RESEARCH ARTICLE

EFFECT OF SELECTED LIMBS OF ASHTANGA YOGA ON SELF ESTEEM AND DEPRESSION AMONG PRIOSNERS

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ARTICLE INFO	ABSTRACT
	Background: Depressive symptoms are common mental disorders around worldwide. The prevalence of depression is much higher irrespective than in general population.Prison is a place where criminal persons are residing for many years which makes them to have severe depression,. Around 49% of women and 23% of male prisoners having Low Self- esteem and depression. Thus selected limbs of Ashtanga Yoga (Asanas and Pranayama) will provide a positive effect on enhancing self esteem and decrease the level of depression among prisoners. **Aim:** To evaluate the effectiveness of selected limbs of Ashtanga Yoga on Self-esteem and Depression among Male Inmates in Central prison. **Materials and Methods**: Pre Experimental Research Design (One group Pre- test Post-test). 42 Male Inmates were selected by Purposive Random Sampling Technique. The data was collected and pre test was done by Rosenberg Self- Esteem Scale and Beck Depression Inventory. Selected limbs of Ashtanga Yoga, namely Asanas and Pranayama techniques were administered for 30 minutes daily for 21 days and post- test was done. The data was analyzed by descriptive and inferential statistics. **Result**: The obtained paired t- test was -11.76 and 13.18 which is significant at p < 0.001. **Conclusion:** Selected limbs of Ashtanga Yoga (Asanas and Pranayama) were effective to bring about positive changes in the level of Self Esteem and Depression among Male Inmates in Central Prison.

INTRODUCTION

Prison is a place where the inmates or the prisoners are compelled to stay for many years and sometimes for life long to punish them for their mistakes such as committed grave crimes (murder, sexual assaults, robbery) (Roth, Michael, 2006). It is not considered as a good place to live because it separates the prisoners from their families, friends, and the society. There are many other reasons like overcrowding, lack of privacy, insecurity about future, forced to be alone, facing various types of violence, lack of meaningful activity, inadequate mental health services and fear of the negative opinion of family and society that cause mild to severe mental health problems among prisoners (Kann, Mark, 2005). All these factors have got a significant impact on the psychological, emotional and physical problems for the prisoners (Bhandari, 2016). Depressive symptoms are common mental disorders around worldwide. The prevalence of depression is much higher irrespective of all age groups especially females, old age person, singles and separated person. The contributing factors resulting in imprisonment are loss of freedom and opportunities, lack of social support, poor relationship from family and society, loss of employment, and lack of social roles (World Health Organization, 2017).

Moreover, the prison environment characterized by overcrowding, high level of uncertainty, stereotype regimen and lack of recreational activities could lead to depression among prisoners than in general population (Datta, 2015). World Health Organization reported that more than 10 million (10% of men and 30% of women) prisoners around worldwide experiencing mental disorders and this is proportionately high when compared to general population (World Health Organization, 2007). Studies found that 25% of women and 15% of men in prison reported symptoms of psychosis and for the general public is about 4% (Ligi Thomas, 2018; Journal of Psychiatric medicine, 2015). Self-esteem refers to the evaluation of a people which makes in relation to themselves and indicate the extent to which they see themselves capable and worthy. [10] The factors causing low self esteem among prisoners are feeling of guilt due to the crime what they have done, missing of loved ones like family, friends and relations, fear about the future of family and children, losing their rights and job, financial loss, social discrimination and worrying about future thus exhibiting the symptoms of feeling of being useless, dissatisfaction about oneself, social withdrawal, neglecting others, lack of self confidence (Castellano, 1997). Crime done by the prisoners is associated with low self-esteem and hence the prisoners are at the high risk of suicide, violence and self harm (Datta, 2015; WHO, 2008; James,

2014; Saraswati *et al.*, 1996). Various interventional studies have been conducted for the treatment of depression among prisoners. Those interventions was not able to practice in a regular basis of their day to day life, Hence the traditional system of yoga is being used widely for improving various physical and mental illness (Bhushan, 1998; Bedi, Kiran, 1994; Woolery, 2004; Dhansoia *et al.*, 2005; Hamid Dehghanfara, 2014). Few studies have been done to find the effect of Yoga in the treatment of mental disturbances especially for depression among Prisoners (Nosaka, 2015; ManpreetKaur, 2016; Lakshmi Narasimhan, 2016; Prachi Deshbhratar, 2016; Ravishankar_Tejvani *et al.*, 2016). Several studies shown that Yoga and its various techniques such as Asanas, Pranayama, meditation, relaxation, and concentration are a powerful tool to keep prisoners healthy and to have good psycho- physical condition that can lead a person to have positive mental and physical health thus improved the self- esteem level of Prisoners (Harner, 2010; Chobe *et al.*, 2016; Schuver, 2016; Tejvani *et al.*, 2016; Franklin *et al.*, 2018; Ramanathan *et al.*, 2017; Woolery *et al.*, 2014; Golec de Zavala, 2018).

There were no dearth of studies conducted in South India, to determine prevalence of depression and self- esteem among Prisoners and the effect of Yoga on it. So necessary steps to be taken to improve the mental well being of the prisoners who did crime intentionally or unintentionally, so that once released from the prison they would be able to cope up with community and lead a peaceful life. I realized that the mental state of prisoners could be improved with the help of selected limbs of Ashtanga Yoga (Asana and Pranayama) that will provide positive effect on self esteem and decrease the level of depression among Prisoners. Therefore this research aimed at determining the effect of selected limbs of Ashtanga Yoga on Self Esteem and Depression among prisoners in Central Prison, Kalapet at Puducherry. Researcher stated the hypothesis as level of Self-Esteem and Depression differs before and after intervention.

MATERIALS AND METHODS

Research Approach: Quantitative approach was used in this study.

Study Design: A Pre-experimental research design (one group pre-test and post-test design) was employed in the study.

Study Setting and population: The study was conducted at Central Prison, Kalapet, Puducherry Currently the Prison consists of 193 Prisoners (54 convicted and112 under trial). Among them, 52 convicted prisoners were selected for the study because of their longer stay in Prison, among them 42 were included in the study, 10 of them were excluded because 3 of them were not willing to participate and 7 of them were occupied with some other work.

Ethical Considerations: The permission for the study was obtained from Institutional Human Ethics Committee (IHEC) and the permission was obtained from the Inspector General of Prison. All information obtained from the prisoner was kept confidentially and that was maintained at all the time during my study. Study findings were intimated to the authorities of the Prison and the Prisoners for the better medical care.

Sample Size: This study is an experimental study to assess the self- esteem and depression of Prisoners in Central Prison, Kalapet at Puducherry**.** A similar study was conducted by Vinod. et.al to assess the prevalence of psychotic disorders among prisoners. Sample size required for study was calculated by the following formula (Daniel 1999).

$$n = Z^2 P (1-P)/d^2$$

Where, n = sample size, Z = Z statistic for a level of confidence, P = expected prevalence in proportion of one and d = precision in proportion of one. For the level of confidence of 95%, which is conventional, Z value is 1.96. To calculate values for "P" and "d"**,**

$n = (1.96)^2 \times 0.161 \times (1-0.161)/ (0.1)^2$
  $= 3.8416 \times 0.161 \times 0.839/0.01$
  $= 0.6184 \times 0.839/0.01$
  $= 0.518919/0.01$
  $= 51.89$
$n = 51$

Thus with 10% of atrasion 42 Prisoners were selected who met yhe inclusion and exclusion criteria.

Sampling Technique: Total sample size included in the study was 42 prisoners and it was done by means of purposive sampling technique those who met the inclusion and exclusion criteria.

Criteria for Sample Selection

Inclusion Criteria: It includes the following,

- Male Inmates who are present during the time of study
- Male Inmates who exhibit the symptoms of low self esteem such as feeling of being useless, dissatisfied about one's self, social withdrawal, neglecting others, lack of confidence.
- Male Inmates who exhibit the depressive symptoms such as depressed mood, negative feeling or fear about future, disturbed sleeping pattern, loss of joy, lack of interest in life, and lack of energy, constantly seeing prison gate, missing of loved ones, guilty feel, suicidal thoughts.
- Male Inmates who knows the languages Tamil and English.

Exclusion criteria: It includes the following,

- Male Inmates who are not willing to participate in the study.
- Male Inmates who are not available during data collection period.
- Male Inmates who are physically challenged.

Method of Data collection: Data from the Prisoners were collected by using semi- structured questionnaires to examine the socio- demographic characteristics, Depression was assessed using Beck Depression Inventory and Self- esteem was assessed using Rosenberg Self Esteem Scale. Privacy of the prisoners were maintained during the data collection.

Socio- Demographic variables: It is a semi- structured questionnaire in which it contains socio demographic variables such as age, marital status, number of children, type of family, occupation , monthly income of the family, educational qualification, socio economic status, family history of mental illness, duration of stay in prison, type of crime, history of physical illness, previous knowledge regarding yoga

Beck Depression Inventory: Beck Depression Inventory (BDI) was created by Aaron T. Beck (1961) is a 21 question multiple choice self report inventory, one of the most widely used psychometric tests for measuring the severity of depression. It is a 4 point likert scale which has scoring from 0 to 63. 0- 13 Minimal Depression, 14- 19 Mild Depression, 20-28 Moderate Depression and 29- 63 Severe Depression. Subjects are asked to use this 4 point to show their level of depression. Internal consistency of the tool is the estimation of reliability based on Cronbach's alpha for the present study was a = 0.96

Rosenberg Self- esteem Scale: Rosenberg self-esteem scale was developed by sociologist Dr. Morris (1965) is a 10 item Likert scales with items answered on a four point scale ranging from strongly agree to strongly disagree. Five of the items have positively worded statements and five have negatively worded ones. The scale ranges from 0-30. Scores between15 and 25 are within normal range and Scores below 15 suggest low self esteem. Internal consistency of the tool is the estimation of reliability based on Cronbach's alpha o the present study was   r = 0.72

Pilot Study: This was done among 10 prisoners who met the inclusion and exclusion Criteris but they were not included in this study. The rationale of the pilot study was categorized into: process, management, resources, scientific. This helps the researcher to identify the feasibility, resources, management and personal issues among prisoners.

Procedure: After explaining the procedure to the inmates an informed consent has been obtained from the prisoners. The socio- demographic questionnaire, Beck Depression Inventory and Rosenberg Self- Esteem were administered to all the 42 Prisoners. Respondents were encouraged to provide their answers voluntarily. After obtaining the data selected limbs of Ashtanga Yoga (Tala Asana, Veera Asana, Bhujangasana, Pavanamukthasana, Bhrama Mudra, Pranava Pranayama, Shavasana with Marmanasthana Kriya) were administered to all the prisoners daily in the morning for 21 days. Then the data was assessed by reusing the same tool as Beck Depression Inventory and Rosenberg Self- Esteem.

Data analysis: Data was entered into micro- computer and analyzed using the Statistical Package for Social Sciences (SPSS) software and the data was analyzed by using differential and inferential statistics.

RESULTS

The study findings are presented in sections as follows:
Section-A: Distribution of Demographic variables of Male Inmates in Central Prison: Amongst the total 42 prisoners, 21 (50%) of them were between 31-40 years, 13(31%) of them were between 41-50 years and 6 (14.3%) of them were in 50 and above, 8 (19%) of them had history of mental illness and 34 (81%) of them does not have history of mental illness. 24

(57.1%) of them were daily wager, 11 (26.2%) of them were working under private sector, 2 (4.8%) of them were working under Public Sector, 2 (4.8%) of them were self employed. 32 (76.2%) of them had murdered, 4(9.5%) of them had raped, 5 (11.9%) had kidnapped and 1 (2.4%) of them had involved in fights. 17 (40.5%) of them were staying for 1-5 years, 11 (26.2%) of them were 6-10 years, 12 (285.6%) of them were for 11-15 years and 2 ()4.8%n of them were 16-20 years The demographics data of our study population is given in Table 1.

Section-B: Assessment of Pre-test and Post-test level of self – Esteem and Depression among Male Inmates: Figure 1 depicts, 19 (45.2%) of Male Inmates having normal range of self- esteem and 23 (54.8%) of them had low self- esteem in pre- test and after the intervention during post- test 36 (85.7%) had normal self- esteem and 6 (14.3%) of them had low self- esteem. Figure 2 represents, 19 (45.2%) had mild depression, 14 (33.3%) had moderate depression and 6 (14.3%) had severe depression during pre- test and after the intervention during post- test 24 (57.1%) were normal, 16 (38.1%) had mild depression, 2 (4.8%) had moderate depression.

Section-C: Effectiveness of Selected limbs of Ashtanga Yoga on level of Self- Esteem and Depression among Male Inmates. Figure 3 reveals the post-test level of Self Esteem mean score (19.81) was significantly less than the pre-test level of self – esteem mean score (14.57) by using paired t- test (-11.46) and indicates that selected limbs of Ashtanga Yoga is significantly effective in improving Self- esteem at $P<0.001$. Figure 4 reveals that the post-test level of Depression mean score (11.12) was significantly less than the pre-test level of self – esteem mean score (21.79) by using paired t- test (13.18) and indicates that selected limbs ofAshtanga Yoga is significantly effective in reducing depression at $P<0.001$.

Section-D: Association between the level of self- esteem and depression among male inmates with their selected demographic variables. Table 2 and 3 aimed to find out the association between socio-demographic variable and Depression. The result showed that there was no significant association with p< 0.05

DISCUSSION

The main objective of the present study was to evaluate the effectiveness of practice of selected limbs of Ashtanga Yoga on Self-esteem and Depression among male inmates in Central prison with Rosenberg's self esteem scale and Beck Depression Inventory: The post-test level of Self Esteem mean score (19.81) was significantly less than the pre-test level of self – esteem mean score (14.57) by using paired t- test (-11.46) and indicates that selected limbs of Ashtanga Yoga is significantly effective in improving Self- esteem at $P<0.001$.The post-test level of Depression mean score (11.12) was significantly less than the pre-test level of self – esteem mean score (21.79) by using paired t- test (13.18) and indicates that practicing the selected limbs of Ashtanga Yoga is significantly effective in reducing depression at $P<0.001$. It revealed that the Selected limbs of Ashtanga Yoga (Selected Asanas and Pranayama) was effective in improving Self-esteem and reduced depression level among male inmates in Central Prison. Hence the stated research Hypothesis (H₁) was accepted, i.e. there is a difference in the level of Self- Esteem and depression before and after selected limbs of Ashtanga Yoga among male inmates in Central Prison.

Table 1. Distribution of Demographic Variables of Male Inmates in Prison

N= 42

S.No	Demographic Variables		Number of Inmates (n)	Percentage (%)
1	Age in years	20-30	2	4.8
		31-40	21	50
		41-50	13	31
		50 & above	6	14.3
2	Educational Qualification	No formal Education	3	7.1
		Primary Education	13	31
		Secondary Education	13	31
		Higher Secondary	9	21.4
		Degree courses	4	9.5
3	Marital Status	Married	29	69
		Unmarried	12	28.6
		Divorced/Separated	1	2.4
4	Number of Children	0	14	33.3
		1	3	7.1
		2	16	38.1
		3	6	14.3
		More than 3	3	7.1
5	Number of Siblings	0	6	14.3
		1	6	14.3
		2	8	19
		More than 2	22	52.4
6	Occupation	Daily Wager	24	57.1
		Private Sector	11	26.2
		Public Sector	2	4.8
		Self- Employment	2	4.8
		Unemployment	3	7.1
7	Monthly income	Rs. 0	3	7.1
		Rs.1000- 5000	17	40.5
		Rs. 5001-15000	17	40.5
		Rs. 15001- 30000	3	7.1
		More than Rs. 30000	2	4.8
8	History of Mental illness	Yes	8	19
		No	34	81
9	Duration of stay in prison	1-5 Years	17	40.5
		6-10 Years	11	26.2
		11-15 Years	12	28.6
		16-20 Years	2	4.8
10	Visiting period of Family Members	Weekly Once	2	4.8
		Monthly Once	35	83.3
		Never seen	5	11.9
11	History of Medical Illness	Yes	7	16.7
		No	35	83.3
12	Type of Crime	Murder	32	76.2
		Rape	4	9.5
		Kidnapping	5	11.9
		Fighting	1	2.4
13	Previous Knowledge of Yoga	Yes	27	64.3
		No	15	35.7

Table 2.Association between the levels of Self- esteem among Male Inmates with their Demographic variables

N= 42

S. No	Demographic Variables		No of Inmates	SELF ESTEEM			KW/MW test	p-value
				Mean	Median	Standard Deviation		
1.	Age in years	20-30	2	10	10	2.83	4.9408	0.1762 NS
		31-40	21	14.76	15	2.93		
		41-50	13	14.46	14	2.63		
		50 & above	6	15.67	15	2.8		
2.	Educational Qualification	No formal Education	13	15.23	15	2.45	3.7201	0.4452 NS
		Primary Education	13	13.85	14	2.82		
		Secondary Education	9	14.22	13	3.03		
		Higher Secondary	4	14	13	5.1		
		Degree courses	3	16.67	17	1.53		
3.	Marital Status	Married	29	14.34	14	3.11	1.4298	0.4893 NS
		Unmarried	12	15.08	15	2.64		
		Divorced/Separated	1	15	15	--		
4.	Number of Children	0	3	11	12	2.65	5.4811	0.2414 NS
		1	16	14.5	14	2.76		
		2	6	15	14.5	4.05		
		3	3	15.33	14	3.21		
		More than 3	14	15.07	15	2.43		
5.	Number of Siblings	0	6	12.83	12	2.93	5.6599	0.1294 NS
		1	6	13.33	13.5	2.94		
		2	8	15.62	15.5	2.2		
		More than 2	22	15	14.5	3.02		

Continue......

S. No	Demographic Variables		No of Inmates	Mean	Median	Standard Deviation	KW/MW test	p-value
6.	Occupation	Daily Wager	24	14.58	14	3.02	1.386	0.8466 NS
		Private Sector	11	15.18	15	2.86		
		Public Sector	2	13	13	5.66		
		Self- Employment	2	14.5	14.5	3.54		
		Unemployment	3	13.33	14	1.15		
7.	Monthly income	Rs. 0	17	15.47	15	2.45	3.0091	0.5563 NS
		Rs.1000- 5000	17	13.94	14	3.15		
		Rs. 5001-15000	3	14.67	14	3.06		
		Rs. 15001- 30000	2	14	14	7.07		
		More than Rs. 30000	3	13.33	14	1.15		
8.	History of Mental illness	Yes	8	15.25	14.5	2.19	0.6244	0.4294 NS
		No	34	14.41	14	3.09		
9.	Duration of stay in prison	1-5 Years	17	13.82	13	3	5.3626	0.1471 NS
		6-10 Years	11	13.91	14	2.55		
		11-15 Years	12	15.67	14.5	2.57		
		16-20 Years	2	18	18	4.24		
10.	Visiting period of Family Members	Weekly Once	2	12.5	12.5	2.12	2.5221	0.2834 NS
		Monthly Once	35	14.43	14	2.82		
		Never seen	5	16.4	19	3.58		
11.	History of Medical Illness	Yes	7	14.86	14	2.91	0.0289	0.8651 NS
		No	35	14.51	14	2.97		
12.	Type of Crime	Murder	32	14.94	14.5	2.78	7.4386	0.0592 NS
		Rape	4	11	11.5	2.16		
		Kidnapping	5	15.4	15	3.05		
		Fighting	1	13	13	--		
13.	Previous Knowledge of Yoga	Yes	27	14.78	14	2.33	0.7607	0.3831 NS
		No	15	14.2	13	3.86		

NS- Non Significant

Table 3. Association between the levels of Depression among Male Inmates with their Demographic variables

N= 42

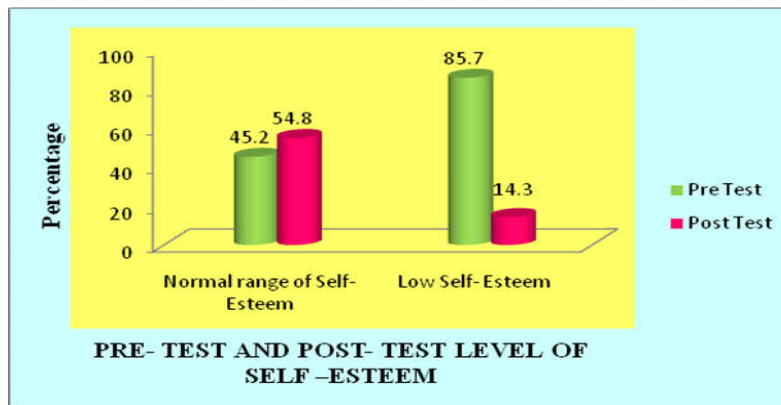| S. No	Demographic Variables		No of Inmates	DEPRESSION			KW/MW test	p-value
				Mean	Median	Standard Deviation		
1.	Age in years	20-30	2	19.5	19.5	4.95	1.9393	0.5851 NS
		31-40	21	22.43	20	7.99		
		41-50	13	22.46	24	7.29		
		50 & above	6	18.83	17	7.52		
2.	Educational Qualification	No formal Education	13	20.77	20	6.69	1.3497	0.8529 NS
		Primary Education	13	23.08	24	8.41		
		Secondary Education	9	20.89	18	7.36		
		Higher Secondary	4	25.25	22.5	8.77		
		Degree courses	3	18.67	20	8.08		
3.	Marital Status	Married	29	21.9	18	8.13	3.427	0.1802 NS
		Unmarried	12	22.5	23.5	5.27		
		Divorced/Separated	1	10	10	--		
4.	Number of Children	0	3	16.67	16	6.03	3.0579	0.5448 NS
		1	16	23.38	22	8.13		
		2	6	20.33	15.5	10.17		
		3	3	24	24	7		
		More than 3	14	21.21	21	6		
5.	Number of Siblings	0	6	21.17	24	7.39	1.1603	0.7625 NS
		1	6	22.17	24	6.18		
		2	8	19.38	17	5.07		
		More than 2	22	22.73	20	8.69		
6.	Occupation	Daily Wager	24	23.33	22	7.33	8.979	0.0616 NS
		Private Sector	11	16.36	14	6.59		
		Public Sector	2	21	21	1.41		
		Self- Employment	2	27.5	27.5	10.61		
		Unemployment	3	26	27	2.65		
7.	Monthly income	Rs. 0	17	23.94	25	7.56	6.5191	0.1636 NS
		Rs.1000- 5000	17	19.76	17	6.58		
		Rs. 5001-15000	3	20.67	17	12.9		
		Rs. 15001- 30000	2	16	16	8.49		
		More than Rs. 30000	3	26	27	2.65		
8.	History of Mental illness	Yes	8	21.62	20	5.24	0.0065	0.9999 NS
		No	34	21.82	21	7.99		
9.	Duration of stay in prison	1-5 Years	17	20.88	18	7.64	6.8613	0.0765 NS
		6-10 Years	11	18.73	17	6		
		11-15 Years	12	24.17	26.5	7		
		16-20 Years	2	32	32	8.49		
10.	Visiting period of Family Members	Weekly Once	2	27	27	0	1.8578	0.395 NS
		Monthly Once	35	21.4	20	7.15		
		Never seen	5	22.4	17	11.17		
11.	History of Medical Illness	Yes	7	17.14	17	5.15	3.3833	0.0659 NS
		No	35	22.71	23	7.59		
12.	Type of Crime	Murder	32	21.78	20	7.4	1.8846	0.5967 NS
		Rape	4	24.25	25	6.4		
		Kidnapping	5	19.4	17	10.26		
		Fighting	1	24	24	--		
13.	Previous Knowledge of Yoga	Yes	27	21.11	20	6.64	0.0626	0.8024 NS
		No	15	23	20	8.94		

Figure 1. Assessment of Pre test and Post test level of Self- esteem
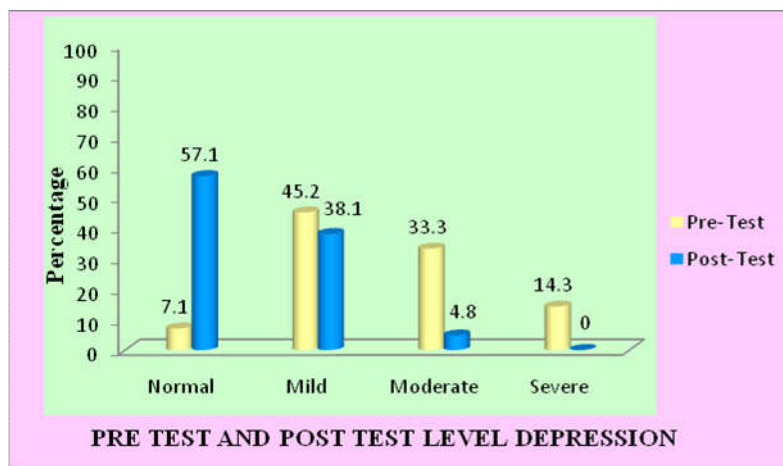

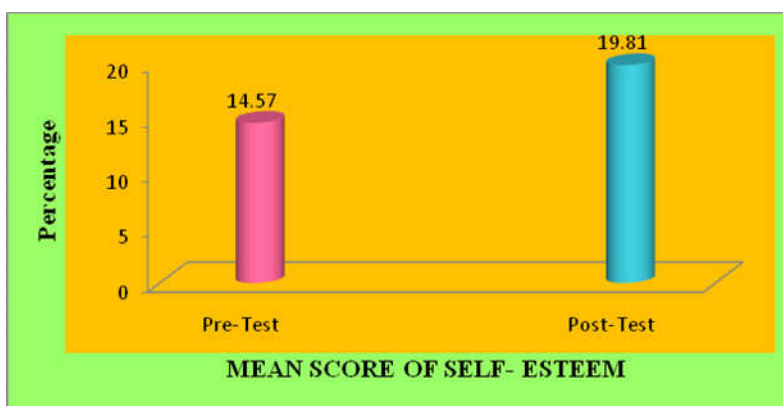**Figure 2. Assessment of Pre test and Post test level of Depression**

Figure 3. Effectiveness of selected limbs of Ashtanga Yoga on Level of Self Esteem among Male Inmates

Figure 4. Effectiveness of selected limbs of Ashtanga Yoga on Level of Depression among Male Inmates

This finding is supported by an experimental study conducted on effect of yoga and meditations on stress management among female prisoners in Delhi. The samples were selected by random Sampling technique and the data was collected by using a questionnaire. Findings showed that Yoga and meditation has positive impact of improved moods, reduced stress, lesser psychological distress, improved ability to override impulse in the female prisoners with the p <.0.001.[34]

Another objective of the present study was to associate the level of Self-esteem and Depression with the selected socio-demographic variables: All the demographic variables are non significant with the P value <0.05. The data reveals that there is no association between the level of Self- Esteem and depression with any of the demographic variables of the male inmates in Prison at *P*<0.05. Hence, the research hypothesis (H$_2$) was rejected i.e. there is no association between the level of Self Esteem and Depression among male inmates with their selected demographic variables.

Limitations

- Difficulty to obtain permission from the higher authorities.

Recommendation

Based on the findings, the following recommendations have been made for further study.

- A comparative study can be conducted to assess the effectiveness of practice of selected limbs of Ashtanga Yoga on the levels of Self- esteem and Depression among male and female inmates in the prison.
- The study can be done in different setting with different sample.
- Similar studies can be recommended to be conducted among the prisoners in various other prisons in the country.
- Such a study can be recommended to be conducted for the personnel who are working in the prison in the view to improve their psychological well being.

Conclusion

This study reveals that the levels of Self- esteem and Depression among male inmates in Central Prison, Kalapet at Puducherry. The post-test level of Self- esteem and Depression score showed the positive result when compared with the pre-test score ie.,before the intervention with the selected limbs of Ashtanga Yoga. Thus this study proves that selected limbs of Ashtanga Yoga were statistically significant in improving Self-esteem and reduction of Depression among the prisoners under study. Hence, the selected limbs of Ashtanga Yoga are an effective intervention to improving Self- esteem and reduction of Depression among the studied sample of the male inmates in Central Prison.

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