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Educational Stress in Adolescents: Chanting Mantras as a Powerful Coping Strategy

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Abstract- Educational Stress is a problem for many adolescents in our society posing serious threat to significant mental problems and poor performance. Using a repeated measure design, the participants' educational stress and impact of chanting mantras was explored. An ANOVA of the order of $2 \times 2 \times (2)$ with repeated measure was employed in the present research to gauge the effect of chanting mantras if any between the control group and the experimental group in the two genders from pre to post test on different domains of educational stress. The sample consisted of 200 adolescents (100 males, 100 females) from senior secondary schools of Shimla district of H.P. between the ages of 14 to 17 years and was administered the educational stress scale (Sun, Dunne, Hou & Xu, 2011). The criterion of $\bar{X} + 1/2SD$ was employed for selecting the adolescents higher on educational stress. The main findings are: 1) The main effects of group and treatment have turned out to be significant at .01 level; 2) the interaction effects of treatment x group and treatment x gender have also yielded significant F ratios thereby revealing the significant impact of chanting mantras in combating the stress of the adolescents.

Keywords: *educational stress, adolescents, chanting mantras.*

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Dr. Anita Sharma ^α & Dr. Reetudhwaj Singh ^σ

Abstract Educational Stress is a problem for many adolescents in our society posing serious threat to significant mental problems and poor performance. Using a repeated measure design, the participants' educational stress and impact of chanting mantras was explored. An ANOVA of the order of 2x2x(2) with repeated measure was employed in the present research to gauge the effect of chanting mantras if any between the control group and the experimental group in the two genders from pre to post test on different domains of educational stress. The sample consisted of 200 adolescents (100 males, 100 females) from senior secondary schools of Shimla district of H.P. between the ages of 14 to 17 years and was administered the educational stress scale (Sun, Dunne, Hou & Xu, 2011). The criterion of $\bar{X}+1/2SD$ was employed for selecting the adolescents higher on educational stress. The main findings are: 1) The main effects of group and treatment have turned out to be significant at .01 level; 2) the interaction effects of treatment x group and treatment x gender have also yielded significant F ratios thereby revealing the significant impact of chanting mantras in combating the stress of the adolescents.

Keywords: educational stress, adolescents, chanting mantras.

1. INTRODUCTION

Adolescents have been facing many challenges and problems ever since the dawn of puberty and stress especially the educational stress is perhaps the most commonly experienced among them. Stress or 'chinta' is said to be more harmful than the flame because flame burns the person after death, whereas, stress burns the person alive.

Education has been highly valued in Indian culture since times immemorial and is seen as the major pathway to social success. This could be reflected by an Indian saying "All are low but learning (reading)". Education for secondary school students is strongly focused on preparation for examinations, especially for the professional college entrance examinations as academic performance is directed towards the fulfilment of achievement needs aimed at developing a career and being a productive human being. However, high achievement often comes at a personal cost. Indian

students appear to have a heavy academic burden. Although academic matters have been found to be a major source of stress among adolescents worldwide (Brown, Teufel, Birch, & Kancharla, 2006; Huan, See, Ang, & Har, 2008; Tang & Westwood, 2007), this phenomenon seems to be more pronounced in India and other Asian countries, such as China, Singapore, Korea, Japan and Taiwan (Ang, Huan, & Braman, 2007; Lei, *et al.*, 2007; Zhao & Yuan, 2006).

Research into the nature and impact of perceived academic stress in students has been hampered by (Putwain, 2007). For example, what the term "stress" refers to is not clear in the literature, with some referring it to the external stimulus or stressors (such as low grades in an examination) while others to the subjective experience of mental distress. A methodological concern is that the domain of "examination stress" which focuses exclusively on (usually important) examinations and "academic stress" which relates to a broader range of school activities are not clearly defined (Putwain, 2007). Similar to other studies on the same topic (Ang & Huan, 2006; Bjorkman, 2007; Jones & Hattie, 1991), in this study, academic stress is defined as subjective psychological distress originated from multiple aspects of academic learning rather than the sum of stressful life events. Academic stress includes the students' perception of extensive knowledge base required and the perception of inadequate time to develop it (Carveth *et al.*, 1996). Present study relates to perceived pressure, burden, worry, dissatisfaction with grades and other difficulties. The terms "academic stress" and "educational stress" are used interchangeably in this study.

Previous research from European countries found that educational stress is linked to the pressure to achieve and fear of failure, and is associated with a wide range of cognitive and educational factors (Moshe, 1992; Meijer, 2007; Putwain, 2009). Academic stress refers to the pressure to perform well in final school examinations and competitive college entrance examinations that is experienced by 12th standard students. Rajender and kaliappan (1990) opined "academic stress as a set of academic demands of school situation which cause a disturbance in the psychophysical state of an individual. For some students, the experience of academic stress leads to a sense of distress, which is generally manifested in a variety of psychological and behavioural problems. The

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experience of academic stress and adolescent distress has been identified and explored by researchers in Korea (Lee & Larson, 1996, 2000) and Japan (Hill, 1996; Lock, 1988; Schoolland, 199-0).

With the exception of a few research studies (Verma & Gupta, 1990; Verma, Sharma & Larson, 2002), academic stress and adolescent distress have not been explored in great detail in India. It is important to note that this issue is one that affects a small proportion of Indian youth, i.e., those who are fortunate enough to attend and graduate from high school (about 12-15 million students per year) (Rao, 2008). Mental health professionals in India, however, have identified academic pressure as an acute stress factor that leads to mental distress, and in extreme cases, to suicide (Iype, 2004).

Adult suicide, however, is only the tip of the iceberg, which masks the generalized anxiety and depression experienced by many high school students. Studies conducted in Korea and Japan have found that students who experience academic stress express their distress in a variety of ways, including in terms of depression, anxiety, and somatic symptoms (Lee & Larson, 1996; Schoolland, 1990). Research studies in India have not explored these particular forms of distress with respect to academic stress, so the extent and prevalence of the problem is unknown.

Academic stress is a mental distress with respect to some anticipated frustration associated with academic failure or even an awareness of possibility of such failure (Gupta & Khan, 1987). Stress has been seen tightening its grip on the students, as they have to compete at every step of their academic career in this fast moving world. This shadow of academic stress all the more darkens for the students of 10+2 who have to step out of schools into the world of competition to choose their respective careers. At this stage, besides dealing with the physiological and emotional changes, an adolescent has to cope with parental expectations, his career and school, which at times tend to have a negative effect on him (Byrne *et al.*, 2007).

Out of the number of stresses faced by the adolescents, and young adults, academic stress has emerged as a significant mental problem in recent years. It has been estimated that 70-80% adolescents experience educational stress that affect their academic performance, psycho-social adjustment, along with their overall emotional and physical well-being. Information overload, high expectations of parents and self, academic burden, unrealistic ambitions, limited opportunities, high competitiveness are some of the important sources of stress which create tension, fear and anxiety. Poor academic performance, diminished peer popularity, attention difficulties, depression, somatic complaints and substance abuse are commonly observed problems among the victims of educational stress without being aware of how to cope

with them. Research suggests that there are many sources of educational stress. Students may feel stressed, and as a result distressed, by their own high academic expectations. In addition to their personal experiences of stress and distress, studies identify many other sources of academic stress, including parents, teachers, school administrators, and larger societal origins (Lee & Larson, 2000; Schoolland, 1990). A large body of research suggests that parents have a particularly strong influence on their child's education in a variety of ways (Verma & Gupta, 1990; Verma *et al.*, 2002). Rao (2008) found that parents' education and home environment play a significant role in child's academic achievement. Where on one hand, parental involvement leads to better social adjustment and academic achievement, on the other hand over aspirations and negative attitude of the parents lead to depression among students. Parents usually set unrealistically high goals for their children and expect them to come up to their expectations. When children are unable to come up to the expected standards, they are accused of being lazy or dull which induces a sense of inferiority among adolescents and sometimes leads to drastic outpourings by them in the form of mental disorders depressions and even suicides.

Research studies suggest that academic stress can have serious consequences for students. Very little is known, however, about the topic in India, which suggests that it requires urgent investigation. Therefore, besides knowing the etiological factors or the risk factors that foster educational stress, it is also important to know and understand the protective factors that are associated with less stress. Several treatments have been implemented to combat stress and anxiety in adolescents including diverse forms of individual and group therapy, residential treatment, pharmacotherapy, and a variety of community based treatments (Kazdin, 1985). As the medical treatment has many side effects i.e., medicines make the individual more addicted to it and their effect is not long lasting. There are more chances of relapse if one stops taking the medicine and is totally dependent on it, therefore, application of school based intervention programmes and social-cognitive group intervention programmes in the treatment of stress and anxiety have recently received wider attention. Recent research in the efficacy of mantras and sound therapy on our body and healing has revealed what our yogic seers have already experienced, advocated and which has been passed on from time immemorial to the present day.

The mantra is like a seed. Every seed has the potential to become a tree. Similarly, these sound vibrations contain all the possibilities of creation. Some mantras are in the seed form, called the *bija* mantras. Others are fully expressed, i.e, the fruit of the mantra is also expressed, such as the Gayatri mantra. To Alleviate tension and stress: In today's scenario where tension

and stress is the order of the day, the Gayatri Mantra helps to iron out anxieties filling the self with inner peace. Chanting the Gayatri Mantra even aloud, like a call of beseech to Lord Surya, is also found to be very effective and soothing. The mind becomes more tranquil and capable of composed and methodical thinking. It is more effective, if the mantra is chanted early in the morning, at the beginning of the day. Gayatri Mantra is regarded as the best start to a day or new way of life. Mantras are a secret, which alerts the sub-conscious mind. The mantras work at the level of the consciousness. When we want a seed to sprout, it needs to be sown into the soil, hidden, a secret. If it is simply thrown around, birds may eat them up. We can read and learn about mantras and their uses from books and the internet but that will only satisfy the intellect and not translate into experience. Mantras are the tools which allow the mind to dissolve and repose in the Self. The hormones and neurotransmitters throughout the human organism communicate with each other through distinctive vibrational sympathies. That is, when we are physically and mentally healthy, it means there is a harmony within our cells which resonate well with each other. When this harmony of empathic music among our cells falls out of tune, we get disease. Mantras create a positive, friendly and a healing effect (of course combined with bad yantras they produce evil effects, but that's not the subject here).

In Ayurveda, apart from herbal remedies for diseases, a stress is laid on mantra recitation also to enhance the healing. From the vedic period man has been constantly associated with Mantras - right from the moment man is born till he breathes his last. His first connection begins with Jaatakarma (i.e.,) the reciting of mantras in the newborn's right ear, requesting the Gods to protect the newborn from evil spirits. We can find numerous references emphasizing Mantra recitation in Ayurvedic texts. In the treatment of Jwara (fever), Charaka recommends chanting Vishnu Sahasranama. In the treatment of snake bites, antidotes are prepared while chanting specific mantras to increase the efficacy of the medicine (Rana, 2007; Krishna Rao, 1995; Bhushan, 1998). Just as gold in its pure form (24k) is too soft to make jewellery, mere group of words combined at random cannot effectively create healing vibrations. Gold is alloyed with copper or silver to strengthen and harden it in order to make jewels. Likewise, Mantras are chosen in a specific manner for a specific purpose and are loaded with power. So chanting Mantras has an effect in all planes and at all levels from the physical, physiological, mental levels to the subtle Chakras and into the subtlest energy vibrating at the core of our existence.

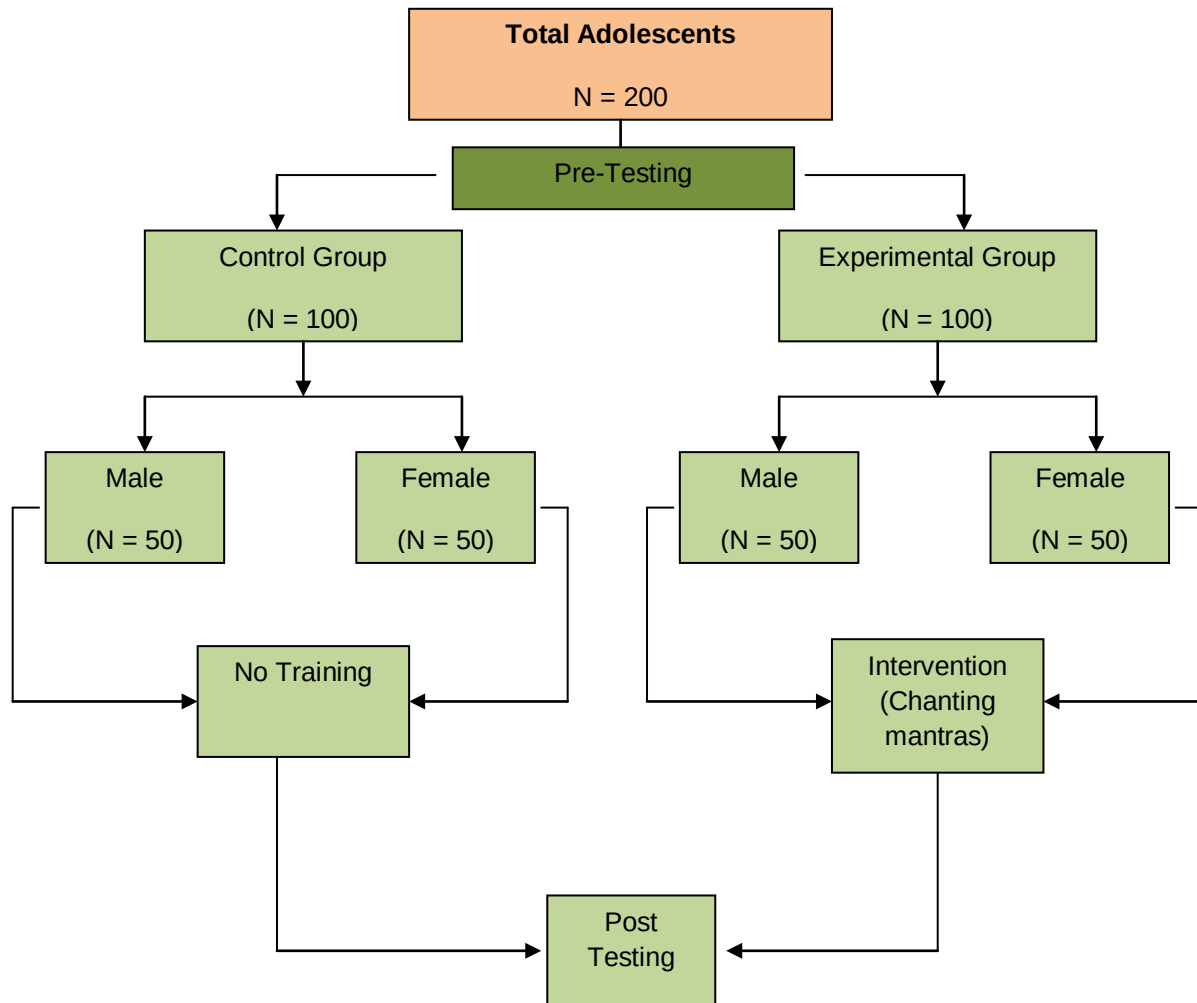
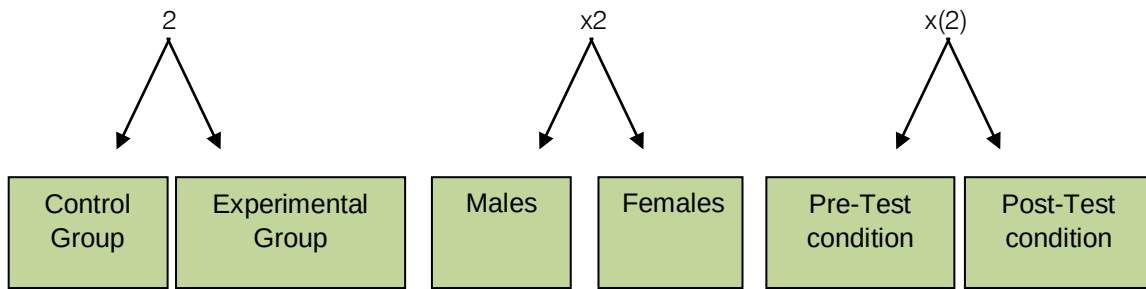
The present research was designed to study the effect of chanting mantras on academic stress. The hypothesis of the present investigation is, "chanting mantras will be effective in monitoring stress." The 3

months intervention was given to only high stress students, while the other high stress group remained as control.

II. METHOD

a) Design

A factorial design of 2x2x (2) with repeated measure on the last factor was employed for the present study. The first factor (factor 'A') is the variable of group 'control group' and 'experimental group', the second factor (factor B) is the variable of gender 'males' and 'females'. The third factor (factor C) is the two test conditions, pre-test condition and post-test condition. The layout of the research design is as follows:



III. SAMPLE

A sample comprising of 400 adolescent students with equal number of males and females were selected from different senior secondary schools of Shimla, Himachal Pradesh. In the first instance, educational stress scale for adolescents was administered to the selected sample of students. The criterion of $\bar{X} + 1/2SD$ was employed for selecting the adolescents higher on educational stress scale for adolescents. Final sample comprised of 200

adolescents (100 males and 100 females) who were randomly selected from the high stress group for treatment and other 100 subjects served as the control group.

IV. TOOL

a) Educational Stress Scale

The Educational Stress Scale for Adolescents (ESSA), (Sun, Dunne, Hou, & Xu, 2011) was used to estimate the level of perceived academic stress. It contains 16 statements rated on a 5-point Likert scale

ranging from 1 (Strongly disagree) to 5 (Strongly agree). The total score ranges from 16 to 80 with higher scores indicating greater perceived stress. This scale has five factors. 'Pressure from study' (four items about the perceived pressure from daily learning, from parents, peer competition and students' concern about the future), 'Workload' (three items regarding perceived burden of homework, school work and examinations), 'Worry about grades' (three items regarding stressful emotions due to dissatisfaction with academic grades), 'Self-expectation stress' (three items about stressful feelings when self expectations fail to be met) and

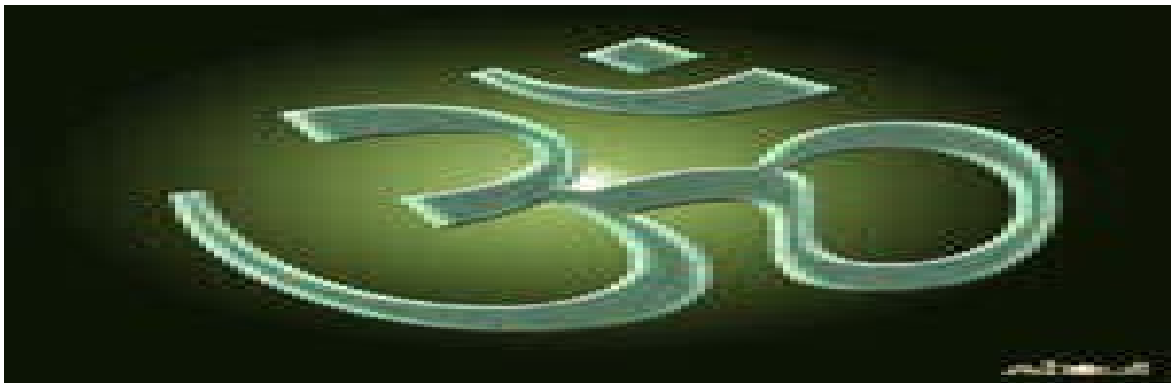
'Despondency' (three items about dissatisfaction and lack of confidence and concentration in academic study). This instrument has adequate internal consistency in this sample with Cronbach' $\alpha = .82$ for the total scale, and $\alpha = .79$, $\alpha = .73$, $\alpha = .69$, $\alpha = .65$, and $\alpha = .64$ for the five factors, respectively.

V. INTERVENTION PROGRAMME

The intervention programme included chanting of mantras including OM chanting coupled with Gayatri Mantra. Duration for the training was 3 months.

a) Mantras:

1. Oral "OM" Chanting



During this stage subject chants "OM" verbally with a single flow of voice and concentrates on the sound until it fades into silence (Delmonte, 1984). Aum chanting is very powerful. A represents the conscious mind, U the subconscious and M the unconscious. Take a deep breath and while exhaling chant the AUM mantra. After one AUM there should be a definite pause before you move on to the next AUM. This pause or silence represents the super conscious or turiya state. Be aware of this pause. You can think about your favourite deity or object of worship during this pause. Chant AUM three times. The very nature of chanting ensures deep breathing and relaxation. Active chanting leaves one's body and mind vibrant and cures throat problems and massages throat muscles (Shambhunath, 1992). The sounding of "OM" gives a vibro-message to

various glands and vital organs in the thoracic cavity and the abdomen, stimulates deeper breathing, tones the nervous system (Hewitt, 1983).

b) Instructions

"Breathe in deeply, and then rounding the mouth chant "OM" during exhalation. Do not try to suppress the sound, but let it flow smoothly like water flowing. The pattern of chanting should be like this: two-third of the exhalation time try to chant with mouth open (i.e. 'Oh...') and the remaining one-third, chant with mouth shut (i.e., 'mm.....') concentrate on the resonance of the sound and the vibration caused within your body and head

1. Gayatri Mantra



Gayatri mantra is a mantra that heals the body, feeds the spirit, illuminates the intellect and uplifts the soul. Its powers of healing, purification and transformation are such that it is considered the ultimate vehicle of spiritual enlightenment.

2. Instructions

Chant this mantra for 108 rounds or at least 27 times everyday in the morning right after you wake up. Chant not too loudly. Morning is a time of peace and let us be peaceful also. This mantra is from the Vedas and improves concentration and the quality of intelligence. We take so many medicines without understanding the long term effects of the chemical compounds. Similarly we can do this sadhana without bringing reason and logic in the midst. Science has not moved that far so as to find the effects of this mantra on our patterns of mind but it has been proved that chanting or kirtan or

meditation can definitely affect the brain waves. Continuous chanting leads to predominance of alpha waves and this is now a known fact. Mind in stress is constantly moving or is stuck at a particular point. Mantras cast a soothing spell on the tired mind and because of the positive affirmations they help us to combat the bouts of negativity.

VI. RESULTS

The various statistical techniques used for interpretation of data are as follows:

- Descriptive Analysis
- Repeated Measure ANOVA (Analysis of Variance with Repeated Measures on Last Factor)

a) Descriptive Analysis

i. Pressure from Society

Table 1 : Pre and Post-test Means for the Variable of Pressure from Society (Stress)

Gender	Control group		Experimental group	
	Pre-testing	Post-testing	Pre-testing	Post-testing
Males	13.06	13.21	13.40	8.76
Females	13.02	13.05	13.17	7.22
Total	13.04	13.59	13.28	7.99

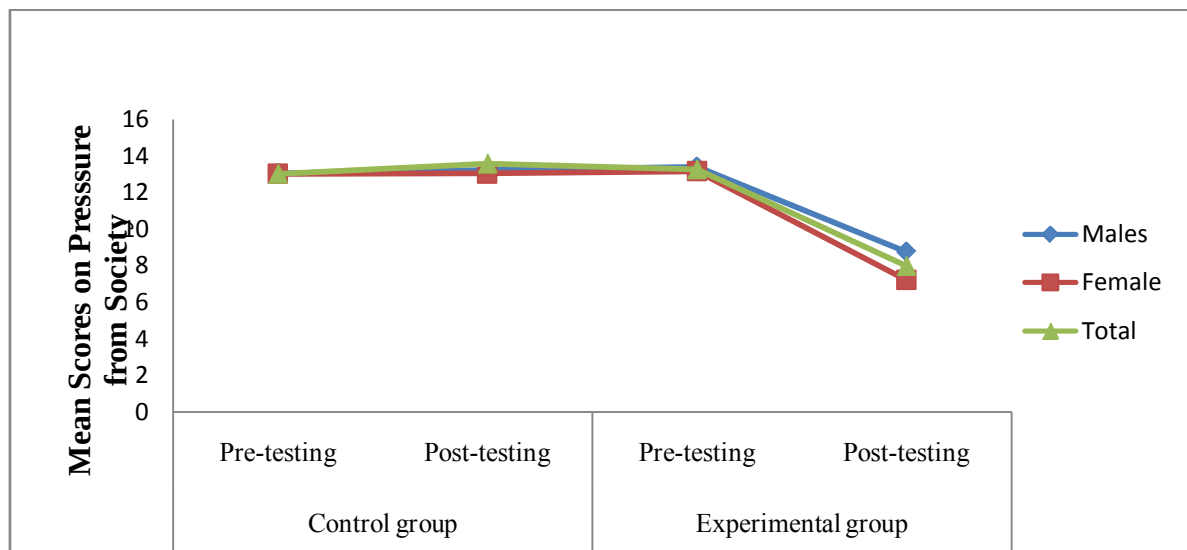


Figure 1 : Showing the Mean Scores of Males and Females on Pressure from Society from Pre to Post- Test in Control and Experimental Group

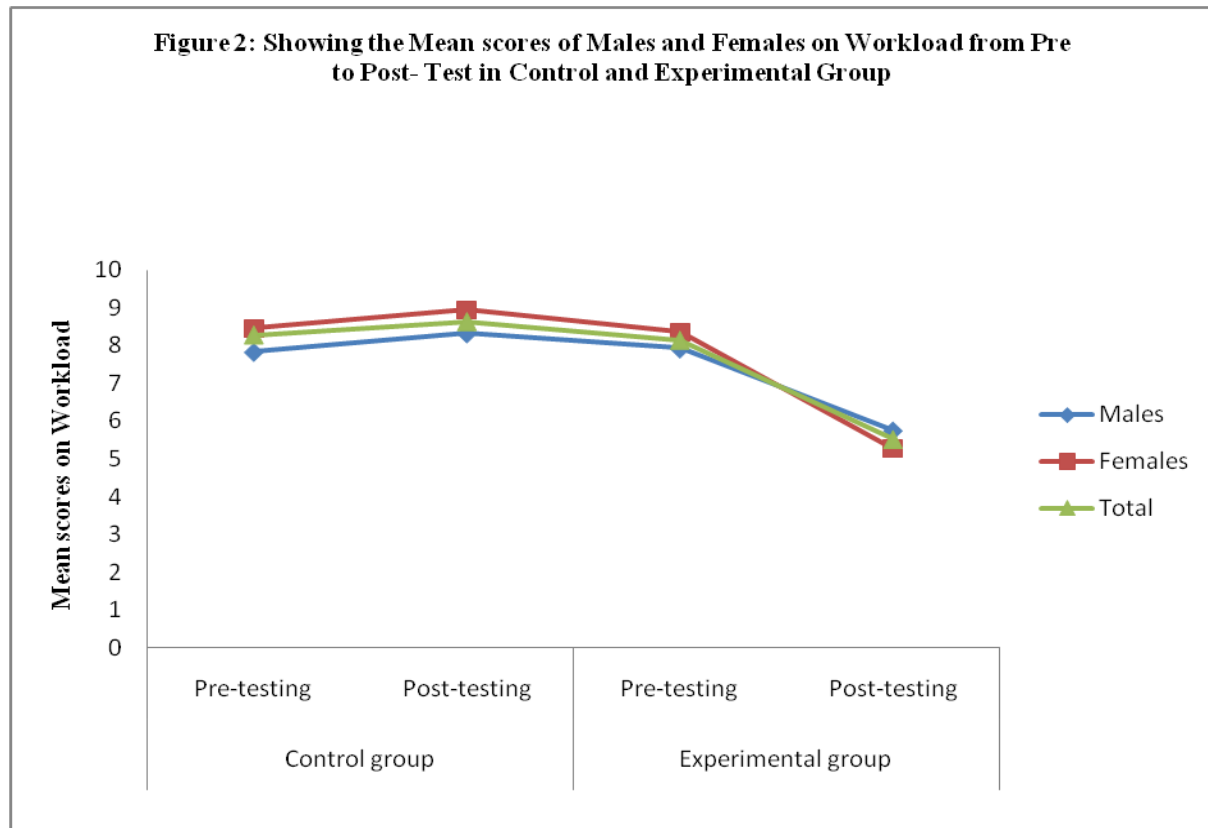
Interpretation

The results on pressure from society, as presented in Table 1 and figure 1 revealed that experimental group has shown a marked reduction from pre-testing with mean ($\bar{X} = 13.28$) to post-testing with mean ($\bar{X} = 7.99$). While, for the control group, it can be observed that there is only a slight increase from pre to post-test condition, with pre-test mean ($\bar{X} = 13.04$) to post-test mean ($\bar{X} = 13.59$). Whereas, in pre-testing, both these groups were at the similar level. For gender,

almost the same effect of self-help intervention could be seen in terms of pressure from society but, the effect is more pronounced in females with mean ($\bar{X} = 7.22$) as compared to the males with mean ($\bar{X} = 8.76$).

ii. *Workload**Table 2:* Pre and Post-test Means for the Variable of Workload (Stress)

Gender	Control group		Experimental group	
	Pre-testing	Post-testing	Pre-testing	Post-testing
Males	7.83	8.32	7.92	5.75
Females	8.46	8.94	8.36	5.27
Total	8.28	8.63	8.14	5.51

*Interpretation*

The results on workload, as presented in Table 2 and figure 2 revealed that experimental group has shown a marked reduction from pre-testing with mean ($\bar{X} = 8.14$) to post-testing with mean ($\bar{X} = 5.51$). While, for the control group, it can be observed that there is a slight increase from pre to post-test condition, with

pretest mean ($\bar{X} = 8.28$) to post-test mean ($\bar{X} = 8.63$). Whereas, in pre-testing, both these groups were at the similar level. For gender, almost the same effect of self-help intervention could be seen in terms of workload but, the effect is more pronounced in females with mean ($\bar{X} = 5.27$) as compared to the males with mean ($\bar{X} = 5.75$).

iii. *Worry about Grade**Table 3:* Pre and Post-test Means for the Variable of Worry about Grade (Stress)

Gender	Control group		Experimental group	
	Pre-testing	Post-testing	Pre-testing	Post-testing
Males	8.80	9.02	8.90	6.10
Females	9.06	9.30	9.22	5.96
Total	8.93	9.16	9.06	6.03

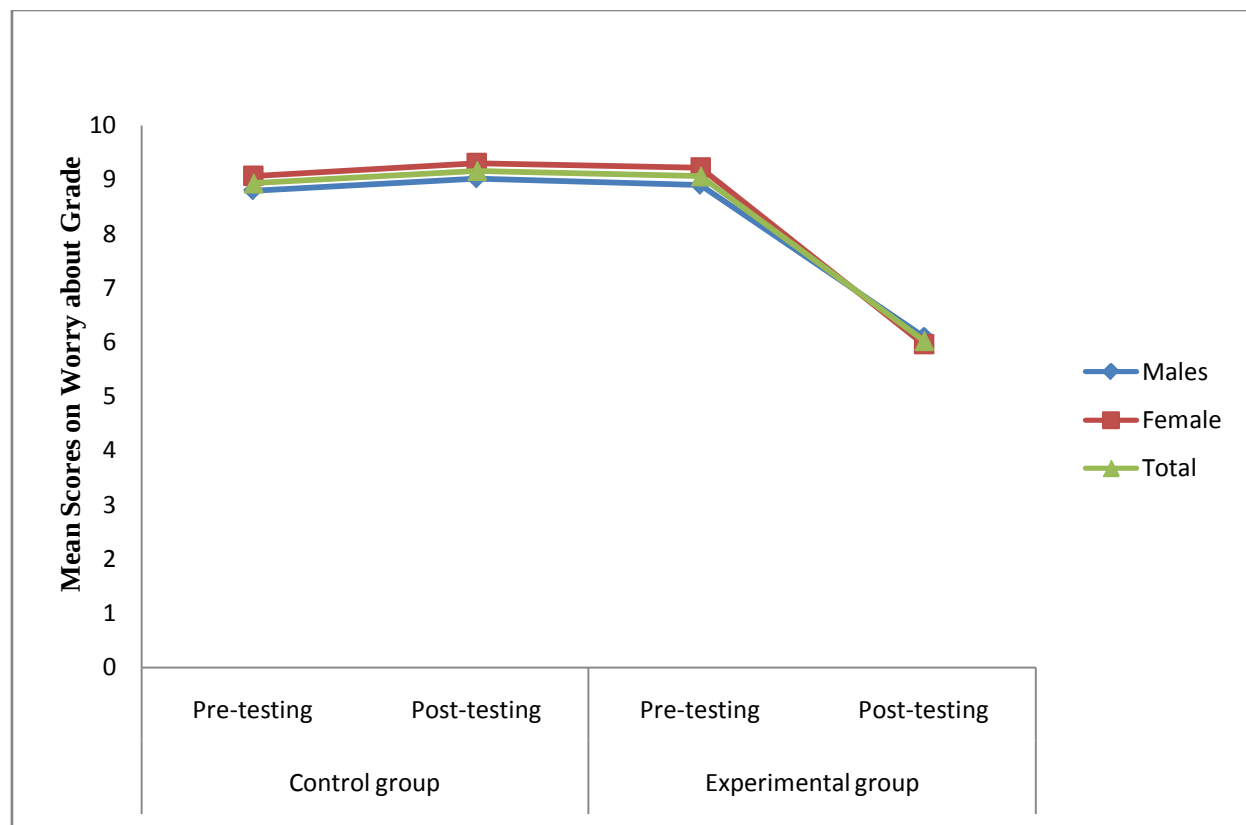


Figure 3 : Showing the Mean Scores on Worry about Grade for Males and Females from Pre to Post-Test in Control and Experimental Group

Interpretation

The results on worry about grade, as presented in Table 3 and figure 3 revealed that experimental group has shown a marked reduction from pre-testing with mean ($\bar{X} = 9.06$) to post-testing with mean ($\bar{X} = 6.03$). While, for the control group, it can be observed that there is a slight increase from pre to post-test condition,

with pre-test mean ($\bar{X} = 8.93$) to post-test mean ($\bar{X} = 9.16$). Whereas, in pre-testing, both these groups were at the similar level. For gender, almost the same effect of self-help intervention could be seen in terms of worry about grade but, the effect is more pronounced in females with mean ($\bar{X} = 5.96$) as compared to the males with mean ($\bar{X} = 6.10$).

iv. Self Expectation Stress

Table 4 : Pre and Post-test Means for the Variable of Self Expectation Stress

Gender	Control group		Experimental group	
	Pre-testing	Post-testing	Pre-testing	Post-testing
Males	8.44	9.45	8.39	6.13
Females	8.50	9.05	8.47	3.49
Total	8.47	9.25	8.43	4.81

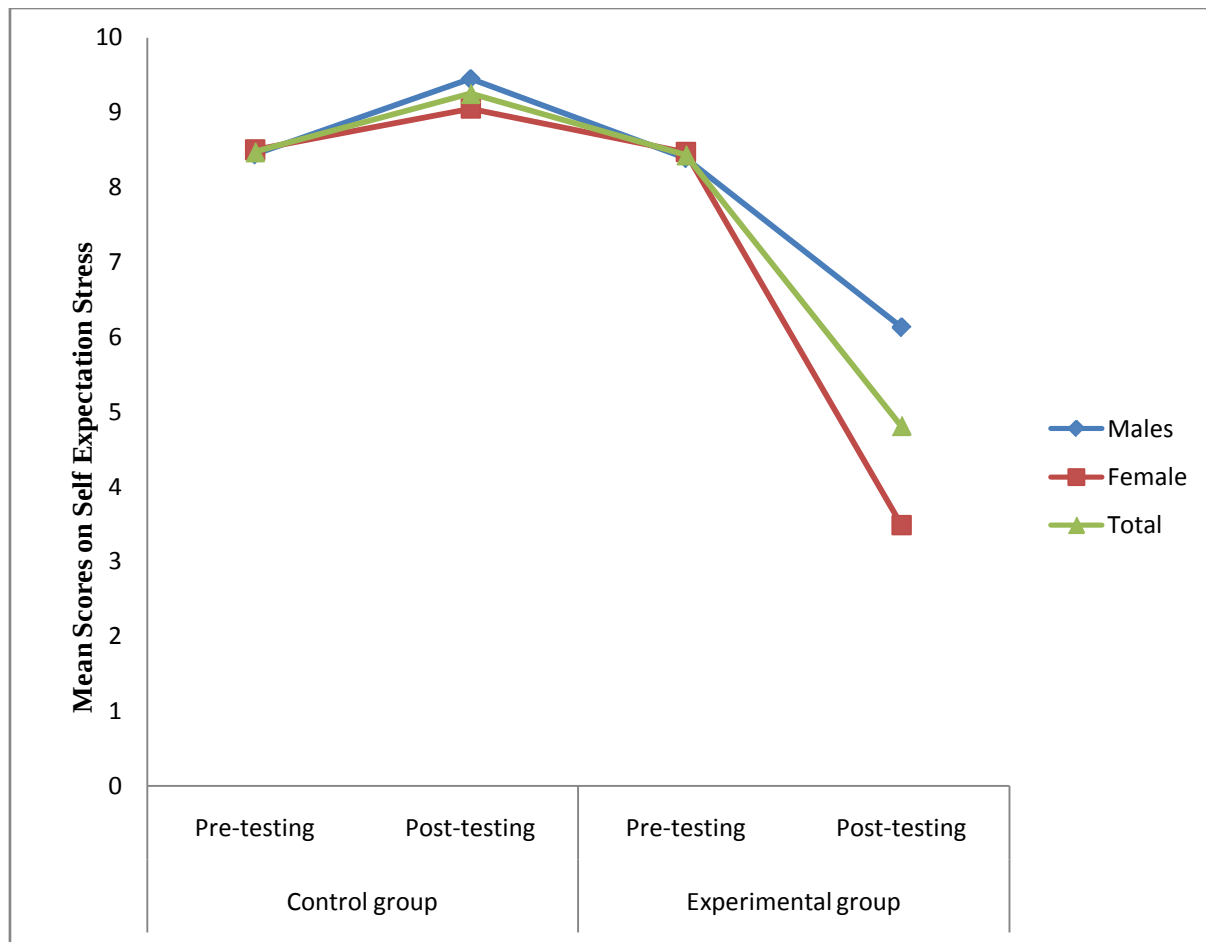


Figure 4 : Showing the Mean Scores on Self Expectation Stress for Males and Females from Pre to Post- Test in Control and Experimental Group

Interpretation

The results on self expectation stress as presented in Table 6.1 and figure 6.1 revealed that experimental group has shown a marked reduction from pre-testing with mean ($\bar{X} = 8.43$) to post-testing with mean ($\bar{X} = 4.81$). While, for the control group, it can be observed that there is an increase from pre to post-test

condition, with pre-test mean ($\bar{X} = 8.47$) to post-test mean ($\bar{X} = 9.25$). Whereas, in pre-testing, both these groups were similar. For gender, almost the same effect of self-help intervention could be seen in terms of self expectation stress but, the effect is more pronounced in females with mean ($\bar{X} = 3.49$) as compared to the males with mean ($\bar{X} = 6.13$).

v. Despondency

Table 5 : Pre and Post-test Means for the Variable of Despondency (Stress)

Gender	Control group		Experimental group	
	Pre-testing	Post-testing	Pre-testing	Post-testing
Males	8.92	9.25	9.07	5.43
Female	9.18	10.15	9.33	4.45
Total	9.05	9.70	9.20	4.94

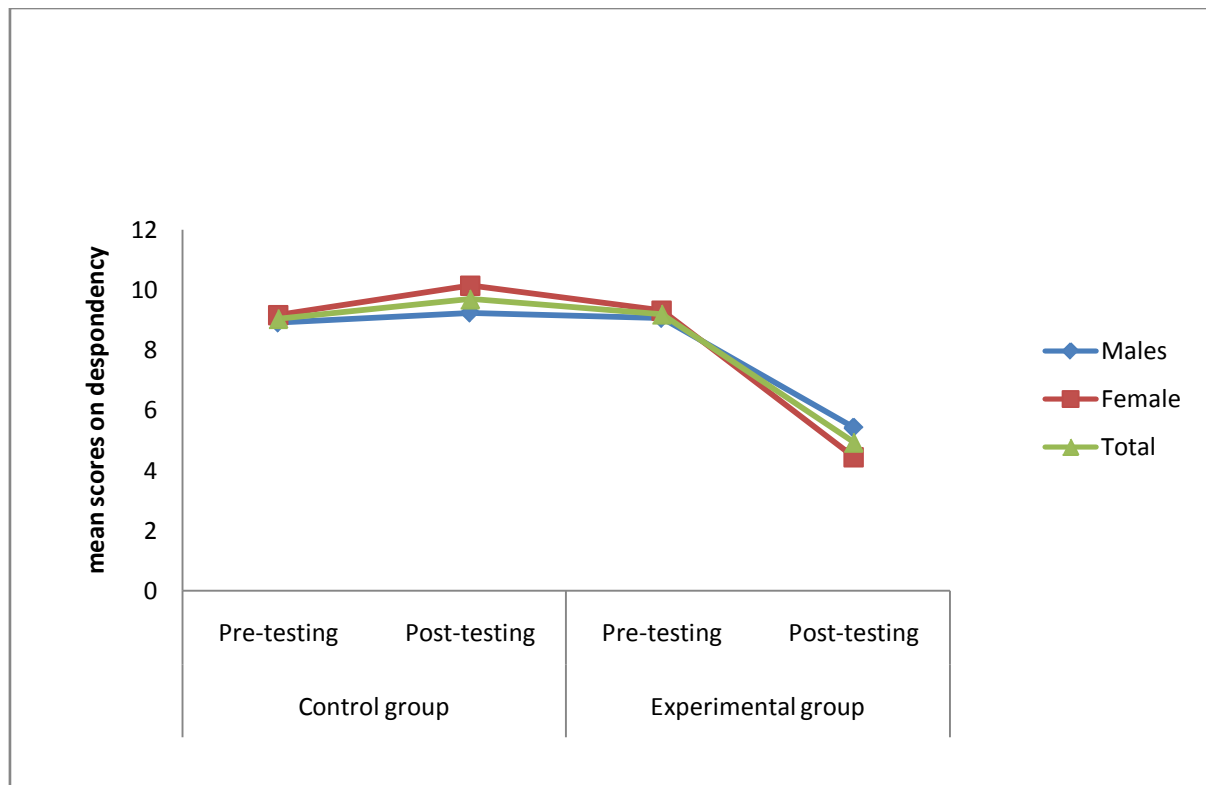


Figure 5 : Showing the mean scores on despondency from pre to post test for males and females in control and experimental group

Interpretation

The results on despondency, as presented in Table 5 and figure 5 revealed that experimental group has shown a marked reduction from pre-testing with mean ($\bar{X} = 9.20$) to post-testing with mean ($\bar{X} = 4.94$). While, for the control group, it can be observed that there is an increase from pre to post-test condition, with

pre-test mean ($\bar{X} = 9.05$) to post-test mean ($\bar{X} = 9.70$). Whereas, in pre-testing, both these groups were at the similar level. For gender, almost the same effect of self-help intervention could be seen in terms of despondency but, the effect is more pronounced in females with mean ($\bar{X} = 4.45$) as compared to the males with mean ($\bar{X} = 5.43$).

Table 6 : General Means Table for the Dimensions of Educational Stress

Variables	Males	Females	Control Group	Experimental Group	Pre-test	Post- test
Pressure from society	12.11	11.62	13.32	10.64	13.16	10.79
Workload	7.46	7.75	8.45	6.83	8.21	7.07
Worry about grade	8.21	8.54	9.05	7.55	8.99	7.59
Self expectation stress	8.10	7.38	8.86	6.62	8.46	7.03
Despondency	8.17	8.28	9.38	7.07	9.13	7.32

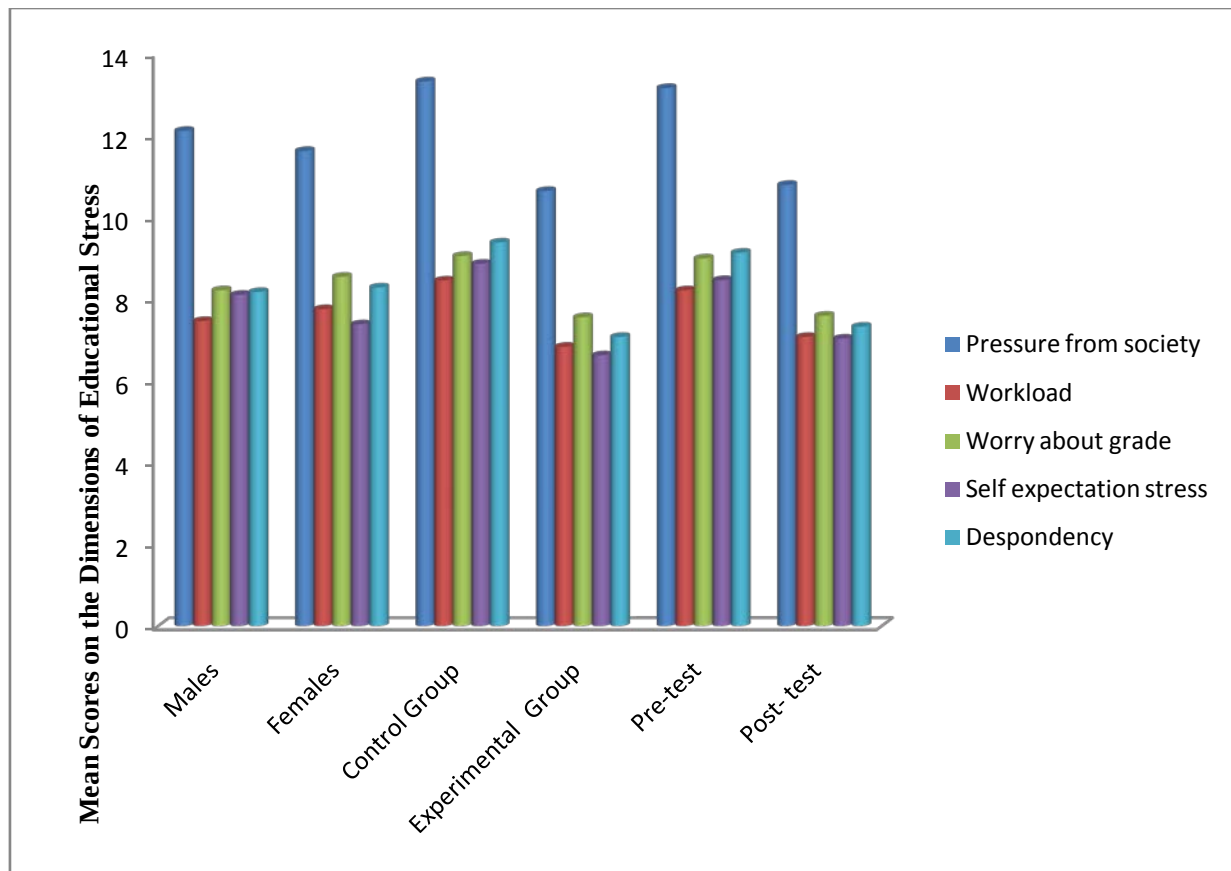


Figure 6 : Showing the General Means for the Dimesions of Educational Stress

Interpretation

General Means Table 6 reveals that pressure from society is the most stressing for adolescents followed by worry about grade, self expectation and despondency. Males have been found to be slightly higher than females on pressure from society and self expectation stress. On the contrary, females have been found to be slightly higher on workload, worry about grade and despondency but the differences have been found to be insignificant. Control group and pre test mean scores on all the dimensions are significantly higher to that of experimental and post test.

b) Repeated Measure- ANOVA (Analysis of Variance with Repeated Measures on the Last Factor):

i. Pressure from Society

Table 7 states that the F-ratio for the main effect of group under error (A) is 17.16**, $p < .01$. It shows the

significant differences in the mean value of control and the experimental group. Mean for control group is 13.32 while it is 10.64 for experimental group (Table 6). The F-ratio for the main effect of gender under error (A) is 3.30 (ns). Grand mean of males' feeling stress due to pressure from society is 12.11 and that of females' is 11.62 which reveal that there is no significant difference between males and females on pressure from society (Table 6).

The main effect of treatment under error (B) represents significant treatment effect, F-ratio being 30.65** $p < .01$ (Table 7).

Table 7 : Summary of Rpmnava on Pressure from Society

Source of Variance	Sum of Squares	df	MSV	F-ratio
Error A Between Groups				
Group	243.45	1	243.45	17.16**
Gender	46.87	1	56.87	3.30
Group x Gender	18.20	1	18.20	1.28
Error (A)	2781.24	196	14.19	
Error B within Groups				
Treatment	101.15	1	101.15	30.65**

Treatment x Group	403.63	1	403.63	122.31**
Treatment x Gender	61.67	1	61.67	18.68**
Treatment x Gender x Group	8.17	1	8.17	2.47
Error (B)	647.91	196	3.30	
Total	4312.29	399		

* $p < .05$; ** $p < .01$

With regard to the two factor interaction i.e. treatment x group, F-ratio is 122.31** which is significant at .01 level. Pre and post means for the

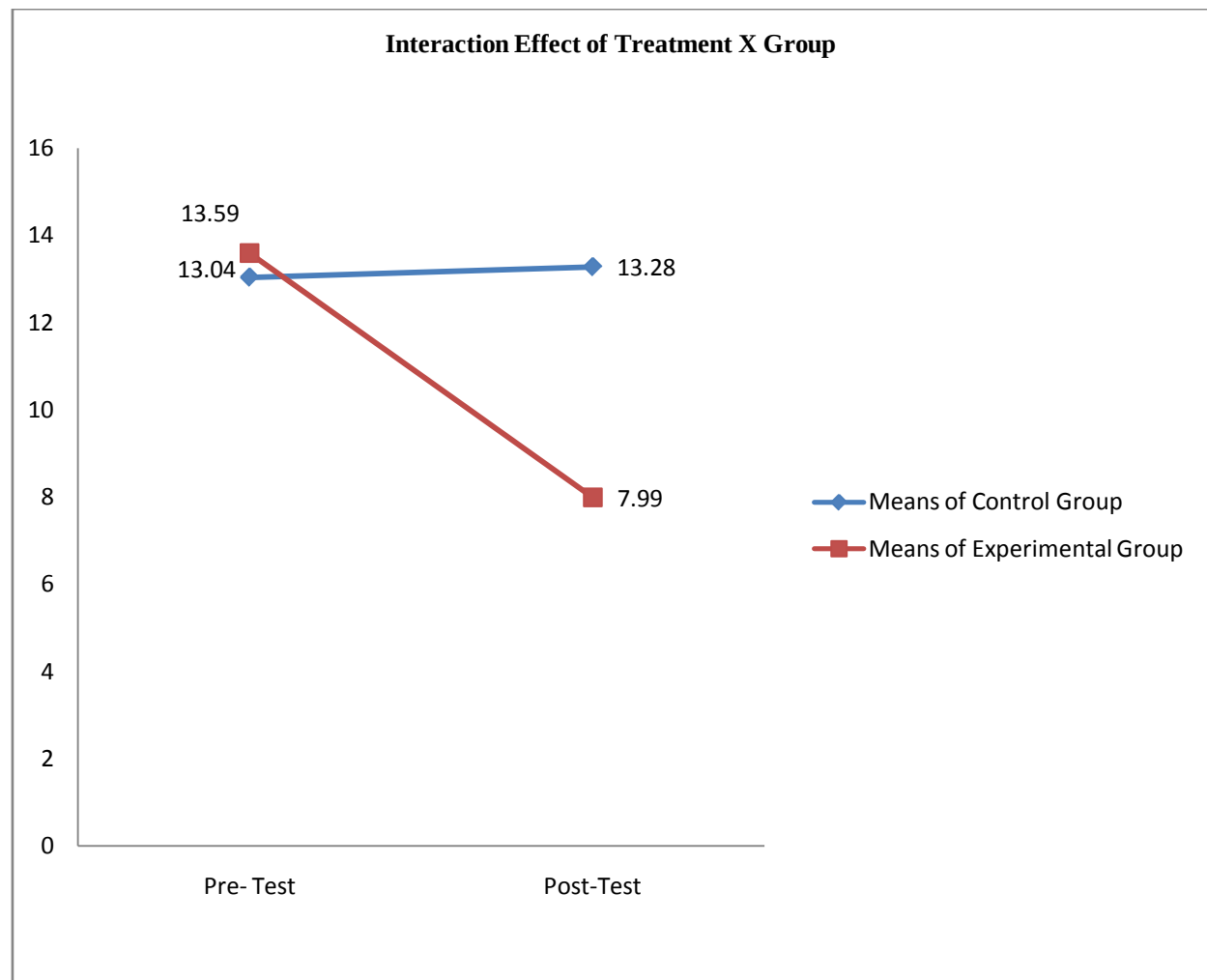
experimental groups are 13.28 vs. 7.99, while pre and post means for control group are 13.04 vs. 13.59 (Table 7.1).

Table 7.1: Mean Contingency Table on Pressure from Society

Treatment	Means of Treatment x Group		Means of Treatment x Gender	
	Control	Experimental	Males	Females
Pre	13.04	13.28	13.40	13.17
Post	13.59	7.99	8.76	7.22
Impact	.55% (increased)	5.29% (decreased)	4.64% (decreased)	5.95% (decreased)

The interaction effect curves clearly reveal that the effect of chanting mantras is highly pronounced in the experimental group as compared to the control group at the post-test that is there is a perceptible crossover effect in the pressure from society of the control vs. experimental group (Fig. 7 a). The F-ratio for

the treatment x gender is 18.68** which is also significant at .01 level. The means of males and females under pre treatment condition are 13.23 vs. 13.17 while under post treatment condition it is reduced to 8.76 vs. 7.22 (Table 7.1). The effect is favourably pronounced in females from pre to post test (Fig.7 b).



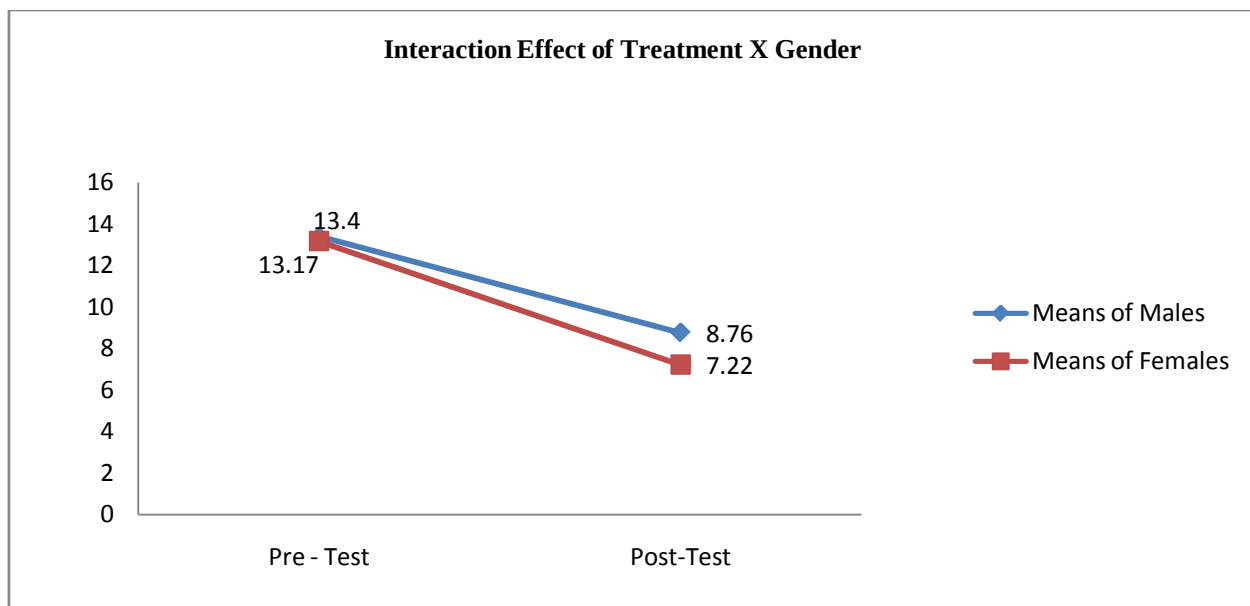


Figure 7 (a & b): Interaction Effect of Treatment X Group and Treatment X Gender

ii. Workload

It is evident from Table 8 that the main effect of group under error (A) is 6.99**, $p < .01$ showing the significant differences in the means of control and experimental group. Means for control group is 8.45 and for experimental group it is 6.83 (Table 6).

Regarding the main effect of gender under error (A) F-ratio is 2.97 (ns) which represent the insignificant gender differences. Overall means of males and females

are 7.75 vs. 7.46 (Table 6). It is visible from the means table that the overall workload of females is slightly higher than the males.

Under error (B), the main effect of treatment is significant at .01 level, F-ratio being 9.46**. It reflects the significant effect of treatment.

The two factor interaction i.e. treatment x group is also significant at .01 level, F-ratio being 25.38** (Table 8).

Table 8 : Summary of RpmANOVA on Work Load

Source of Variance	Sum of Squares	df	MSV	F-ratio
Error A Between Groups				
Group	237.84	1	237.84	6.99**
Gender	101.11	1	101.11	2.97
Group x Gender	34.20	1	34.20	1.00
Error (A)	6673.80	196	34.05	
Error B within Groups				
Treatment	186.05	1	186.05	9.46**
Treatment x Group	498.91	1	498.91	25.38**
Treatment x Gender	114.14	1	114.14	5.80*
Treatment x Gender x Group	33.70	1	33.70	1.71
Error (B)	3582.92	196	19.66	
Total	11462.67	399		

Through contingency table the pre and post experimental group are 8.14 vs. 5.51, while that of means can be compared i.e. pre and post means of control group are 8.28 vs. 8.63 (Table 8.1).

Table 8.1: Mean Contingency Table of Workload

Treatment	Means of Treatment x Group		Means of Treatment x Gender	
	Control	Experimental	Males	Females
Pre	8.28	8.14	7.88	8.41
Post	8.63	5.51	7.04	7.11
Impact	.35% (increased)	2.63% (decreased)	.84% (decreased)	1.3% (decreased)

The interaction effect curves clearly reveal that the effect of chanting mantras is highly pronounced in the experimental group as compared to the control group at the post-test that clearly depicts that there is a perceptible crossover effect in the workload of the control vs. experimental group (Fig. 8a). The F-ratio for

the treatment x gender is 5.80* which is also significant at .05 level. The means of males and females under pre treatment condition are 7.88 vs. 8.41 while under post treatment condition it is reduced to 7.04 vs. 7.11. The effect is favourably pronounced in females from pre to post test (Table 8.1 and Fig. 8b).

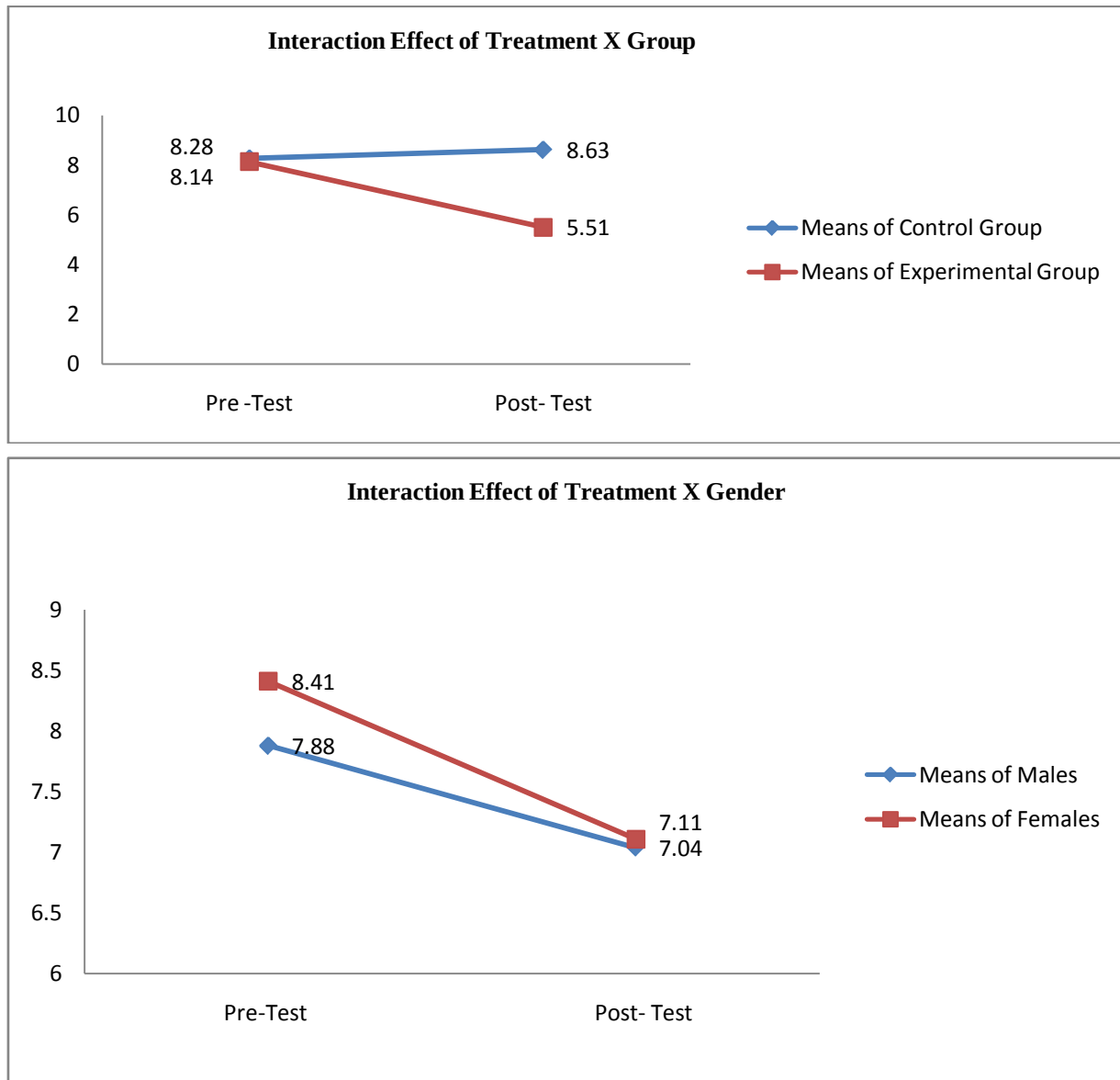


Figure 8 (a & b) : Interaction Effect of Treatment X Group and Treatment X Gender

iii. *Worry About Grade*

As far as worry about grade is concerned, the main effect of group under error (A) is significant at .01 level, F-ratio being 12.84** showing the significant differences between the groups (Table 9). Means for control and experimental group are 9.05 vs. 7.55 (Table 6). The F-ratio for the main effect of gender under error (A) is 3.56 (ns) which is insignificant. Overall mean of males' stress pertaining to worry about grade is 8.21 and that of females is 8.54, indicating that the level of

grade anxiety among males and females is almost same but slightly higher for females (Table 6).

For the main effect of treatment under error (B), the F-ratio is 30.65**, $p < .01$ showing significant treatment effect (Table 9).

Table 9 : Summary of RpmANOVA on Worry about Grade

Source of Variance	Sum of Squares	df	MSV	F-ratio
Error A Between Groups				
Group	313.05	1	313.05	12.84**
Gender	86.87	1	86.87	3.56
Group x Gender	20.17	1	20.17	0.82
Error (A)	4781.24	196	24.39	
Error B within Groups				
Treatment	152.15	1	152.15	30.65**
Treatment x Group	603.63	1	603.63	44.68**
Treatment x Gender	61.67	1	61.67	4.56*
Treatment x Gender x Group	10.17	1	10.17	0.75
Error (B)	2647.91	196	13.51	
Total	8676.86	399		

* $p < .05$; ** $p < .01$

The two factor interaction of treatment x group is significant at .01 level, F-ratio being 44.68**. In the Mean contingency (Table 9) the experimental groups' mean for pre intervention is 9.06 and for post

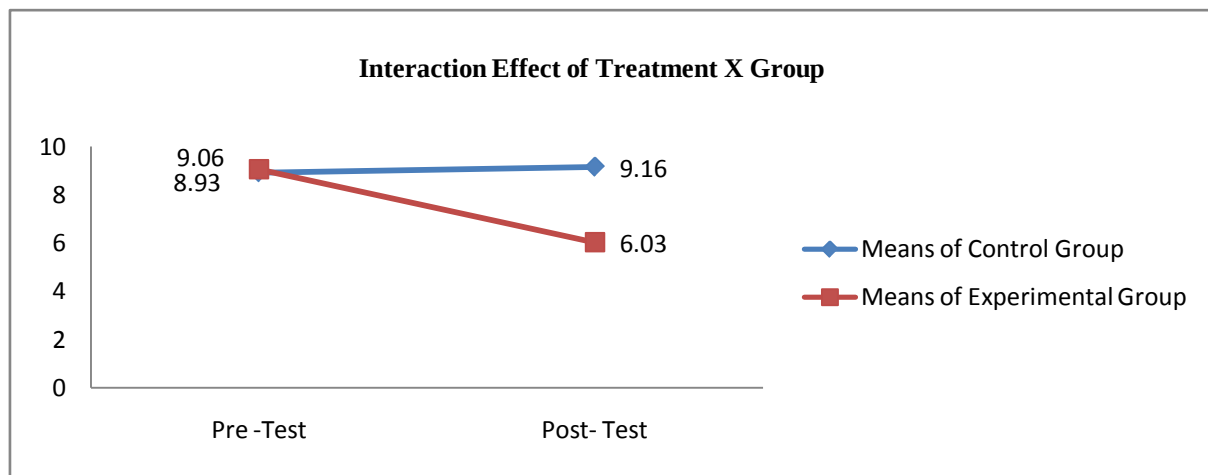
intervention it is 6.03. Pre and post means for control group are 8.93 and 9.16. The interaction table and figure shows a perceptible crossover in the grade anxiety of experimental and control group (Fig. 9a)

Table 9.1 : Means Contingency Table for Worry about Grade

		Means of Treatment x Group		Means of Treatment x Gender	
Treatment		Control	Experimental	Males	Females
Pre		8.93	9.06	8.85	9.14
Post		9.16	6.03	7.56	7.63
Impact		0.23% (increased)	3.03% (decreased)	1.29% (decreased)	1.51% (decreased)

The interaction effect curves clearly reveal that the effect of chanting mantras is highly pronounced in the experimental group as compared to the control group at the post-test that is there is a perceptible crossover effect in the worry about grade of the control vs. experimental group (Fig. 9a). The F-ratio for the

treatment x gender is 4.56* which is also significant at .05 level. The means of males and females under pre treatment condition are 8.85 vs. 9.14 while under post treatment condition it is reduced to 7.56 vs. 7.63 (Table 9.1 and Fig. 9b).



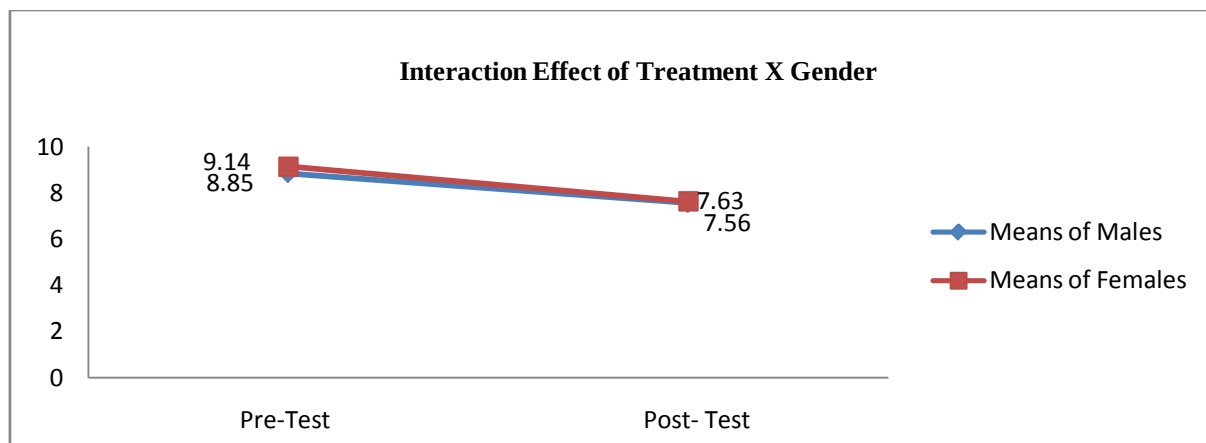


Figure 9 (a & b) : Interaction Effect of Treatment X Group and Treatment X Gender

iv. Self Expectation Stress

Regarding self expression stress, the main effect of group under error (A) is significant at .01 level, F-ratio being 13.66** showing the significant differences between the groups (Table 11). Means for control and experimental group are 8.86 vs. 6.62 (Table 7).

The F-ratio for the main effect of gender under error (A) is 2.94 (ns) which is insignificant. Overall mean

of males' self expectation stress is 8.10 and that of females is 7.38, indicating that the level of self expectation stress among males and females is almost similar but slightly higher for males (Table 7).

For the main effect of treatment under error (B), the F-ratio is 30.65**, $p < .01$ showing significant treatment effect (Table 10).

Table 10 : Summary of Rpmanova on Self Expectation Stress

Source of Variance	Sum of Squares	df	MSV	F-ratio
Error A Between Groups				
Group	241.81	1	241.81	13.66**
Gender	52.05	1	52.05	2.94
Group x Gender	26.26	1	26.26	1.48
Error (A)	3469.07	196	17.69	
Error B Within Groups				
Treatment	166.05	1	166.05	17.26**
Treatment x Group	598.61	1	598.61	62.22**
Treatment x Gender	45.09	1	45.09	4.69*
Treatment x Gender x Group	9.70	1	9.70	1.01
Error (B)	1882.98	196	9.62	
Total	6491.62	399		

* $p < .05$; ** $p < .01$

With regard to the two factor interaction i.e. treatment x group, F-ratio is 17.26** which is significant at .01 level. Pre and post means for the experimental

groups are 8.43 vs. 4.81, while pre and post means for control group are 8.47 vs. 9.25 (Table 10.1).

Table 10.1 : Mean Contingency Table of Self Expectation Stress

Treatment	Means of Treatment x Group		Means of Treatment x Gender	
	Control	Experimental	Males	Females
Pre	8.47	8.43	8.42	8.49
Post	9.25	4.81	7.79	6.27
Impact	0.78% (increased)	3.62% (decreased)	.63% (decreased)	2.22% (decreased)

The interaction effect curves clearly reveal that the effect of chanting mantras is highly pronounced in the experimental group as compared to the control group at the post-test that is there is a perceptible crossover effect in the self expectation stress of the control vs. experimental group (Fig. 10a). The F-ratio for

the treatment x gender is 4.69 which is also significant at .05 level. The means of males and females under pre treatment condition are 8.42 and 8.49 while under post treatment condition it is reduced to 7.79 vs. 6.27. The effect is favourably pronounced in females from pre to post test (Table 10.1 and Fig. 10b).

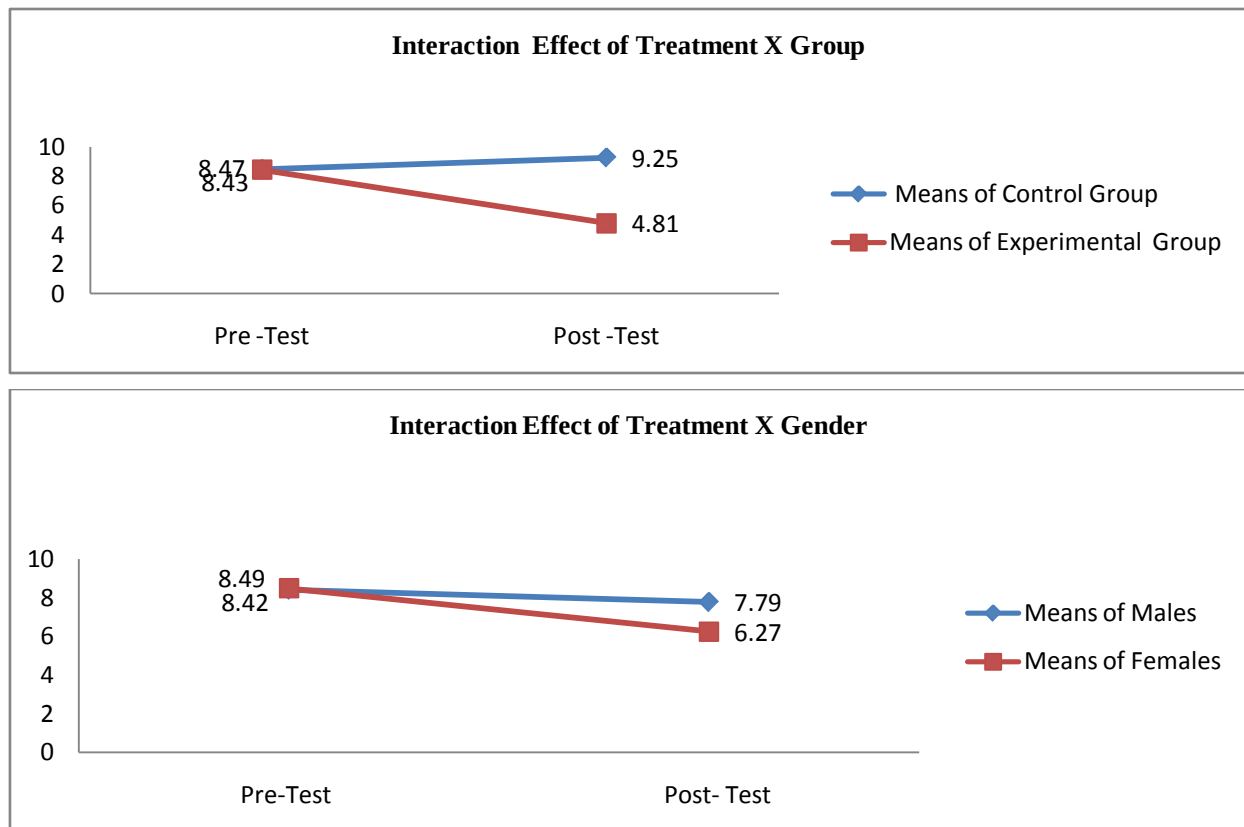


Figure 10 (a & b) : Interaction Effect of Treatment X Group and Treatment X Gender

v. Despondency

Regarding despondency, the main effect of group under error (A) is significant at .01 level, F-ratio being 14.91** showing the significant differences between the groups (Table 11). Means for control and experimental group are 9.38 vs. 7.07 (Table 7).

The F-ratio for the main effect of gender under error (A) is 3.10 (ns) which is insignificant. Overall mean

of males' despondency is 8.17 and that of females is 8.28, indicating that the level of despondency among males and females is almost similar but slightly higher for females (Table 7).

For the main effect of treatment under error (B), the F-ratio is 18.57**, $p < .01$ showing significant treatment effect (Table 11).

Table 11: Summary of Rpmanova on Despondency

Source of Variance	Sum of Squares	df	MSV	F-ratio
Error A Between Groups				
Group	327.81	1	327.81	14.91**
Gender	68.15	1	68.15	3.10
Group x Gender	13.20	1	13.20	0.60
Error (A)	4309.07	196	21.98	
Error B Within Groups				
Treatment	93.05	1	66.05	18.57**
Treatment x Group	308.61	1	398.61	61.59**
Treatment x Gender	29.26	1	4.61	5.84*
Treatment x Gender x Group	4.70	1	.70	0.93
Error (B)	982.92	196	5.01	
Total	6136.77	399		

* $p < .05$; ** $p < .01$

With regard to the two factor interaction i.e. treatment x group, F-ratio is 61.59** which is significant at .01 level. Pre and post means for the experimental groups are 9.20 vs. 4.94, while pre and post means for control group are 9.05 vs. 9.70 (Table 11.1).

Table 11.1 : Mean Contingency Table of despondency

Treatment	Means of Treatment x Group		Means of Treatment x Gender	
	Control	Experimental	Males	Females
Pre	9.05	9.20	8.99	9.26
Post	9.70	4.94	7.34	7.30
Impact	.65% (increased)	4.16% (decreased)	1.65% (decreased)	1.96% (decreased)

The interaction effect clearly depicts that there is a perceptible crossover effect in the despondency of the control vs. experimental group (Fig. 11a). The F-ratio for the treatment x gender is 5.84* which is also significant at .05 level. The means of males and females under pre

treatment condition are 8.99 vs. 9.26 while under post treatment condition it is reduced to 7.34 vs. 7.30 (Table 11.1). The effect is more favourably pronounced for females from pre to post test (Fig.11b).

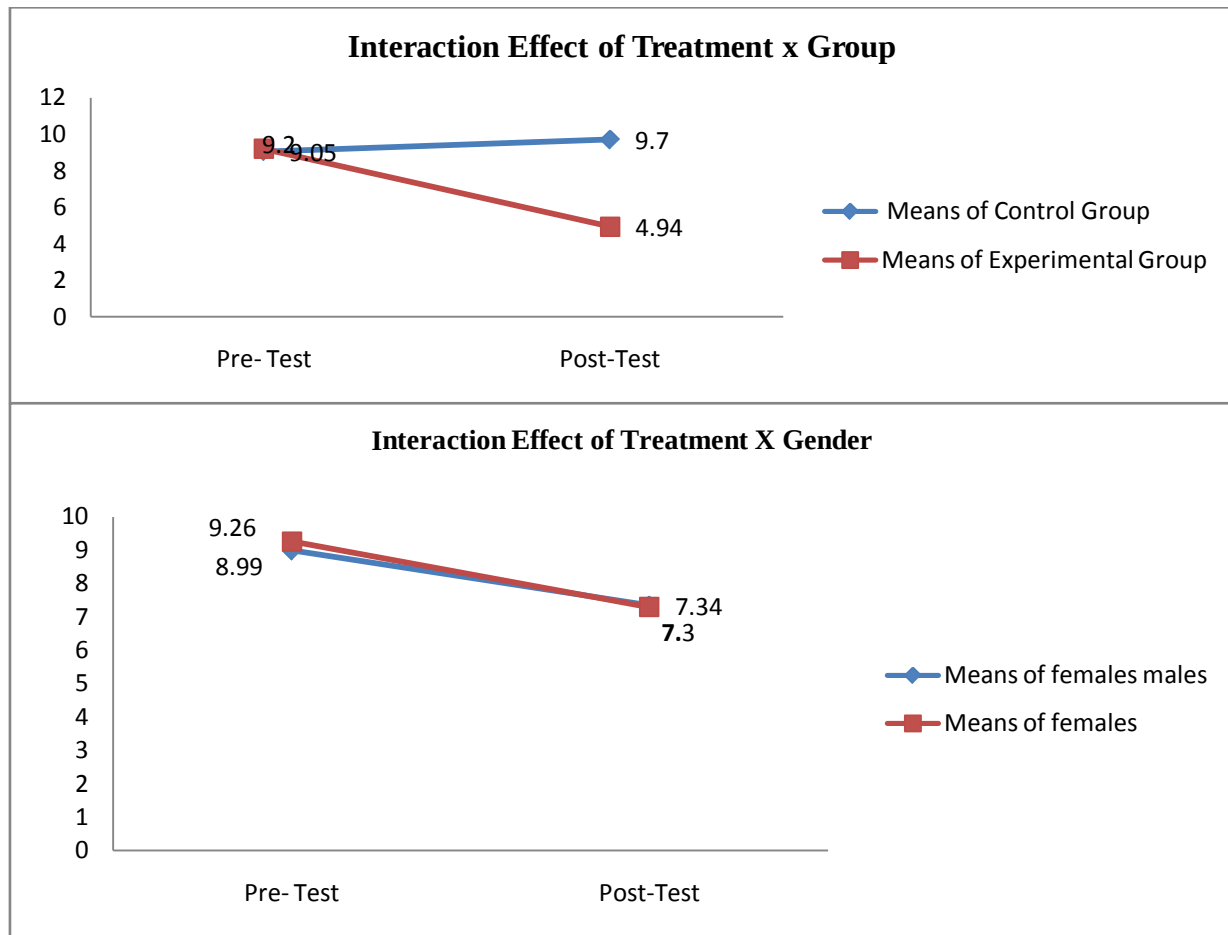


Figure 11(a & b) : Interaction Effect of Treatment X Group and Treatment X Gender

VII. DISCUSSION

Adolescents pass through too many changes at too rapid a speed and experience multidimensional challenges and consequently find themselves at a loss. Clinical studies carried out by Grinker and Spiegel (1963) and Masteron, Turker & Berk (1966) have brought to light the alarming fact that in the normal adolescent population, the mentally ill and the doubtful cases outnumber the mentally healthy adolescents. These studies conclude that many of them do not need hospitalization or even clinical assistance but most of

them do need some kind of help, guidance and skilful handling. They need timely guidance for diversion of their minds towards a channel to save themselves from disaster of entering the dark world of drug addiction and frustration. Therefore, the emphasis should be on the need for more sensitive measures of at-risk adolescents' psychological and academic changes. Keeping in mind all the facts and problems related to academic stress, an intervention programme was introduced in the present investigation.

In the second section of the study, a 2x2x (2) Repeated Measure Analysis of Variance was employed. High educational stress subjects were divided into two groups i.e. Control group (n = 100) and Experimental group (n=100), 50 males and 50 females in each group. Both the groups were assessed on the variables of educational stress, before and after the intervention. In the pre test condition, the control and experimental groups were roughly equal on educational stress.

It is evident from the results that the F-ratios for the main effect of groups under error (A) are significant at .01 level on all the dimensions of educational stress depicting the significant differences in the means of control and experimental group. The differences in the groups seem to be the result of intervention programme in the form of chanting mantras.

As far as interaction effect i.e., treatment x group is concerned, F-ratios have turned out to be significant at .01 level for all the dimensions of educational stress under error B which reveal that experimental group has been benefitted significantly from OM chanting and Gayatri Mantra in combating their stress levels on: pressure from society by 5.29%; workload by 2.63%; worry about grade by 3.03%; self expectation stress by 3.62% and on despondency by 4.26%. It is perceptible from the results that the experimental group has been significantly benefited from the intervention programme due to which their stress level has reduced to a significant level in all the five domains of educational stress. To the contrary, another interesting finding of the present research is that control group showed enhancement in their stress levels from pre to post test for want of treatment on all the domains of educational stress by 0.55% on pressure from society; 0.35% on workload; 0.23% on worry about grade; 0.78% on self expectation stress and 0.5% on despondency.

Similarly, for the interaction effect between treatment x gender, the F-ratios have turned out to be significant at .05 level under error B on all the dimensions of educational stress which shows that the inter-differences between genders are significant at the post test session owing to treatment and the females have been benefitted more to that of males. by showing significant reduction with 3.59% Vs 2.14% on pressure from society; 1.30 Vs .84 in workload; 1.51 Vs 1.29% in worry about grade; 2.22% Vs .63% in self expectation stress and 1.95% Vs 1.65% in despondency. The results have clearly shown that both the genders have shown significant reduction in their stress due to treatment but the impact is more marked and pronounced in females because of their serious disposition and articulation (Sharma & Malhotra, 2007). For details see interaction curves in the results section.

Thus, our hypothesis that "intervention programme will be effective in managing aggression" stands confirmed.

The rationale could be offered in the following manner. Ahmad *et al.*, (1988) has also reported that meditators show overall better adjustment and personality organization than non-meditators. Mantras are claimed to endow perfect physical, mental and social well being of an individual. Muskatel *et al.*, (1984) and Hafner (1982) in their studies have found that meditation practice can be effective in reducing hostile and stressful behaviours. Regular practice of Gayatri mantra and Om chanting promotes strength, endurance and flexibility and cultivates a sense of calmness and well being and students chanting these mantras normally report an improved sense of energy to lead life fully with enjoyment (Mehta *et al.*, 1995), which is the opposite of fight/flight stress response. In this regard, Collins (1998) suggested that regular practice of Om chanting leads to overall physical and psychological well being. The very aim of mantras is the harmonic integration of the body, mind and spirit in search of perfect health, self awareness and spiritual attainment.

Gayatri mantra and meditation can contribute positively to various cognitive processes including perception and in turn, on subjective well-being, quality of life and criminal propensity (Khurana & Dhar, 2000). A study by Ghosh (2003) revealed that recitation of "OM" usually gives rise to sensations, feelings and experience of positive nature improves the cognitive functioning such as attention, concentration, perception etc.

VIII. LIMITATIONS

The present study was an attempt to investigate the effect of intervention programme on educational stress. As no research work is without any limitations, the present study is also having one limitation that the samples used were from Shimla city of Himachal Pradesh (INDIA), limiting our ability to generalize the findings. The study has important implications for school students for employing mantra chanting in their school curriculum.

IX. CONCLUSION

In a nutshell, it can be said that chanting of mantras offers a relaxed outlook in life. A rested mind is the best kind of health insurance. It is from the rested mind that the entire beneficial cycle starts. In Psychoanalytical language, meditation helps in conquering the neurotic tendencies and makes the mind peaceful and happy. Chanting of OM and Gayatri mantra stimulates the brain cells resulting in their activation and ultimately leading to better concentration.

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