, pranayama and mudra. Similar results are identified in work tested on the effects of Marijuana smoking among secondary school students on academic performance [21, 22]. It is hypothesized that the changes in psychological variables and study-related variables would differ significantly for the experimental group when compared to the control group due to yogic practice.

IV. CONCLUSIONS

The 12-weeks yogic practices are framed with the combination of loosening exercises, Surya Namaskar, asanas, pranayama and mudra to target the male students of age group 18-22 with the tobacco cigarette smoking habit. The students are segregated into a control group (15 Nos.) and experimental group (15 Nos.). Impact of yogic practices after the 12-week program is evaluated through (i) psychological variable (perception about the smoking, ability to quit smoking) using Global youth tobacco survey (GYTS) and (ii) selected study-related variable (Academic performance). Pre-test. Post-test random group design is followed in this study. The obtained data are statistically analyzed for the test of significance using analysis of variance (ANOVA). In all cases, the significant level fixed is 0.05 level, which is considered as appropriate. Improvement in their academic performance indicated their improvement in concentration, memory and orientation. The results of the control group of similar categories have not shown any significant difference between pre-test and post-test.

The outcomes demonstrated that Yoga, even only the short term, is a compelling methodology and steady instrument to deliver the smokers to dispose of the dependence. Moreover, long haul follow-up may give understanding to the exhibition of understudies. In outline, a yoga mediation indicated good results on the smokers both mentally and scholastically. Yet, the current examination should have been fortified or upheld by progressively important research contemplates.

The findings of this study would be helpful for physiotherapists, trainers to demonstrate the yogic practices in the overall development of the students and get relief from the influence of cigarette smoking. It provides knowledge on the systematic approach of yogic practices on smokers and further motivates the researcher to work on related variables.

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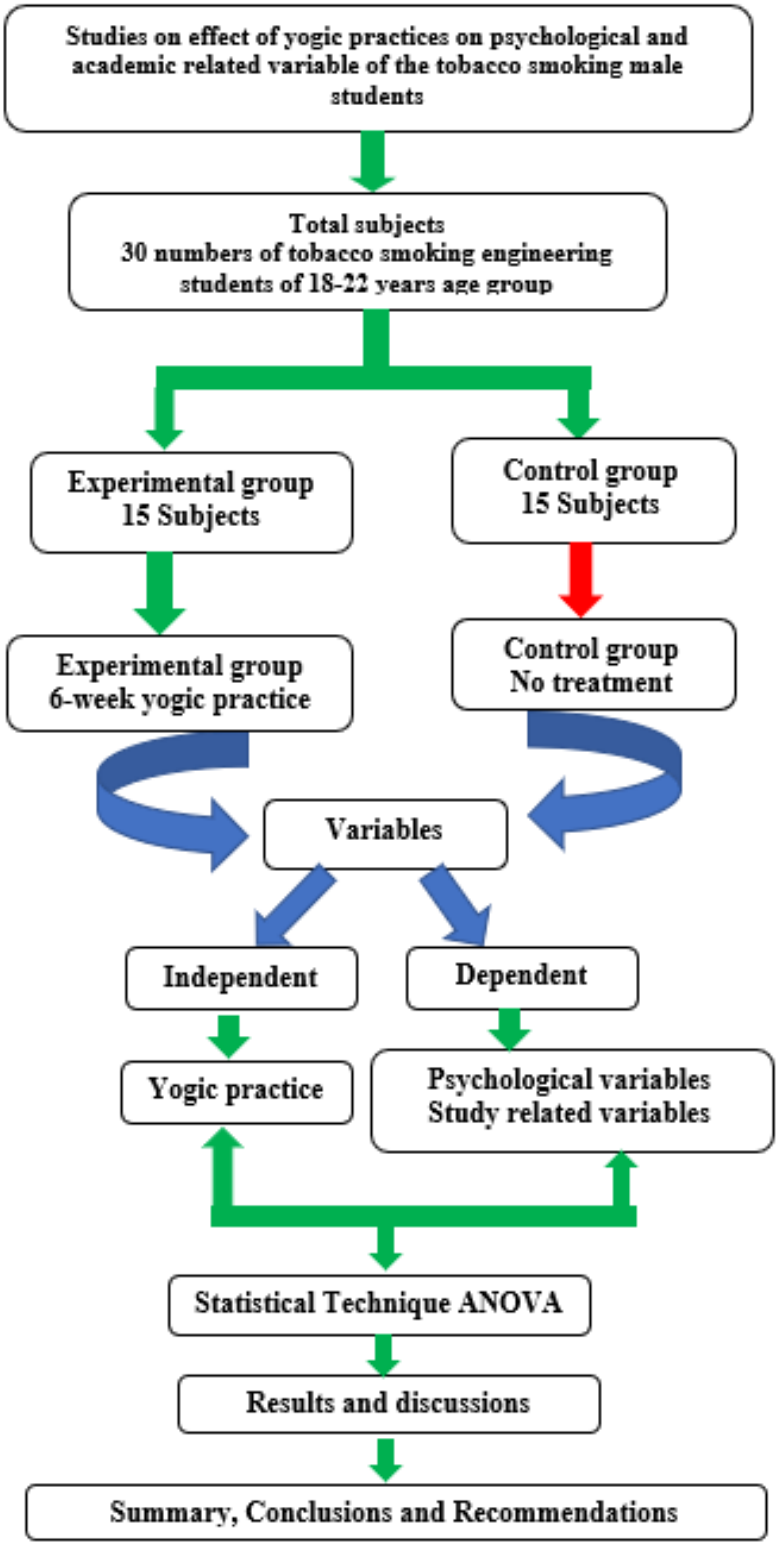

Fig. 1 Work flow of the current study

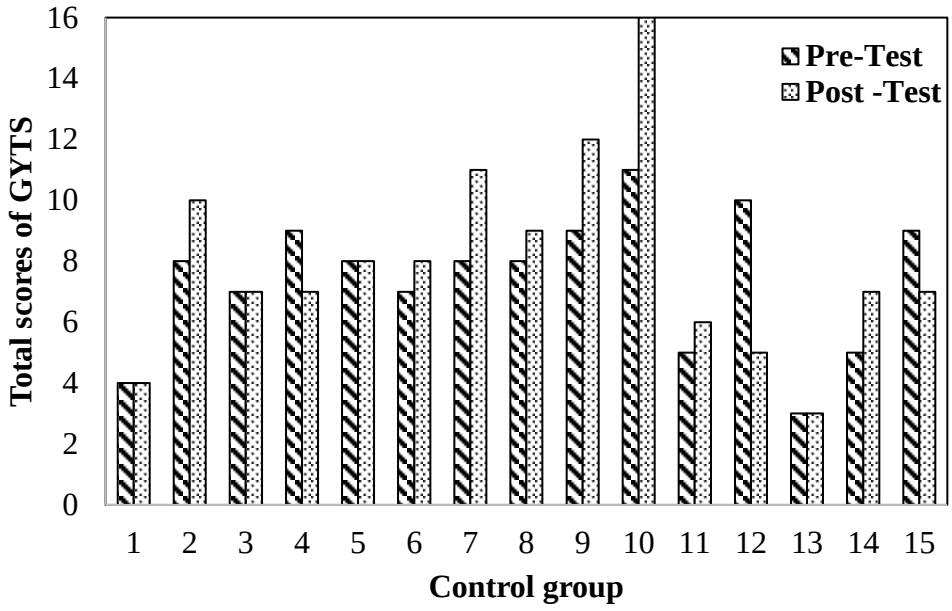

Fig. 2 Comparison of total GYTS scores of the control group

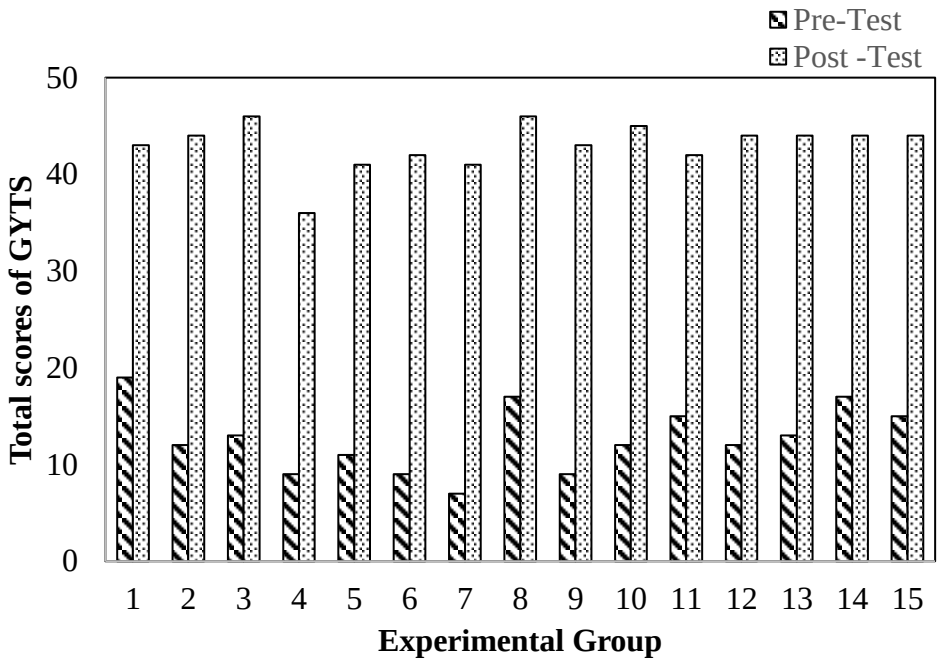

Fig. 3 Comparison of total GYTS scores of the experimental group

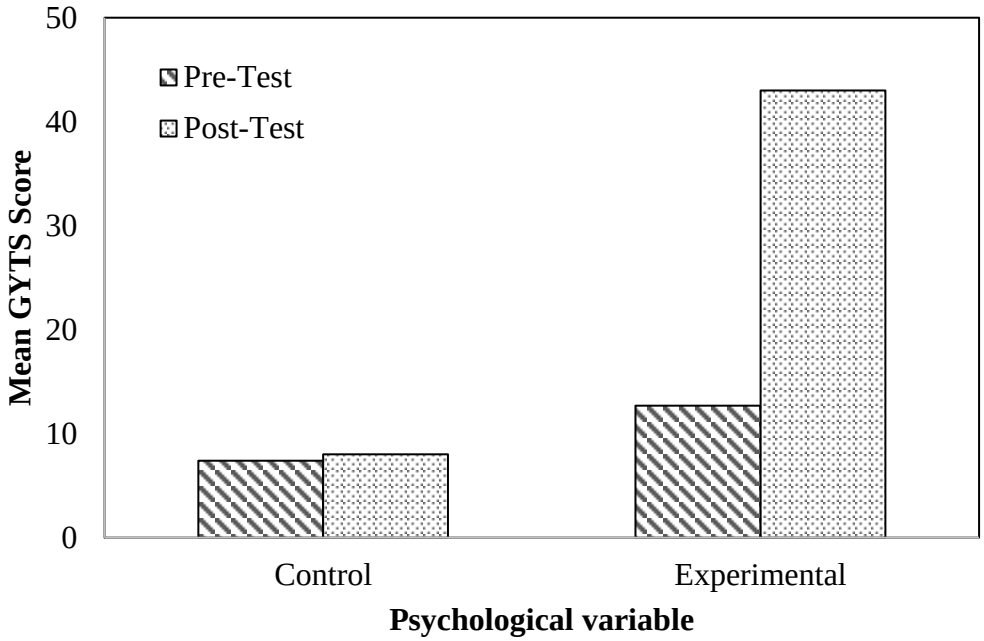

Fig. 4 Comparison of mean scores of the control group and the experimental group

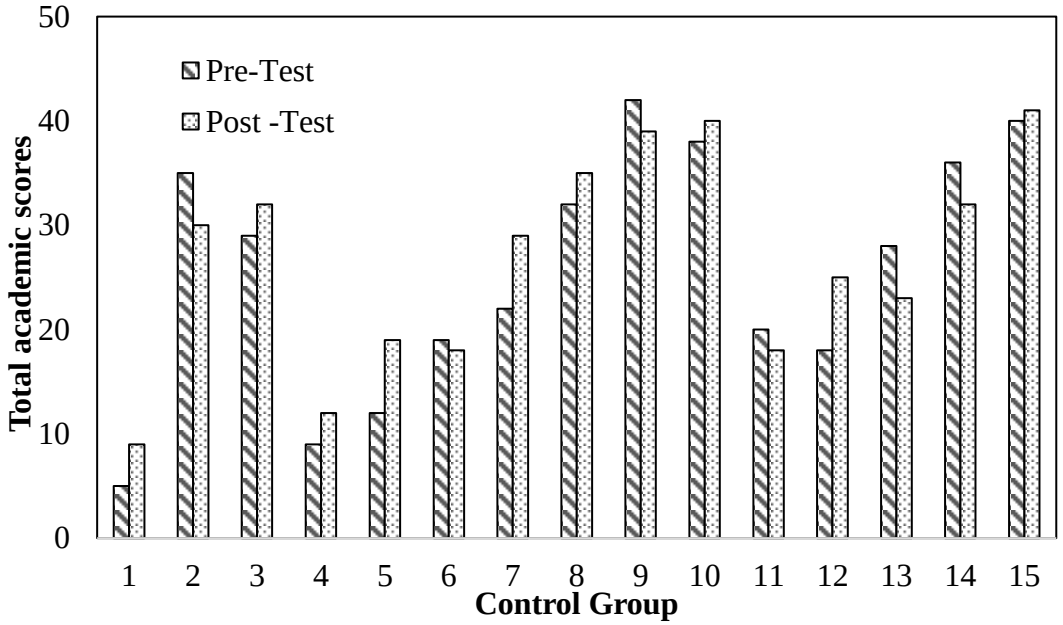

Fig. 5 Comparison of total academic scores of the control group

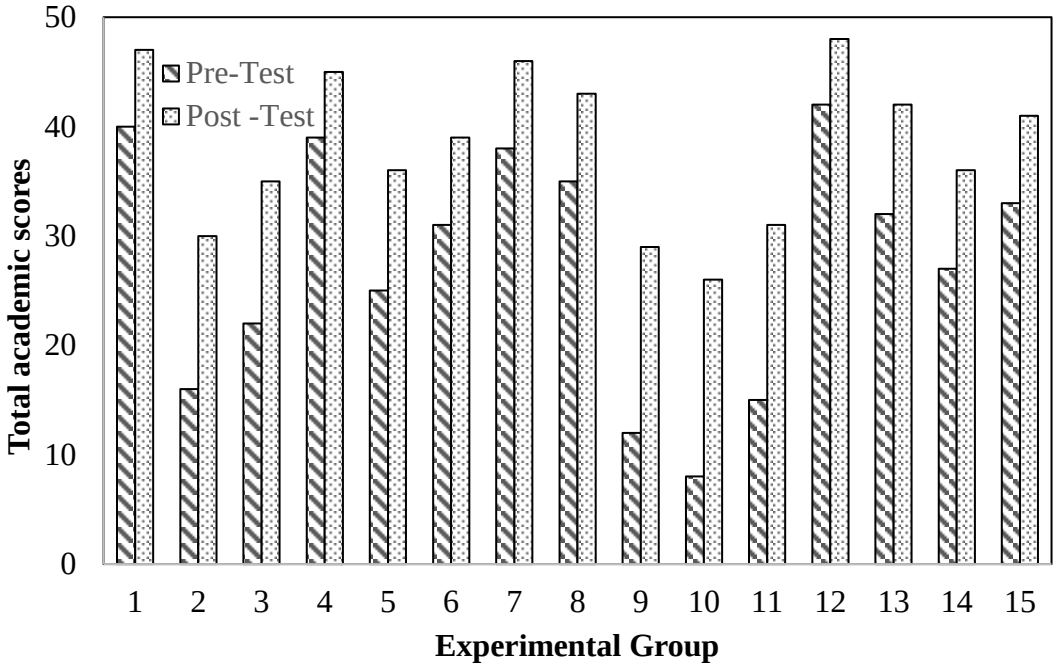

Fig. 6 Comparison of total academic scores of the experimental group

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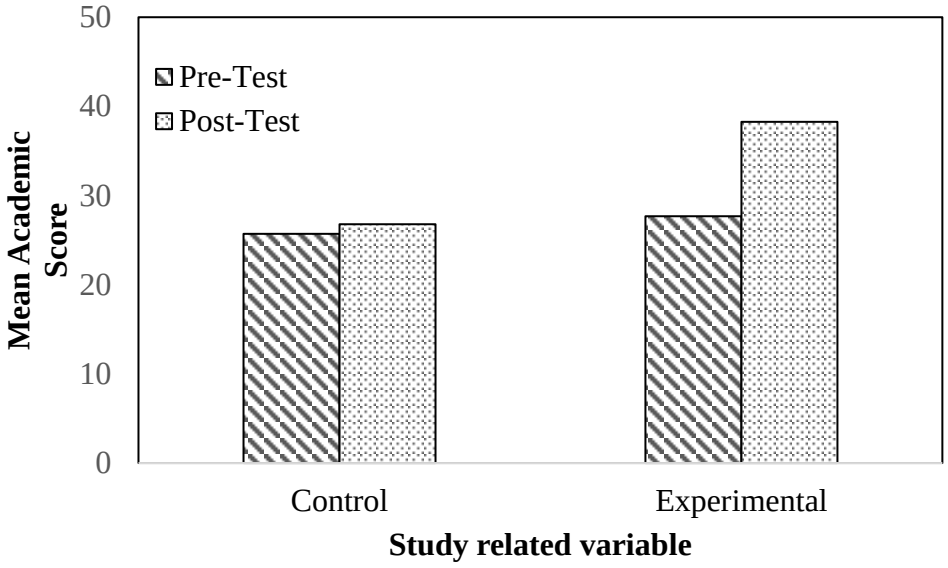

Fig. 7 Comparison of mean academic scores of the control group and experimental group

Table I: ANOVA FOR PSYCHOLOGICAL VARIABLE OF CONTROL GROUP

ANOVA: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Control-pre-test	15	111	7.4	5.1
Control-post-test	15	120	8	10.9

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.7	1	2.7	0.338	0.566	4.196
Within Groups	223.6	28	7.986			
Total	226.3	29				

TABLE II: DESCRIPTIVE FOR PSYCHOLOGICAL VARIABLE OF CONTROL GROUP

	Control-pre-test	**Control-post-test**
Mean	7.4	8
Standard Error	0.584	0.851
Median	8	7
Mode	8	7
Standard Deviation	2.261	3.295
Coefficient of variation	0.3055	0.4119
Sample Variance	5.114	10.857
Kurtosis	-0.372	1.295
Skewness	-0.534	0.885
Range	8	13
Minimum	3	3
Maximum	11	16
Sum	111	120
Count	15	15
Confidence Level (95.0%)	1.252	1.825

TABLE III: ANOVA FOR PSYCHOLOGICAL VARIABLE OF EXPERIMENTAL GROUP

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Sample Pre-test	15	190	12.7	11.8
Sample Post-test	15	645	43	6.14

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	6901	1	6901	768.8	6.65E-22	4.196
Within Groups	251	28	9			
Total	7152.2	29				

TABLE IV: DESCRIPTIVE FOR PSYCHOLOGICAL VARIABLE OF EXPERIMENTAL GROUP

	Sample Pre-test	**Sample Post-test**
Mean	12.7	43
Standard Error	0.887	0.640
Median	12	44
Mode	12	44
Standard Deviation	3.436	2.478
Coefficient of variation	0.2706	0.0576
Sample Variance	11.810	6.143
Kurtosis	-0.653	3.855
Skewness	0.217	-1.592
Range	12	10
Minimum	7	36
Maximum	19	46
Sum	190	645
Count	15	15
Confidence Level (95.0%)	1.903	1.373

TABLE V: ANOVA FOR STUDY RELATED VARIABLE OF CONTROL GROUP

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Control-pre-test	15	385	25.7	136.8
Control-post-test	15	402	26.8	102.2

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	9.63	1	9.633	0.081	0.779	4.196
Within Groups	3345.73	28	119.490			
Total	3355.37	29				

TABLE VI: DESCRIPTIVE FOR STUDY RELATED VARIABLE OF CONTROL GROUP

	Control-pre-test	Control- post-test
Mean	25.67	26.8
Standard Error	3.02	2.61
Median	28	29
Mode	--	32
Standard Deviation	11.70	10.11
Coefficient of variation	0.4558	0.3772
Sample Variance	136.81	102.17
Kurtosis	-1.078	-0.995
Skewness	-0.288	-0.233
Range	37	32
Minimum	5	9
Maximum	42	41
Sum	385	402
Count	15	15
Confidence Level (95.0%)	6.48	5.60

TABLE VII: ANOVA FOR STUDY RELATED VARIABLE OF EXPERIMENTAL GROUP

Anova: Single Factor

SUMMARY

Groups	*Count*	*Sum*	*Average*	*Variance*
Sample Pre-test	15	415	27.67	119.52
Sample Post-test	15	574	38.27	49.92

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	842.7	1	842.7	9.946	0.0038	4.196
Within Groups	2372	28	84.7			
Total	3214.967	29				

TABLE VIII: DESCRIPTIVE FOR STUDY RELATED VARIABLE OF EXPERIMENTAL GROUP

Sample Pre-test		Sample Post-test
Mean	27.7	38.3
Standard Error	2.8	1.8
Median	31	39
Mode	--	36
Standard Deviation	10.93	7.07
Coefficient of variation	0.3946	0.1846
Sample Variance	119.52	49.92
Kurtosis	-1.06	-1.18
Skewness	-0.456	-0.260
Range	34	22
Minimum	8	26
Maximum	42	48
Sum	415	574
Count	15	15
Confidence Level (95.0%)	6.054	3.913