

CHAPTER 7.0

7.0 RESULTS

7.1 AUTONOMIC AND RESPIRATORY VARIABLES

The group means values \pm SD for heart rate, breath rate, time domain and frequency domain measures of HRV spectrum are given in Table 1.

RMANOVA was used to assess the effect of '*mantra*' within and between the groups. There were 4 groups (LC, SC, LM, and NC) and three states (Pre, During and Post). The difference between the groups and states were assessed with an RMANOVA using a Bonferroni adjusted Post hoc test.

Sl. No.	Lips Movement (LMC)			Loud chanting (LC)			No chanting (NC)			Silent chanting (SC)		
	Pre	Dur	Post	Pre	Dur	Post	Pre	Dur	Post	Pre	Dur	Post
Mean RR	806.3 7 ±126.68	753.11*** ±159.31b	827.60* ±126.62	826.08 ±124.05	731.32*** ±95.79b	850.66** ±119.37	874.76 ±155.73	878.50 ±150.19	884.36 ±136.11	823.23 ±130.22	808.04 ±126.99	830.99 ±118.68
STDRR	58.50 ±26.50	56.83 ±20.93	60.38 ±27.95	73.63 ±29.14	74.60 ±27.13	72.43 ±28.81	59.50 ±18.91	60.46 ±20.59	68.18 ±37.47	65.98 ±21.11	64.93 ±24.84	65.18 ±23.35
Mean HR	76.62 ±11.98	80.17*** ±11.79b	74.54* ±11.13	74.75 ±11.28	84.33*** ±11.35b	72.37** ±9.56	70.94 ±12.06	70.46 ±11.28	69.84 ±10.66	76.09 ±13.25	76.58 ±12.45	74.23* ±11.06
STDHR	5.35 ±1.68	5.69 ±1.21	5.22 ±1.73	6.71c ±2.30	8.03*** ±2.23c	6.12 ±1.94	4.90 ±1.21	4.99 ±1.40	5.35 ±2.14	6.19 ±1.84	6.08 ±1.59	6.47 ±4.06
RMSSD	43.85 ±30.25	39.19 ±24.33	46.23 ±28.24	60.06 ±32.06	52.89 ±27.65	61.66 ±35.46	49.91 ±25.06	49.80 ±23.65	55.71 ±32.95	55.79 ±28.03	56.06 ±34.52	58.24 ±31.44
NN50	65.63 ±57.05	115.17*** ±102.18	71.37 ±60.66	110.66 ±55.13	153.31*** ±97.08	101.56 ±56.50	85.96 ±57.11	176.18*** ±110.07	91.50 ±54.51	99.34 ±57.51	199.52*** ±112.26	108.93 ±66.11
pNN50	18.86 ±18.36	16.17 ±16.28	21.27 ±19.75	31.89 ±18.51	19.61*** ±14.31	29.94 ±19.16	26.72 ±19.48	27.00 ±18.12	28.85 ±19.11	28.26 ±17.88	28.37 ±16.91	31.24 ±19.95
TINN	239.00 ±71.39	262.00 ±74.23	230.83 ±78.73	277.81 ±74.39	341.41 ±72.78c	268.44 ±74.99	214.64 ±79.45	235.36 ±99.64	227.50 ±71.19	290.86 ±83.45	295.17 ±85.28a	290.86 ±110.12a
LF/HF	1.56	1.69	1.63a	1.13	2.38	1.01	0.86	1.08	0.95	1.07	1.11	1.02
VLF	38.74 ±14.59	36.96 ±16.01c	34.91 ±19.28	30.85 ±15.70	21.85*** ±12.75a	34.59 ±13.71	35.28 ±18.03	37.74 ±12.13	34.68 ±16.09	31.19 ±16.25	27.20 ±11.07	29.32 ±14.67
LF (n. u.)	60.97 ±19.11	62.85 ±12.62	62.01 ±20.32	53.18 ±17.90	70.43*** ±16.73c	51.72 ±18.87	46.25 ±17.97	52.05 ±17.89	48.86 ±19.46	51.81 ±16.03	52.69 ±21.12	50.70 ±18.67
HF (n. u.)	39.03 ±19.11	37.15 ±12.62	37.99 ±20.32	46.82 ±17.90	29.57*** ±16.73c	48.28 ±18.87	53.75 ±17.97	47.95 ±17.89	51.14 ±19.46	48.19 ±16.03	47.31 ±21.12	49.30 ±18.67

MEAN ± SD SCORES OF FREQUENCY & TIME DOMAIN MEASURES OF HRV DERIVED FROM ECG IN AUTONOMIC AND RESPIRATORY VARIABLES

7.1.1 POST-HOC ANALYSES (RMANOVA)

7.1.1.1 FREQUENCY DOMAIN MEASURES

7.1.1.1.1 Low Frequency (LF)

It was observed within group comparison that the LF score was significantly higher when during LC ($p < 0.001$) compared to pre and post LC. Similarly, comparison between the groups revealed a significantly higher in LF, during LM ($p < 0.001$) comparing with during NC and during LC with ($p < 0.05$) during NC.

7.1.1.1.2 High Frequency (HF)

Within the group, it was noticed that HF was significantly higher when during LC ($p < 0.001$) compared to pre and post LC. Likewise, the between-group comparison revealed significant higher in HF, during LC ($p < 0.001$) compared to during NC.

7.1.1.1.3 The relation between Low and High Frequency (LF/HF)

The within-group comparison did not show any significant change in LF/HF whereas LF/HF was higher while post LM ($p < 0.05$) comparing with pre, during and post-NC.

7.1.1.1.4 Nn50

A significant higher in the score of NN50 ($p < 0.001$) was observed during all the sessions comparing with pre and post sessions of the corresponding groups. No significant change was noticed between the sessions.

7.1.1.1.5 pNN50

There was a significant lower in the score of pNN50 during LC ($p < 0.001$), comparing the pre and post LC. No significant change between the sessions was observed.

7.1.1.1.5 Std (RR)

Change in STD (RR) was not observed within a group and between the sessions.

7.1.1.1.5 Std (HR)

The within-group comparison revealed significant higher in STD (HR) ($p < 0.001$) when during LC was compared with pre and post LC. Likewise, comparison between the groups revealed significant higher in STD (HR) ($p < 0.001$) when during LC compared to during NC.

7.1.1.1.6 Rmssd

There was no significant change observed within and between the groups following any session.

7.1.1.1.7 Tinn

There was no significant change within the group, whereas, significant higher during LC ($p < 0.001$) was noticed, comparing with during NC. Similarly, during SC with during NC ($p < 0.05$), post-SC with post-NC ($p < 0.05$).

Table-2: Table showing the Mean \pm SD of the Post sessions comparing with the baseline and the percentage change

Variables	BL-SC			BL-LC			BL-LMC			BL-NC			BL-AL		
	BL	SC	%	BL	LC	%	BL	LMc	%	BL	NC	%	BL	AL	%
DF	6.17 \pm 2.05	6.34 \pm 1.25	2.75	6.17 \pm 2.05	6.51 \pm 1.94	5.51	6.17 \pm 2.05	6.71 \pm 1.80	8.75	6.17 \pm 2.05	6.85 \pm 2.04	11.02	6.17 \pm 2.05	6.77 \pm 1.95	9.72
DB	4.0 \pm 2.31	4.08 \pm 2.28	2	4.0 \pm 2.31	5.2 \pm 2.34**	30	4.0 \pm 2.31	5.25 \pm 2.47*	31.25	4.0 \pm 2.31	6.142 \pm 2.36** *	53.55	4.0 \pm 2.31	5.85 \pm 2.41**	46.25
ASL	15.71 \pm 3.39	16.01 \pm 3.01	1.90	15.71 \pm 3.39	17.84 \pm 2.84**	13.55	15.71 \pm 3.39	17.9 \pm 2.76**	14.25	15.71 \pm 3.39	17.44 \pm 3.63	11.01	15.71 \pm 3.39	16.6 \pm 2.94	5.66
SLCT	31.54 \pm 7.37	31.85 \pm 6.94	0.98	31.54 \pm 7.37	30.51 \pm 5.32	-3.26	31.54 \pm 7.37	29.91 \pm 5.62	-5.16	31.54 \pm 7.37	32.8 \pm 6.24	3.99	31.54 \pm 7.37	32.11 \pm 6.49	1.80
MAAS	4.45 \pm 1.07	4.58 \pm 0.93*	2.92	4.45 \pm 1.07	4.74 \pm 1.03*	6.51	4.45 \pm 1.07	4.70 \pm 1.04	5.61	4.45 \pm 1.07	4.46 \pm 1.02	0.22	4.45 \pm 1.07	4.51 \pm 0.98	1.34

<0.05, p <0.01**, p <0.001***, comparing the baseline recording (BL) with other sessions like Loud chanting (LC), Lips movement (LM), Silent chanting (SC), Audio listening (AL) and Silent sitting or no chanting (NC) using repeated measures of ANOVA*

7.2 COGNITIVE VARIABLES

RMANOVA was used to assess the effect of MMM within the group and between the sessions. There were six sessions such as Baseline (BL), Loud chanting (LC), Silent chanting (SC), Lip's movement (LM), Audio listening (AL) and Silent sitting (SS). The difference between the groups and states were assessed with the help of Friedman Test and all sessions were compared with the baseline scores using Wilcoxon signed rank test.

7.2.1 SLCT & SMAAS

It was observed that the attention score was higher after loud chanting ($p < 0.05$) compared to the baseline. Similarly, the score of mindfulness following *mantra* recitation was significantly higher during loud chanting (LC) ($p < 0.05$) compared to the silent chanting (SC) and the baseline (BL).

7.2.2 WMS

It was noticed that the scores of digits backward (DB) was significantly higher in LC ($p < 0.01$), LM ($p < 0.05$), SC ($p < 0.001$) and AL ($p < 0.01$), compared to BL. It was also observed that when the percentage difference of the digit backward (DB) score was calculated with LM, SC and AL, the score of DB in SC was significantly higher and lower in LC.

Similarly, the scores of DB in AL ($p < 0.01$) was significantly higher compared to LC and LM. But the percentage score of AL was comparatively higher in LM (14.25%) and lower

Fig-1: Figure showing the Pre, During and Post Mean scores of Respiratory rate between LMC, LC, NC and SC

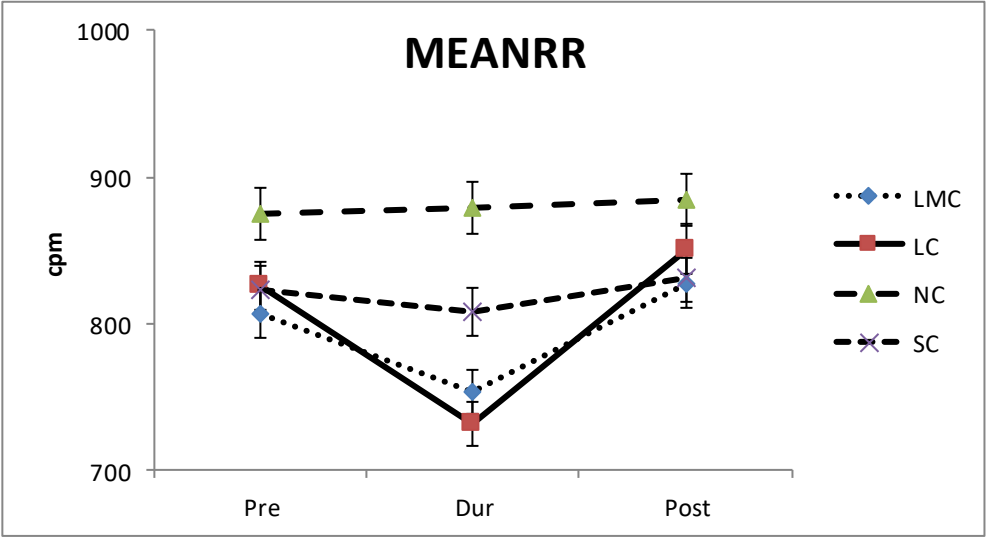


Fig-2: Figure showing the Pre, During and Post Standard deviation scores of Respiratory rate between LMC, LC, NC and SC

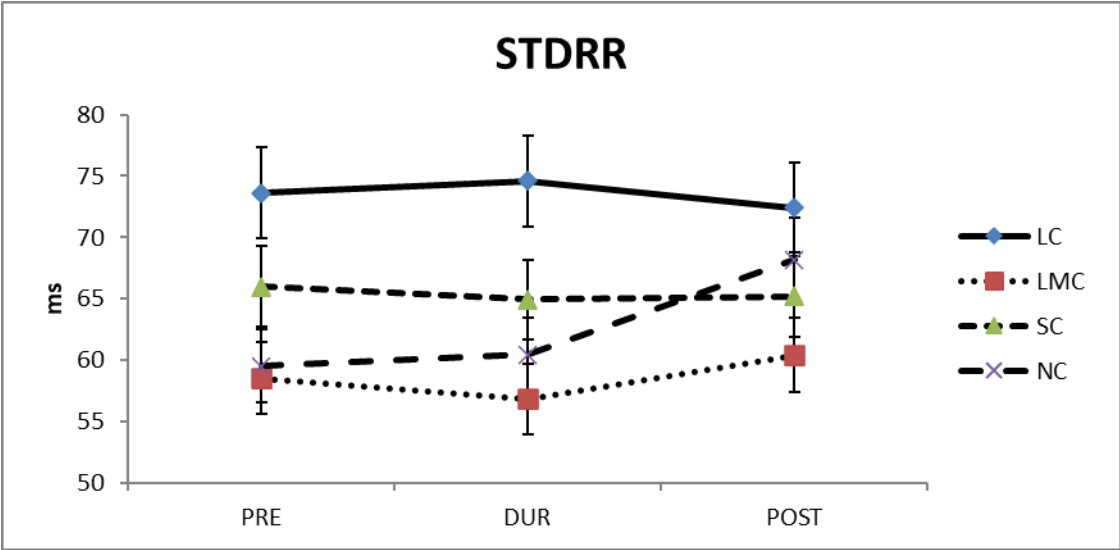


Fig-3: Figure showing the Pre, During and Post Mean scores of Heart rate between LMC, LC, NC and SC

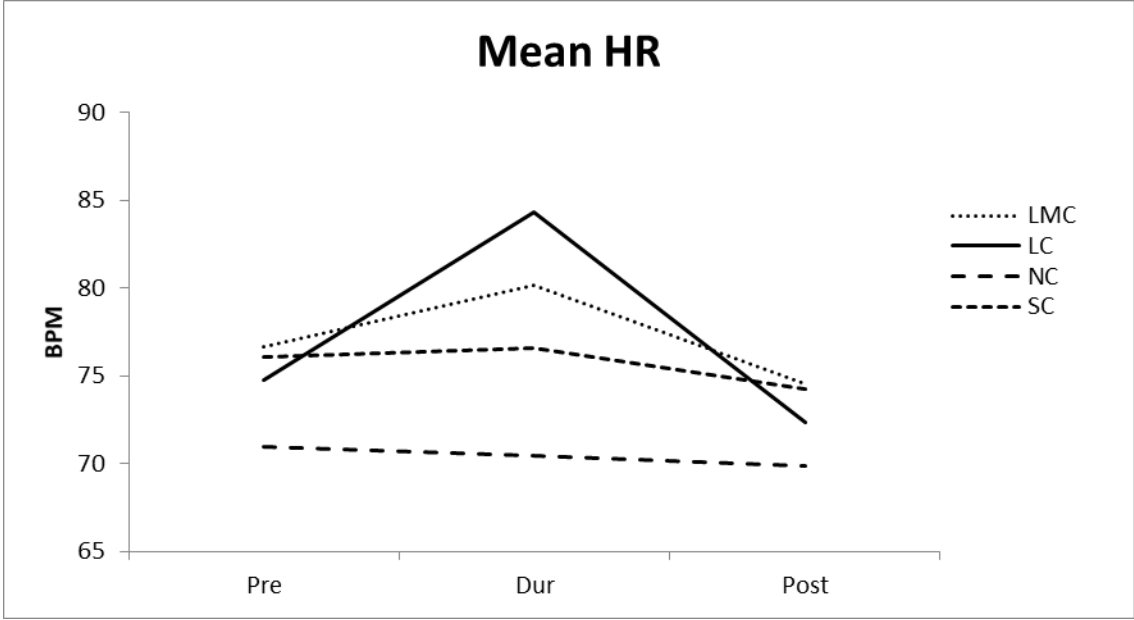


Fig-4: Figure showing the Pre, During and Post Standard deviation scores of Heart rate between LMC, LC, NC and SC

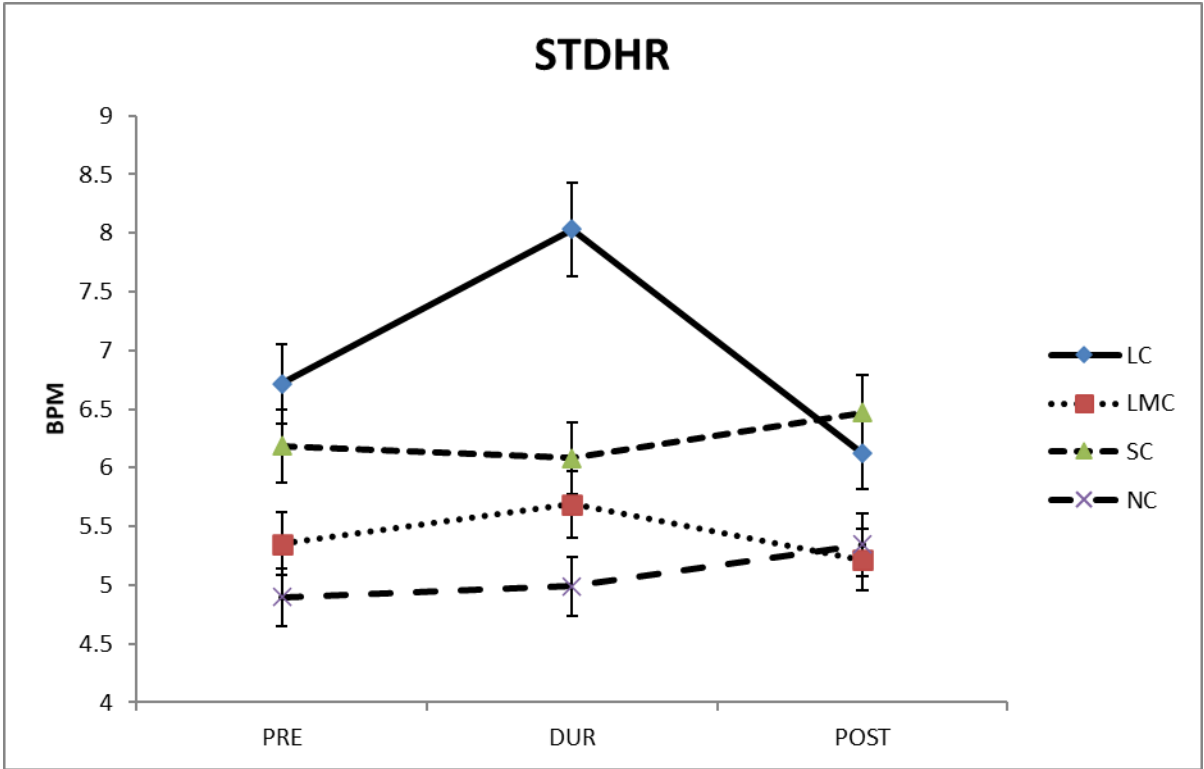


Fig-5: Figure showing the Pre, During and Post Mean scores of RMSSD between LMC, LC, NC and SC

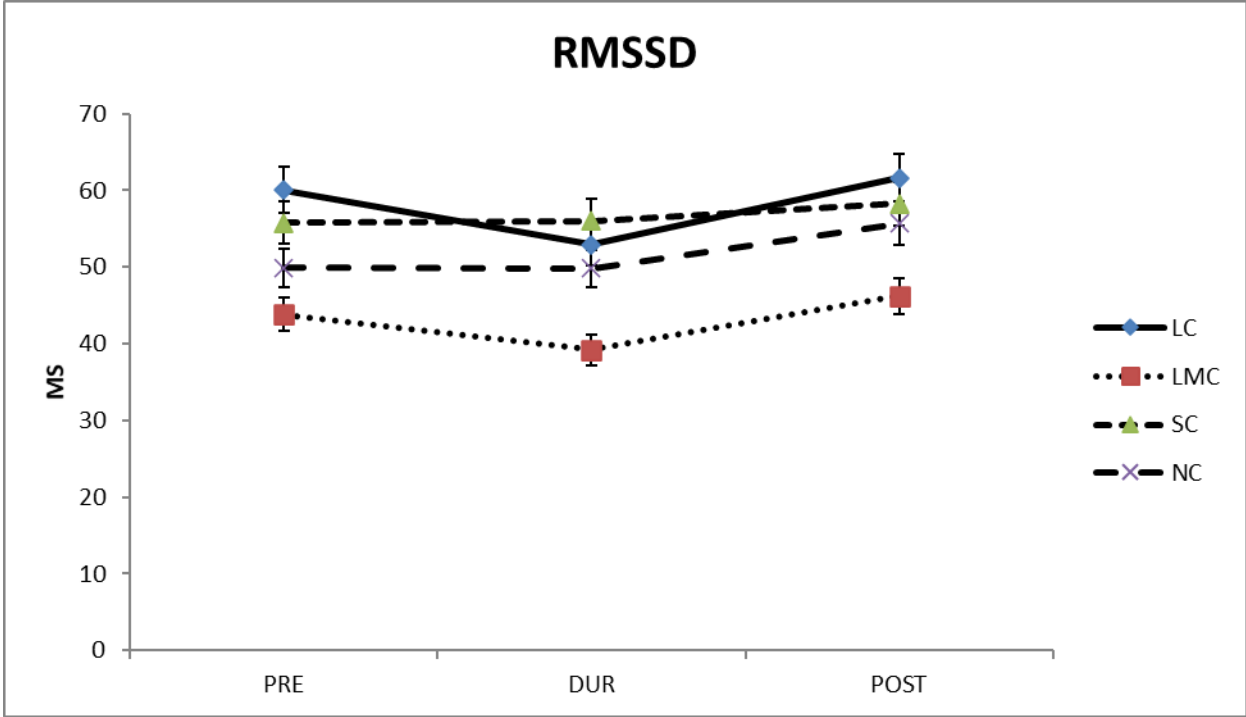


Fig-6: Figure showing the Pre, During and Post Mean scores of NN50 between LMC, LC, NC and SC

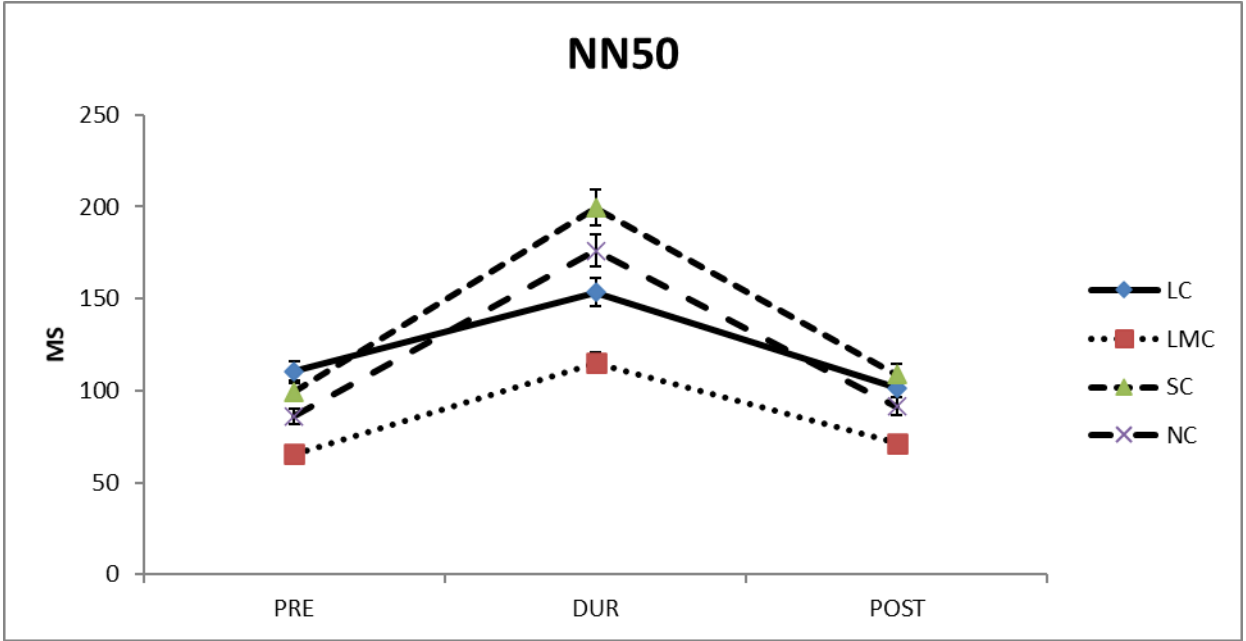


Fig-7: Figure showing the Pre, During and Post Mean scores of pNN50 between LMC, LC, NC and SC

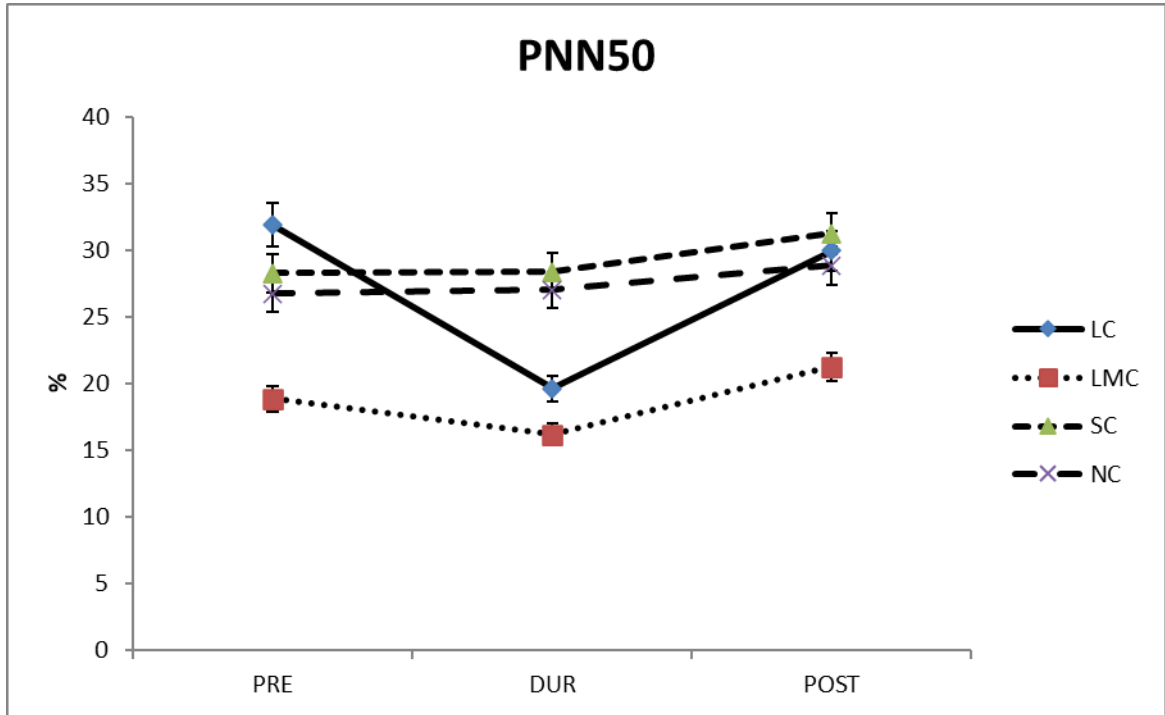


Fig-8: Figure showing the Pre, During and Post Mean scores of RRINDEX between LMC, LC, NC and SC

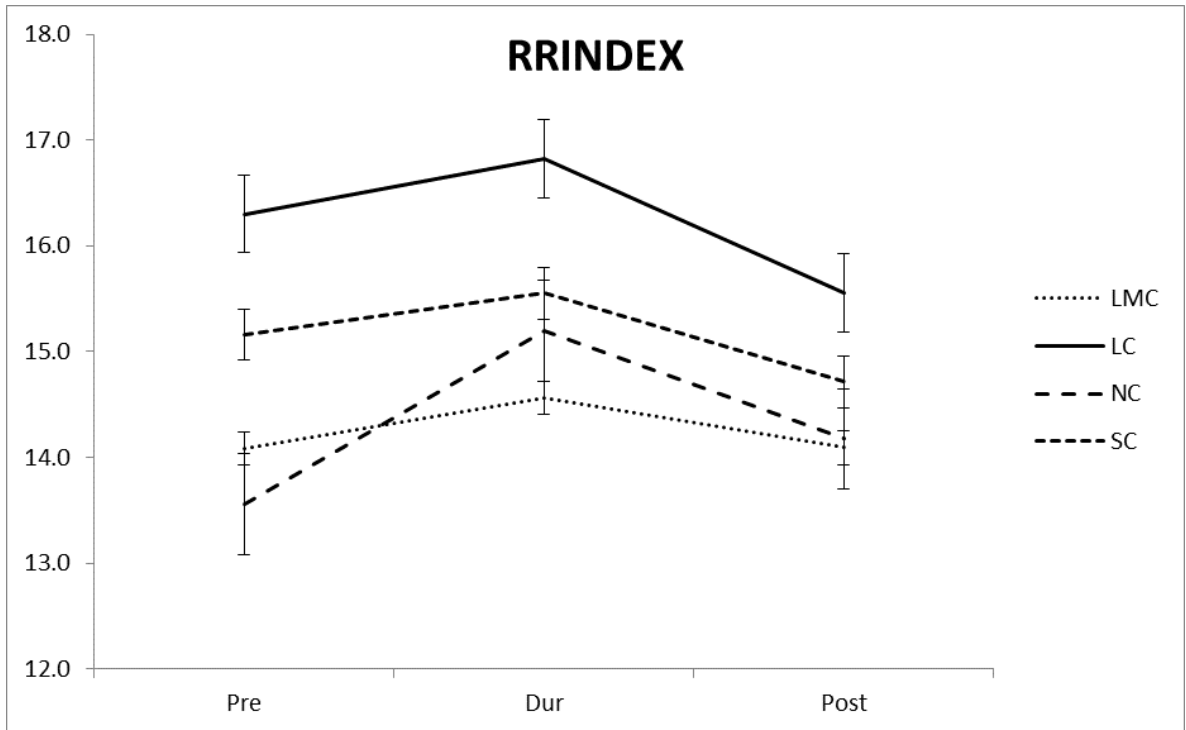


Fig-9: Figure showing the Pre, During and Post Mean scores of TINN between LMC, LC, NC and SC

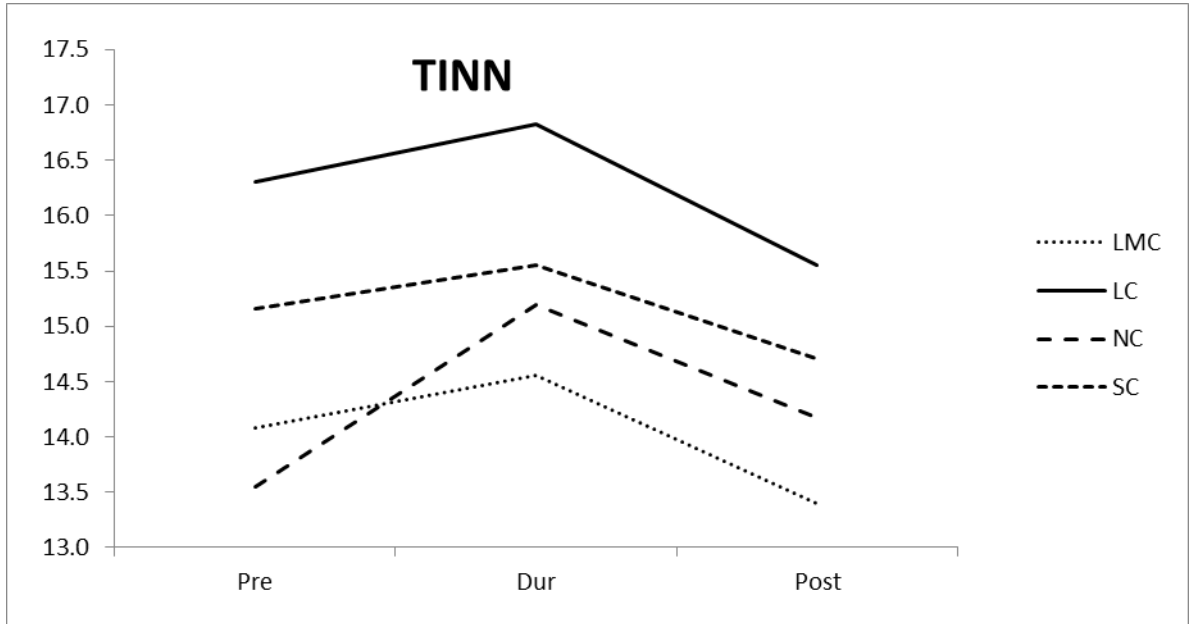


Fig-10: Figure showing the Pre, During and Post Mean scores of VLF between LMC, LC, NC and SC

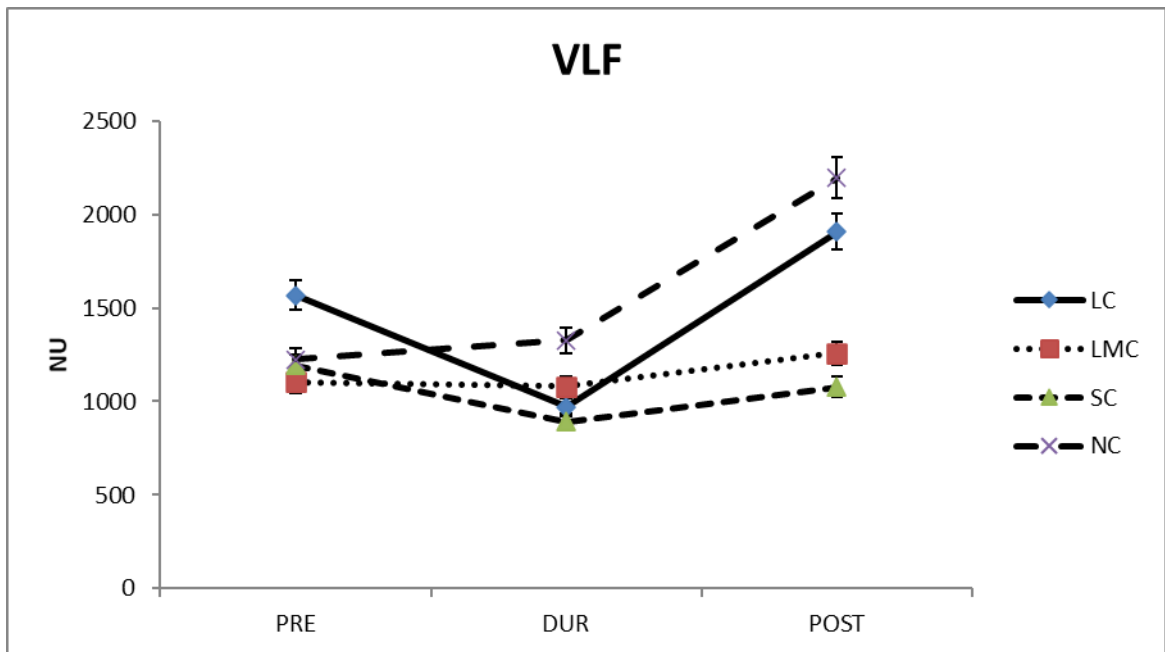


Fig-11: Figure showing the Pre, During and Post Mean scores of LF between LMC, LC, NC and SC

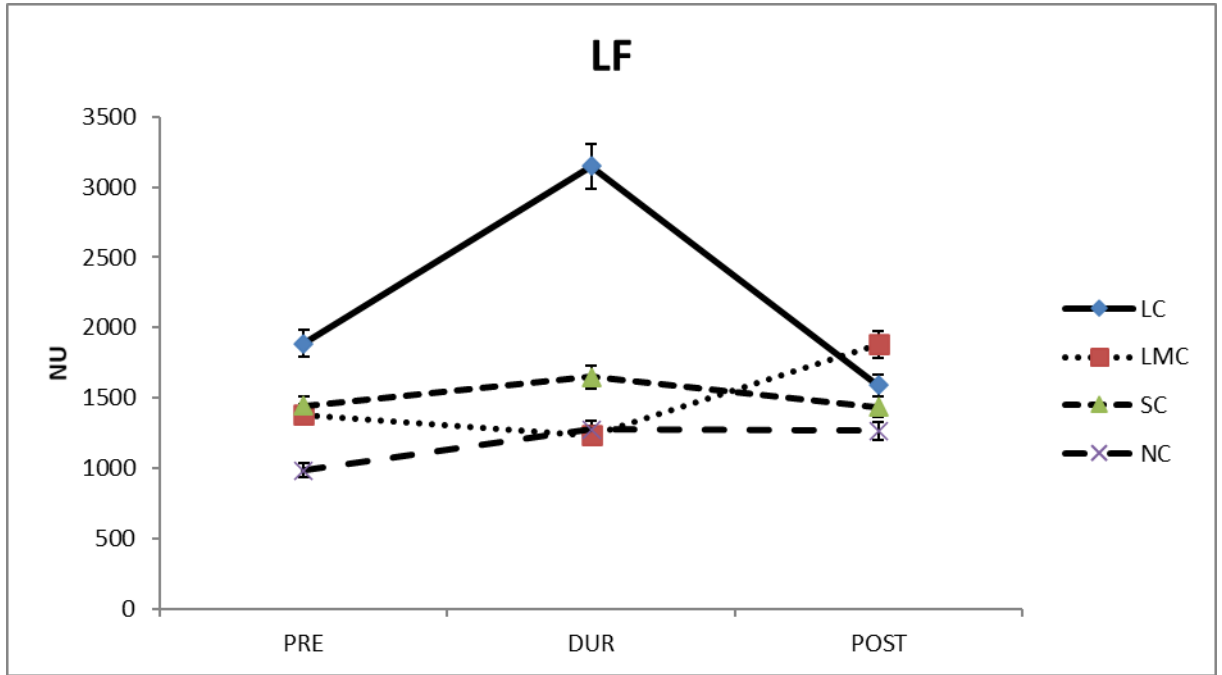


Fig-12: Figure showing the Pre, During and Post Mean scores of HF between LMC, LC, NC and SC

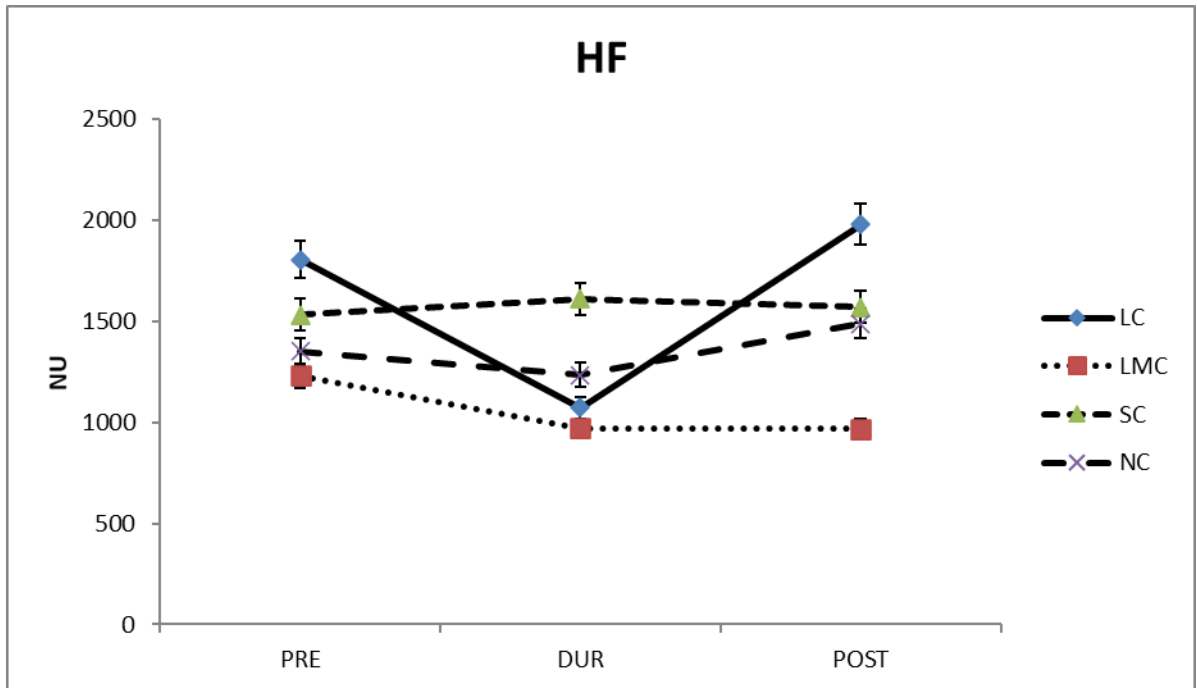


Fig-13: Figure showing the Pre, During and Post Mean total scores of between LMC, LC, NC and SC

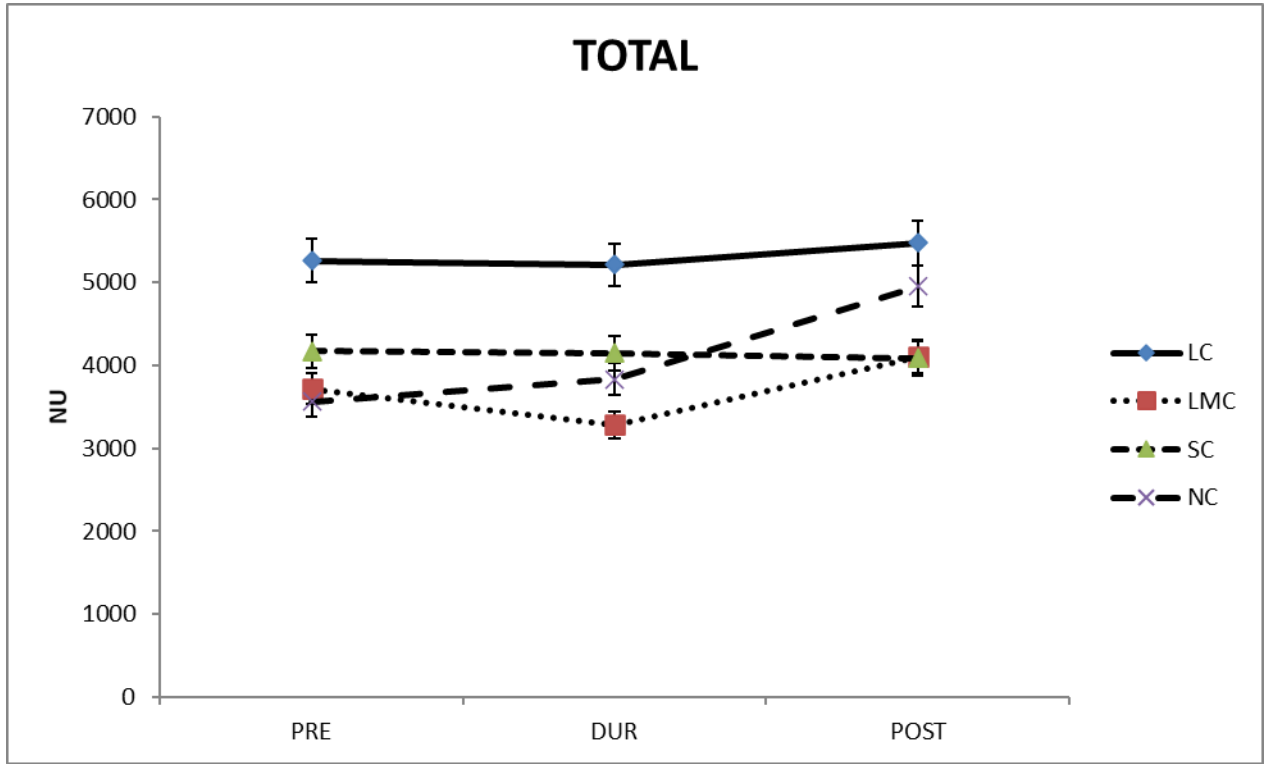


Fig-14: Figure showing the Pre, During and Post Mean LF/HF scores of between LMC, LC, NC and SC

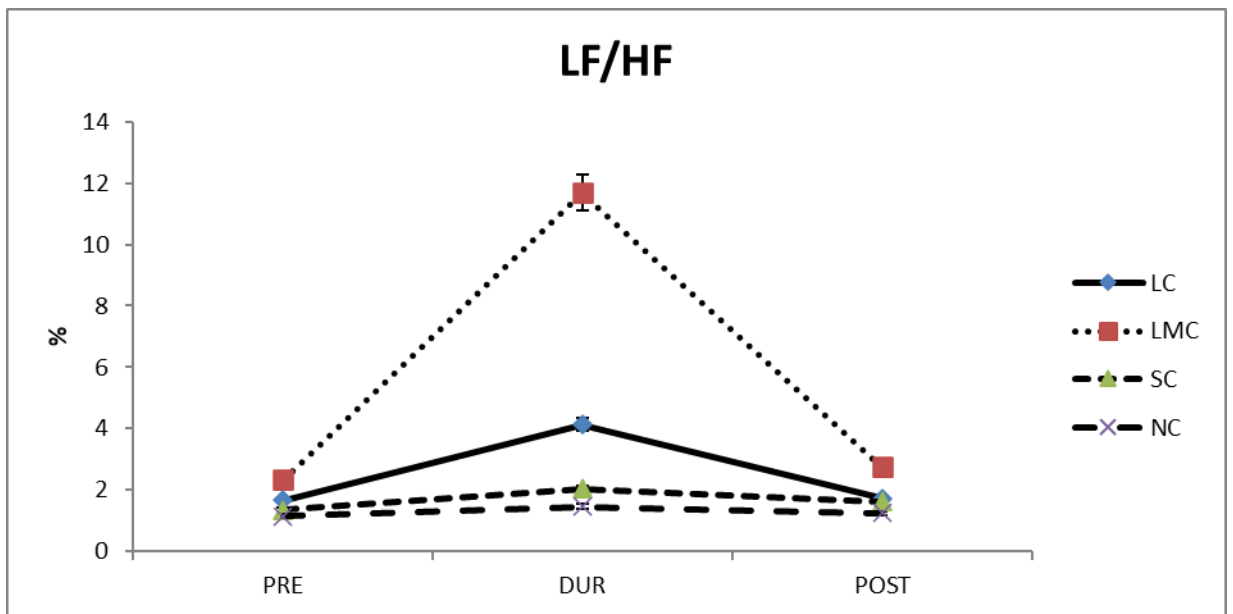


Fig-15: Figure showing the Pre, During and Post Mean VLFscores of between LMC, LC, NC and SC

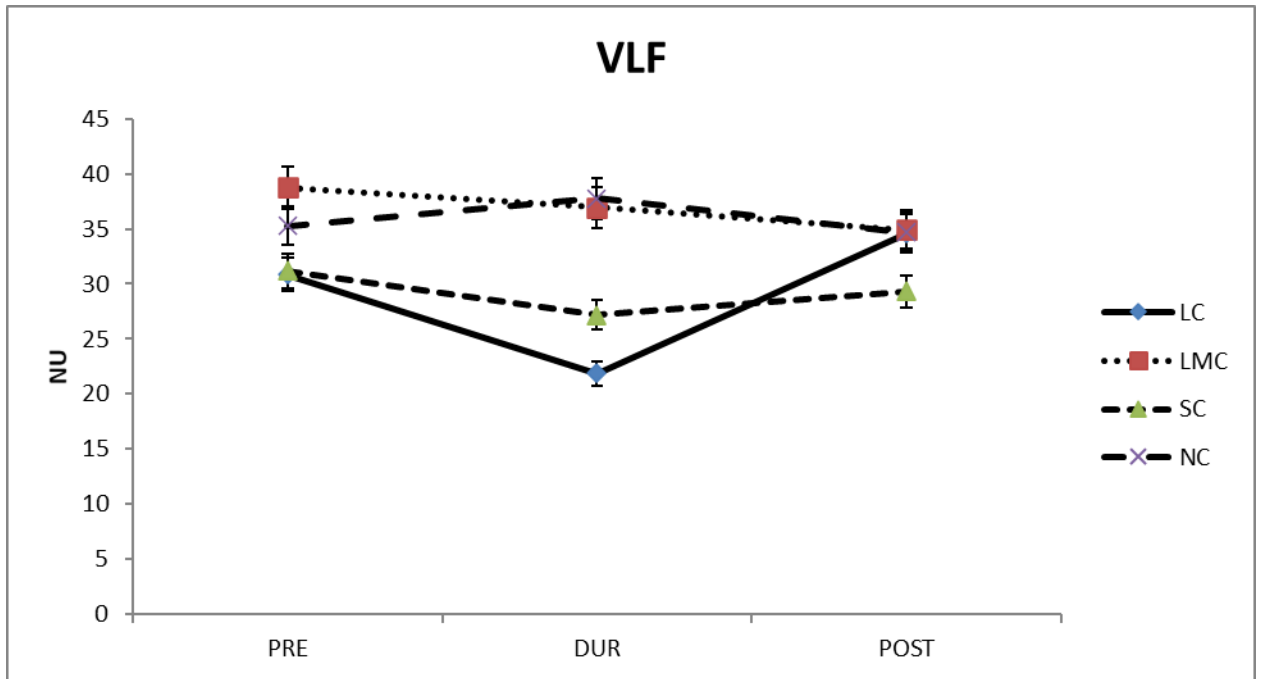


Fig-16: Figure showing the Pre, During and Post Standard deviation LFScores of between LMC, LC, NC and SC

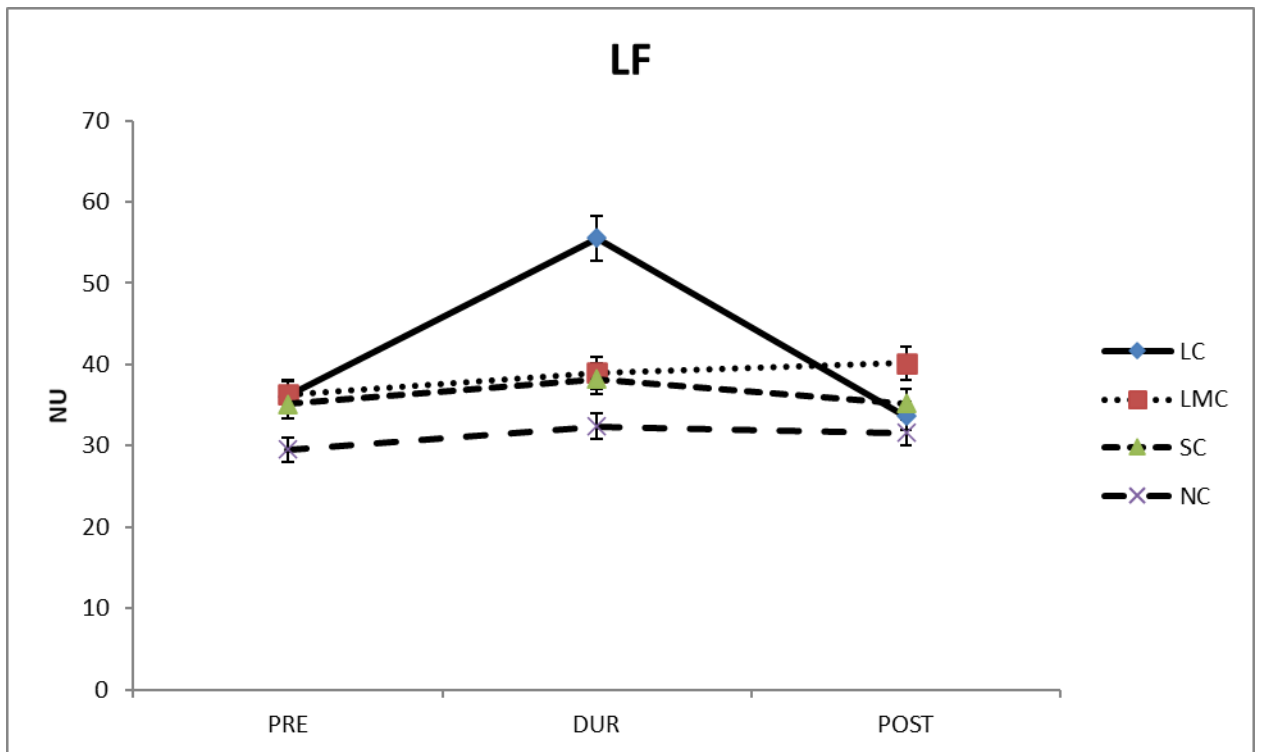


Fig-17: Figure showing the Pre, During and Post Standard deviation HFscores between LMC, LC, NC and SC

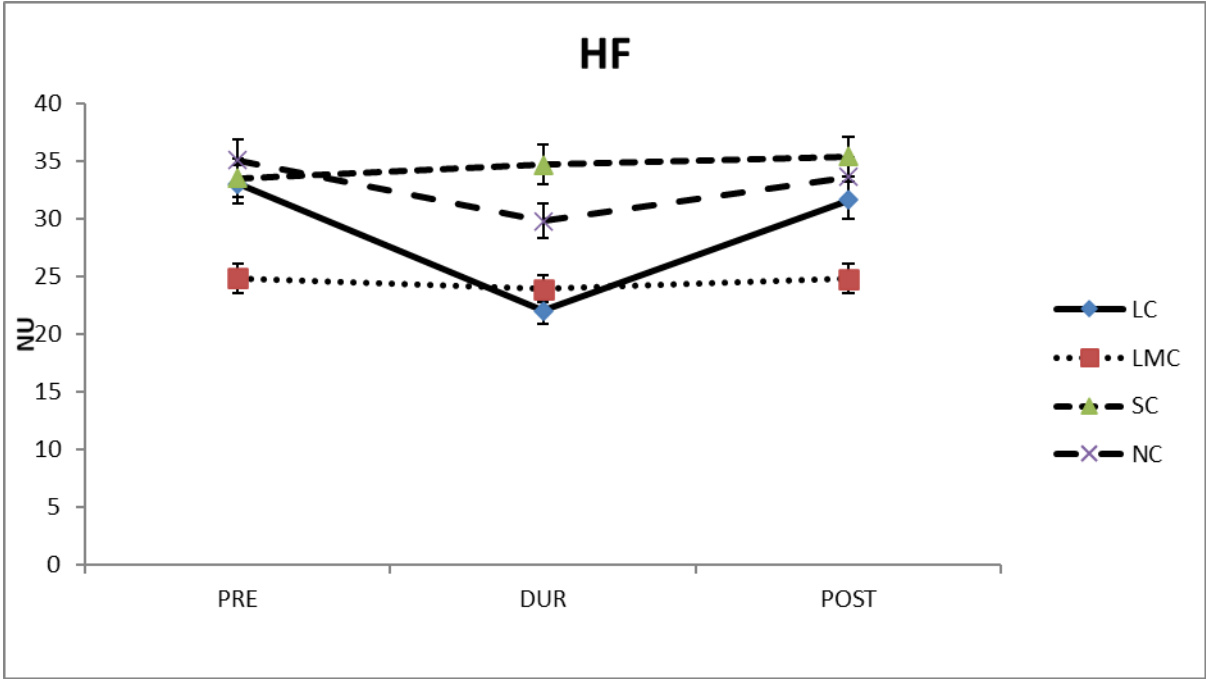


Fig-18: Figure showing the Pre, During and Post LF NU scores between LMC, LC, NC and SC

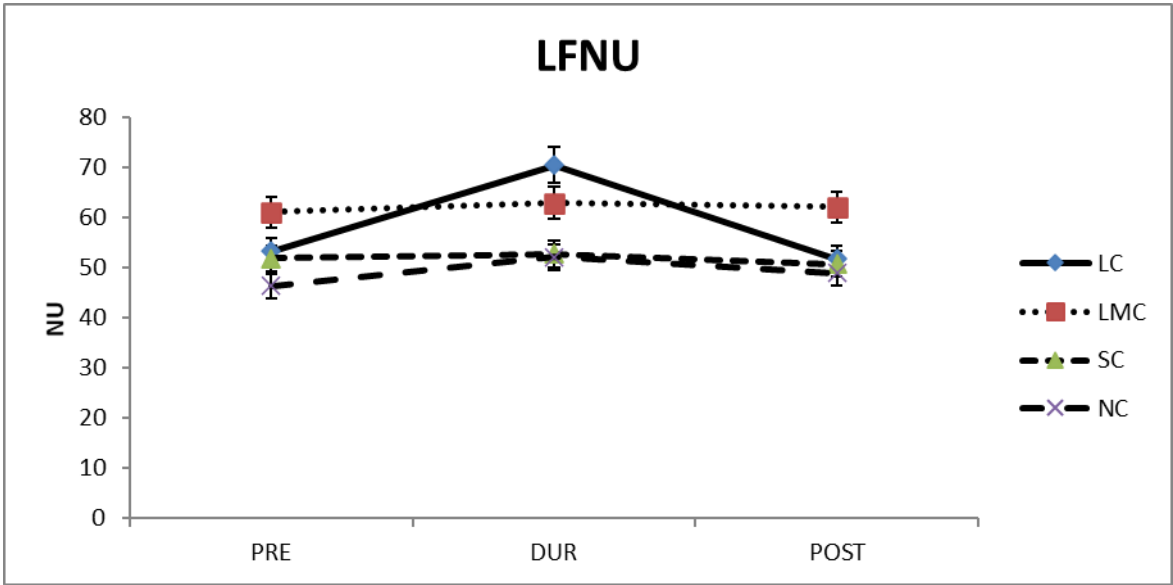
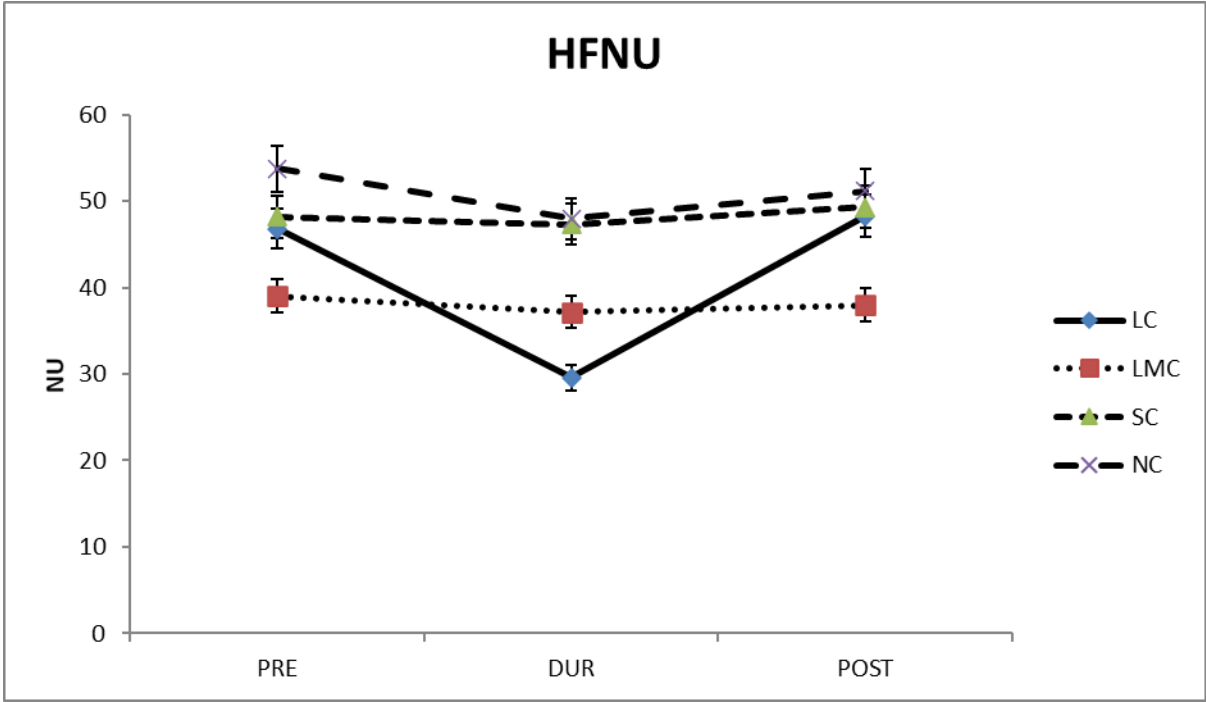


Fig-19: Figure showing the Pre, During and Post HF NU scores between LMC, LC, NC and SC



Figures (Bar graphs) of Cognitive Variables

Fig-20: Figure showing the Mean scores of Baseline and Silent chanting Session in ‘Digit forward’ variable of Wechsler memory scale

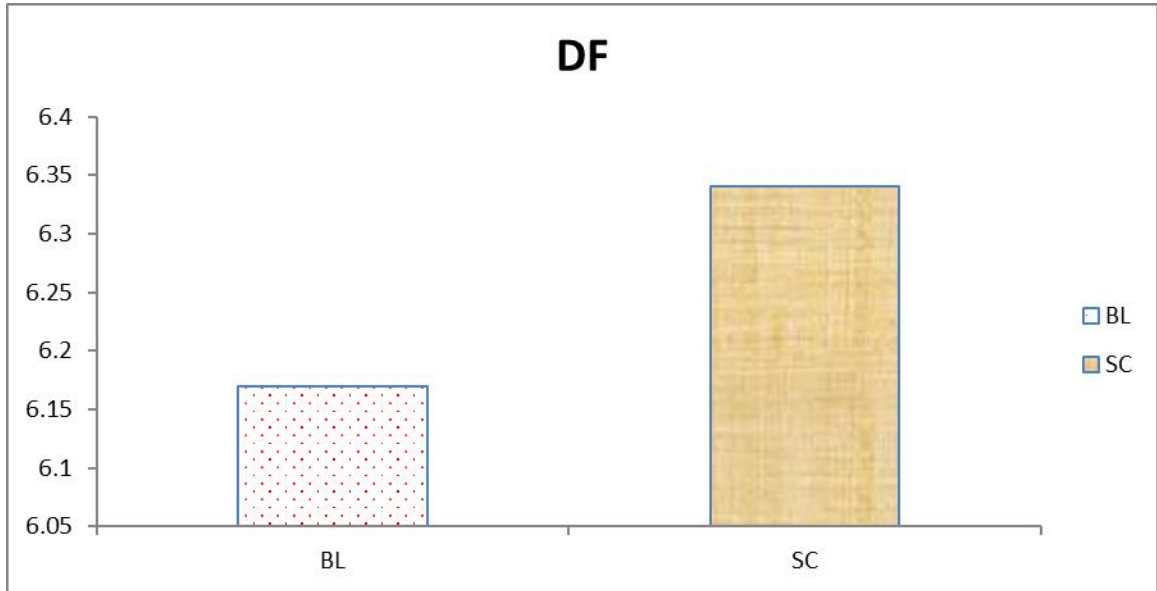


Fig-21: Figure showing the Mean scores of Baseline and Loud chanting Session in ‘Digit forward’ variable of Wechsler memory scale

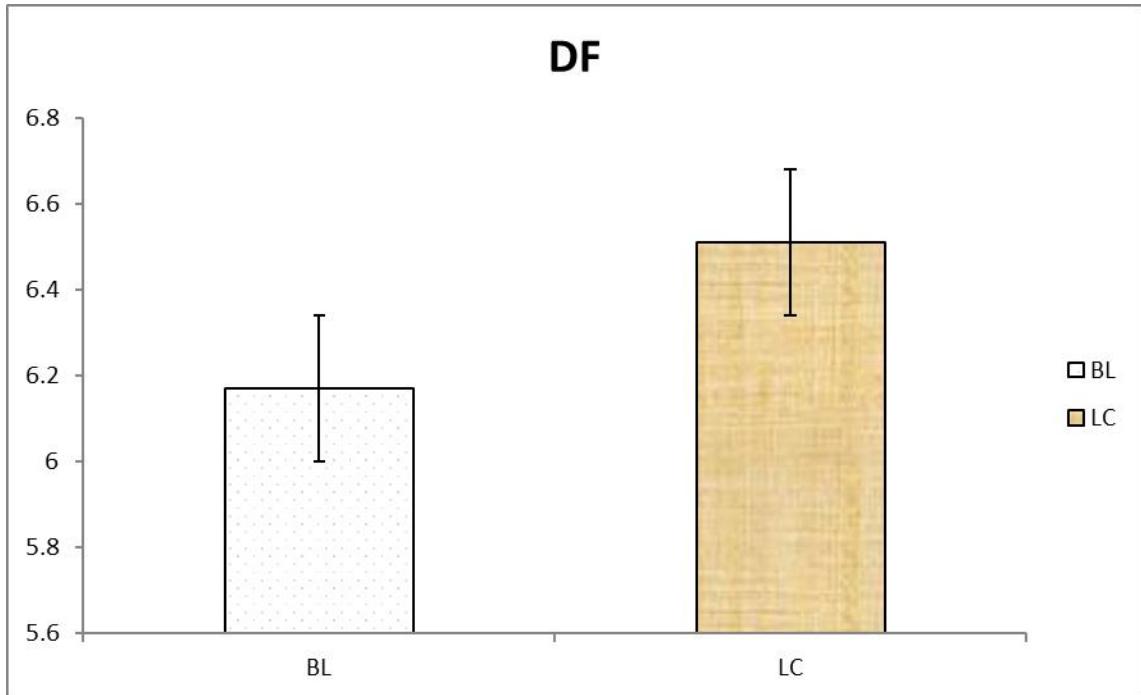


Fig-22: Figure showing the Mean scores of Baseline and Lips movement Session in 'Digit forward' variable of Wechsler memory scale

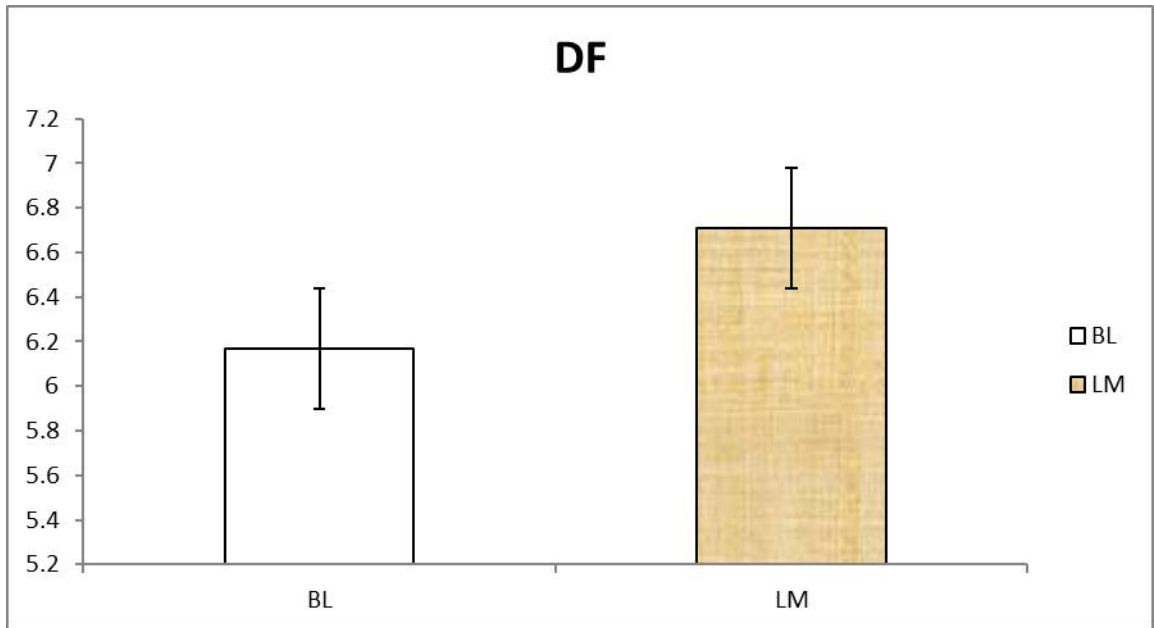


Fig-23: Figure showing the Mean scores of Baseline and No chanting Session in 'Digit forward' variable of Wechsler memory scale

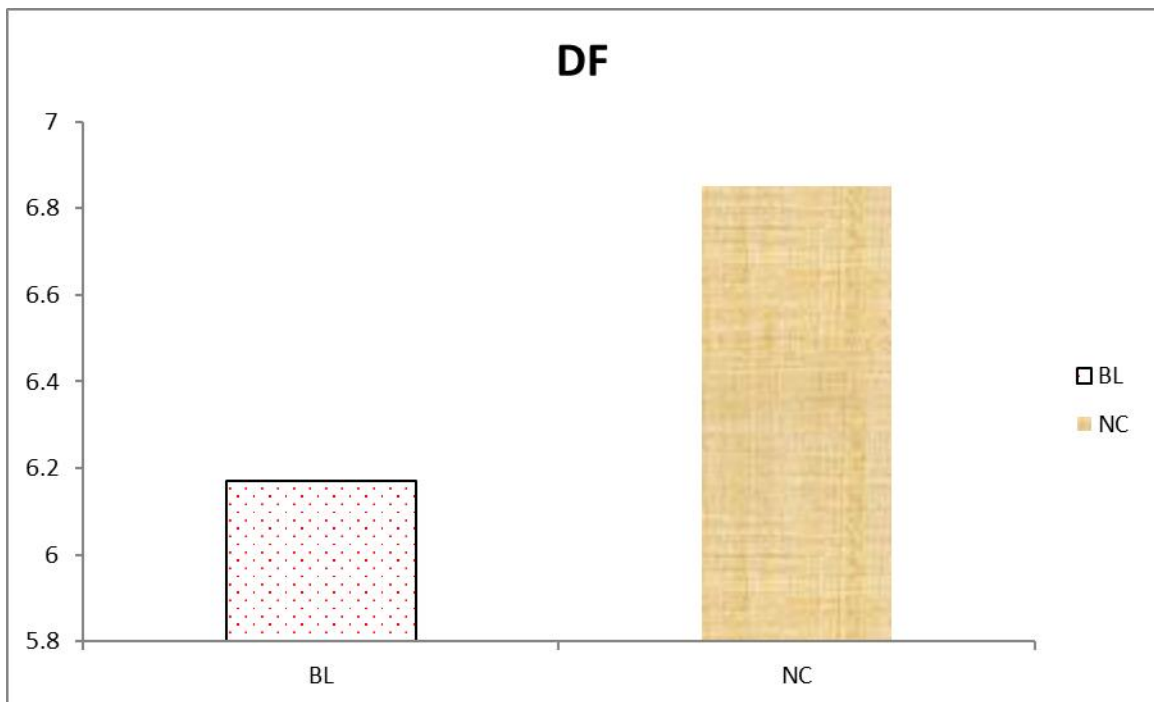


Fig-24: Figure showing the Mean scores of Baseline and Audio listening Session in ‘Digit forward’ variable of Wechsler memory scale

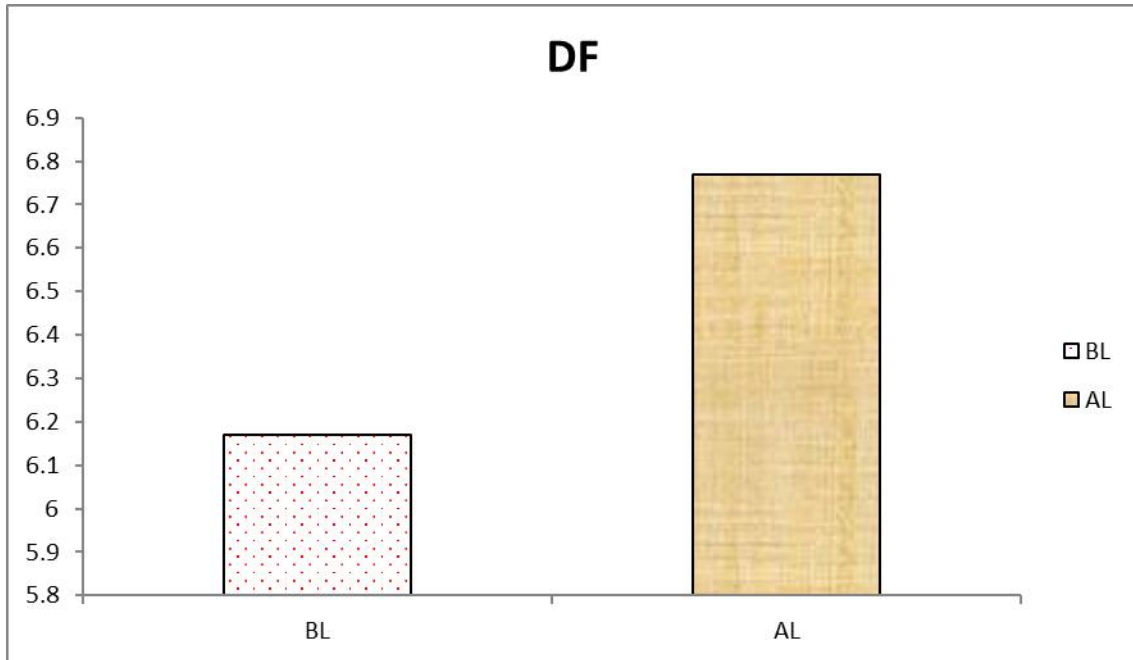


Fig-25: Figure showing the Mean scores of Baseline and Silent chanting Session in ‘Digit backward’ variable of Wechsler memory scale

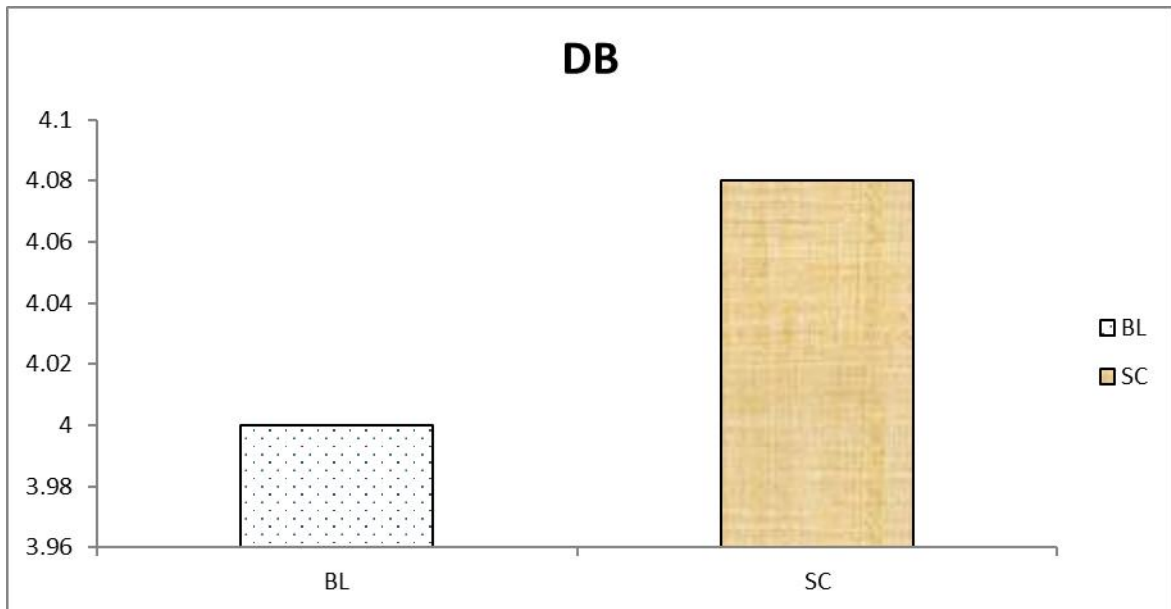


Fig-26: Figure showing the Mean scores of Baseline and Loud chanting Session in 'Digit backward' variable of Wechsler memory scale

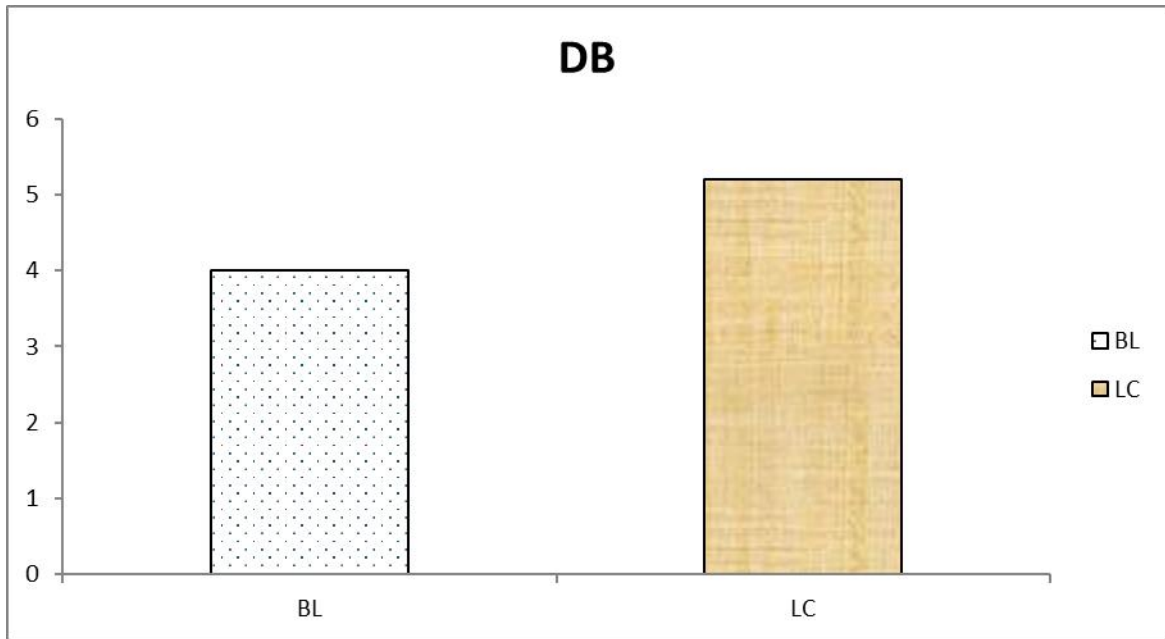


Fig-27: Figure showing the Mean scores of Baseline and Lips movement Session in 'Digit backward' variable of Wechsler memory scale

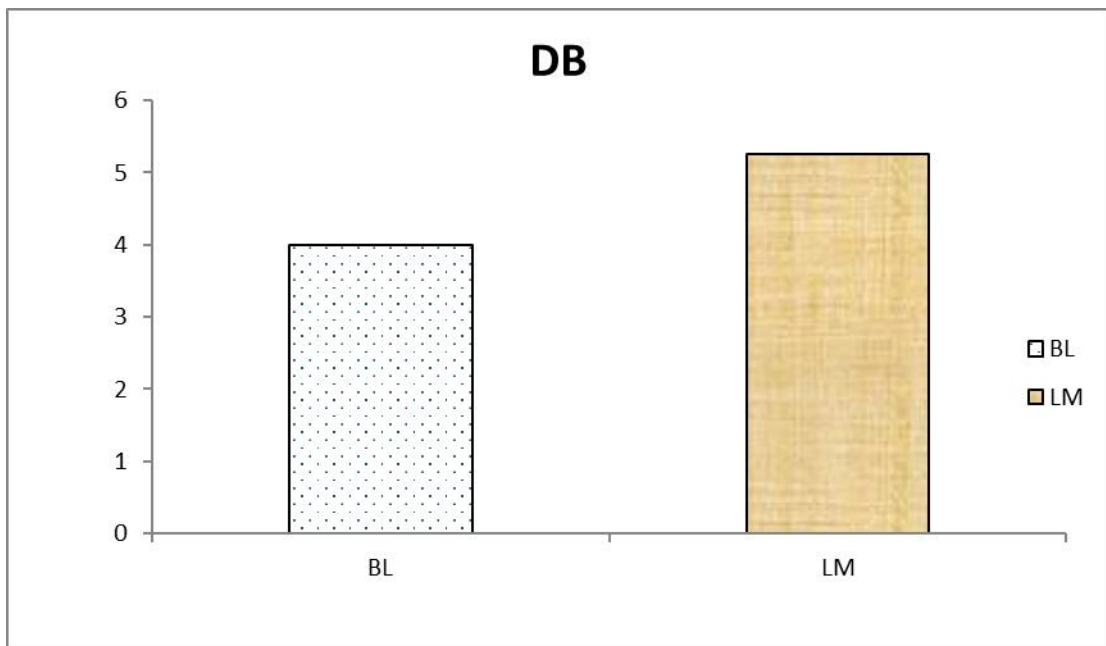


Fig-28: Figure showing the Mean scores of Baseline and No chanting Session in 'Digit backward' variable of Wechsler memory scale

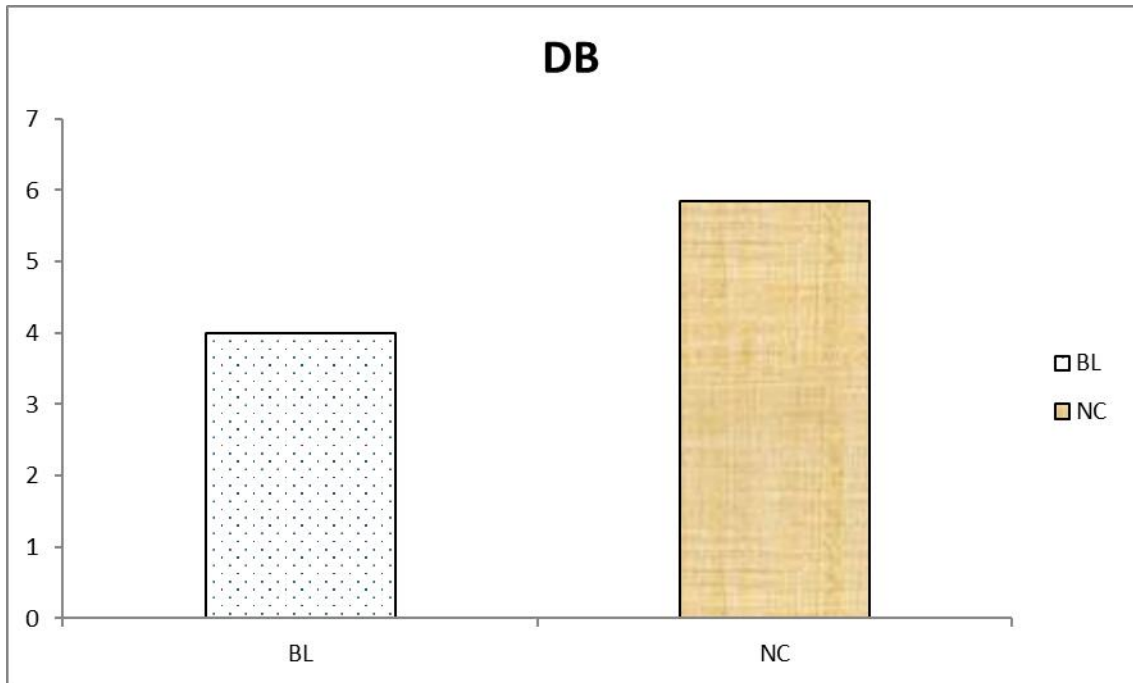


Fig-29: Figure showing the Mean scores of Baseline and Audio listening Session in 'Digit backward' variable of Wechsler memory scale

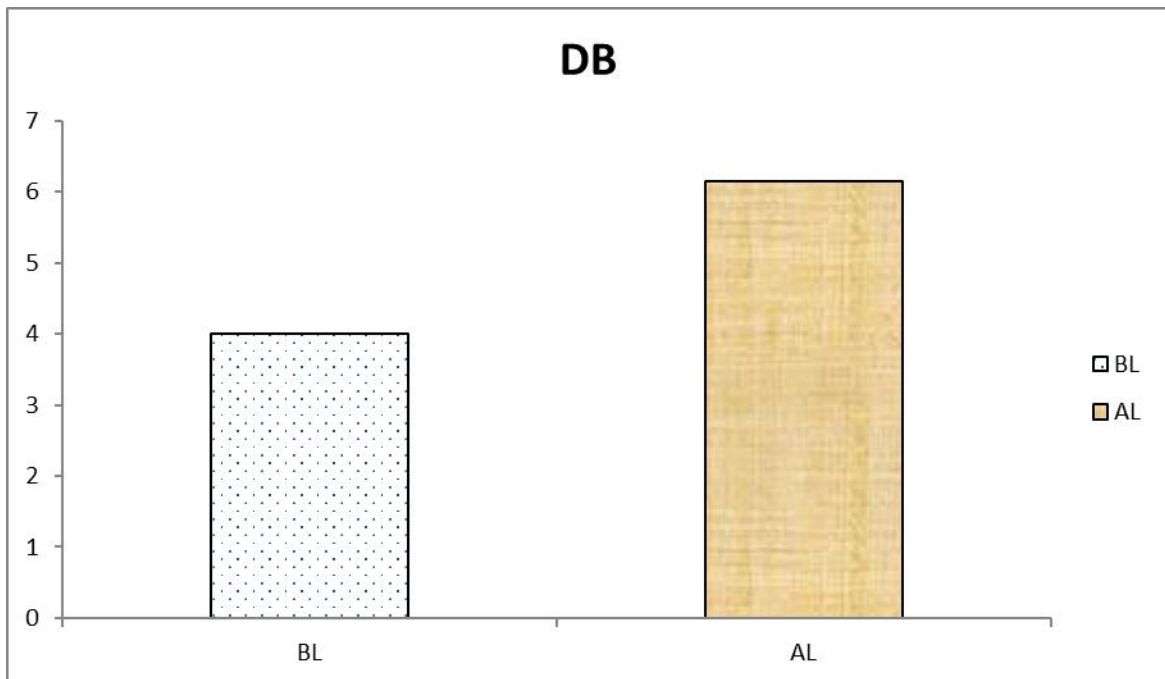


Fig-30: Figure showing the Mean scores of Baseline and Silent chanting Session in ‘ASL’ variable of Wechsler memory scale

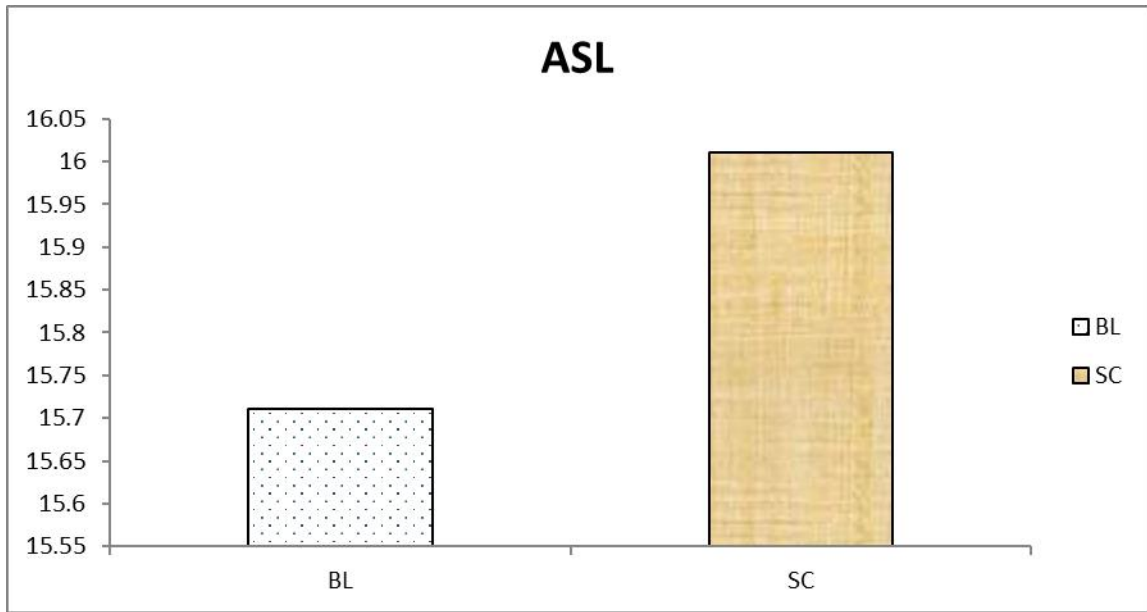


Fig-31: Figure showing the Mean scores of Baseline and Loud chanting Session in ‘ASL’ variable of Wechsler memory scale

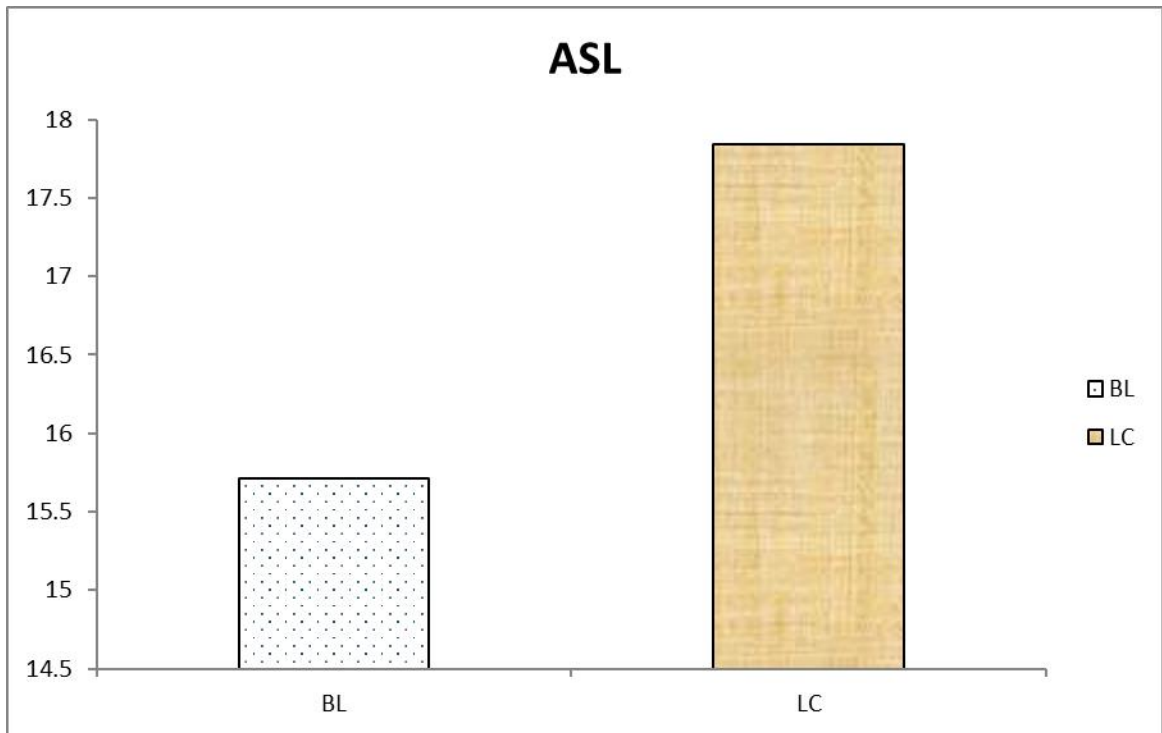


Fig-32: Figure showing the Mean scores of Baseline and Lips movement Session in ‘ASL’ variable of Wechsler memory scale

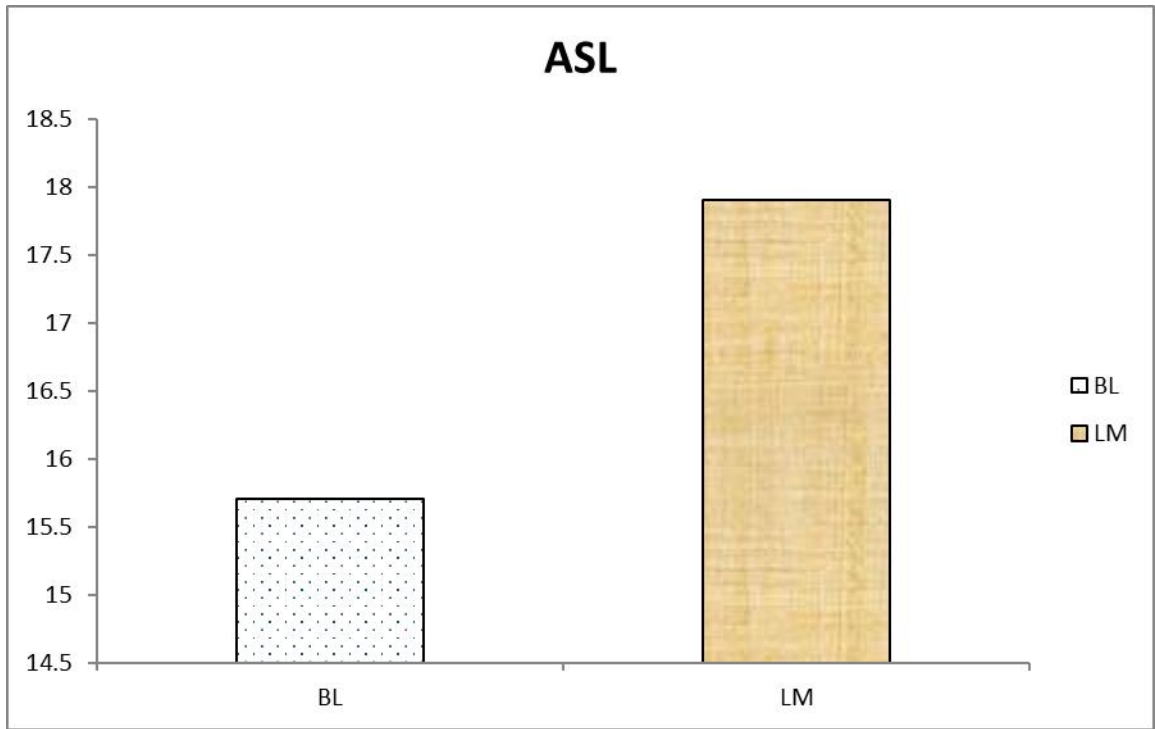


Fig-33: Figure showing the Mean scores of Baseline and No chanting Session in ‘ASL’ variable of Wechsler memory scale

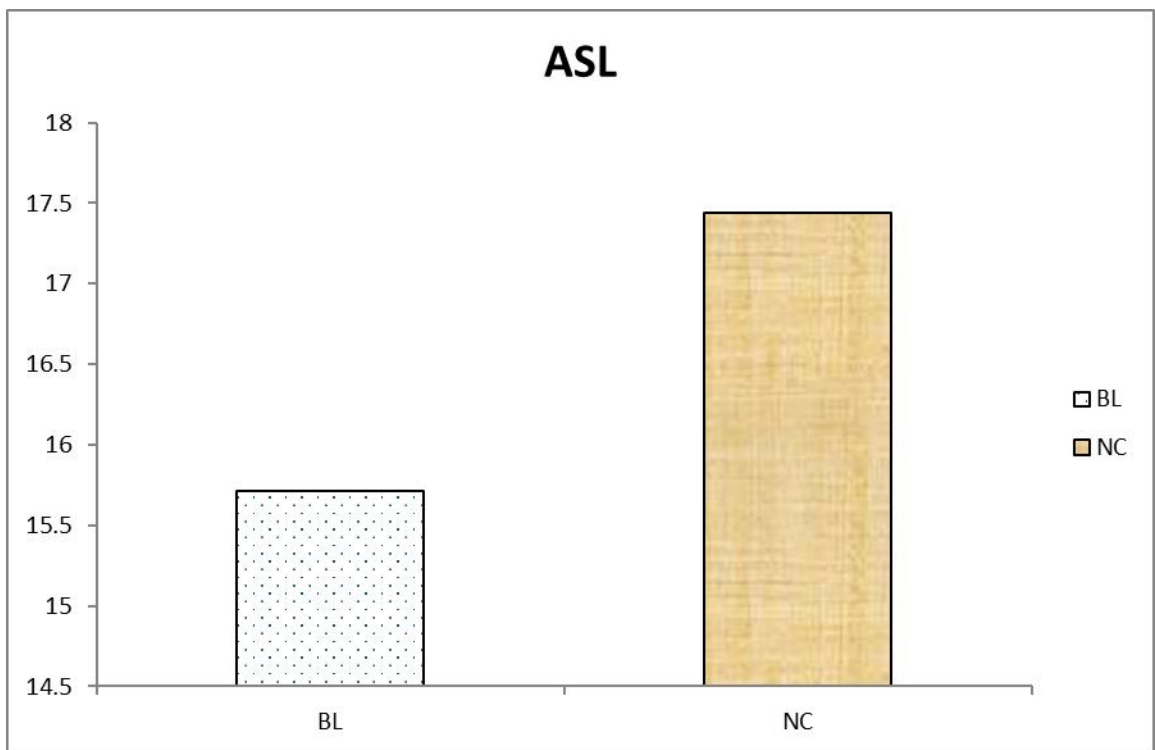


Fig-34: Figure showing the Mean scores of Baseline and Audio listening Session in ‘ASL’ variable of Wechsler memory scale

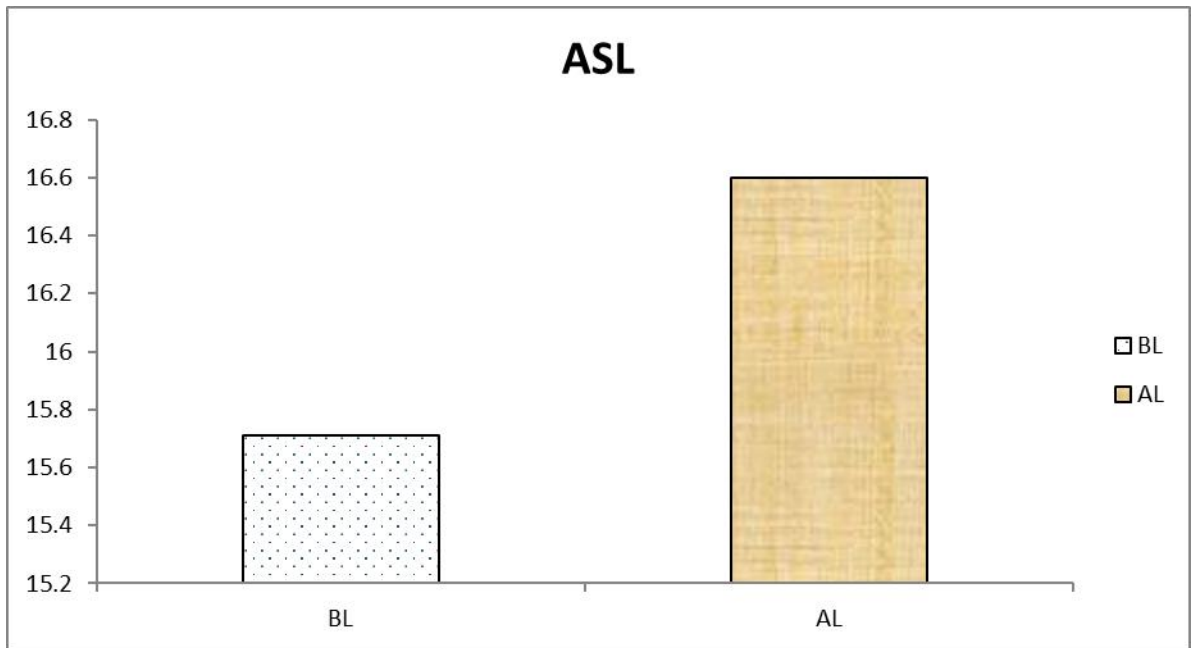


Fig-35: Figure showing the Mean scores of Baseline and Silent chanting Session in ‘Net score’ variable of Six Letter cancellation Test

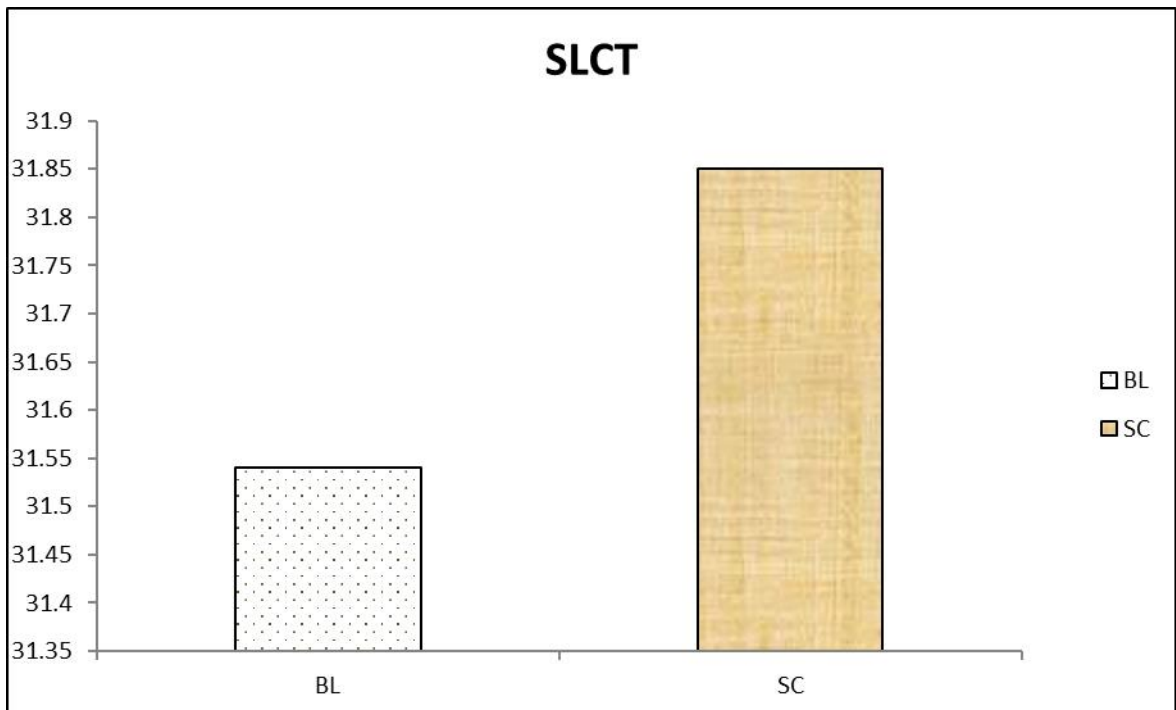


Fig-36: Figure showing the Mean scores of Baseline and Loud chanting Session in ‘Net score’ variable of Six Letter cancellation Test

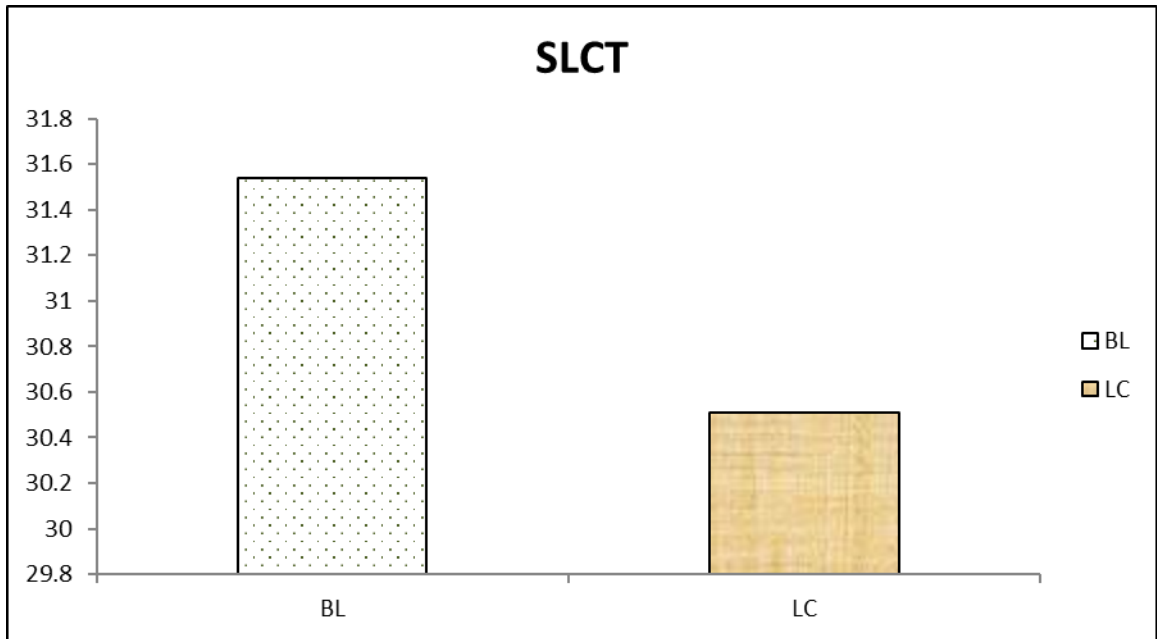


Fig-37: Figure showing the Mean scores of Baseline and Lips movement Session in ‘Net score’ variable of Six Letter cancellation Test

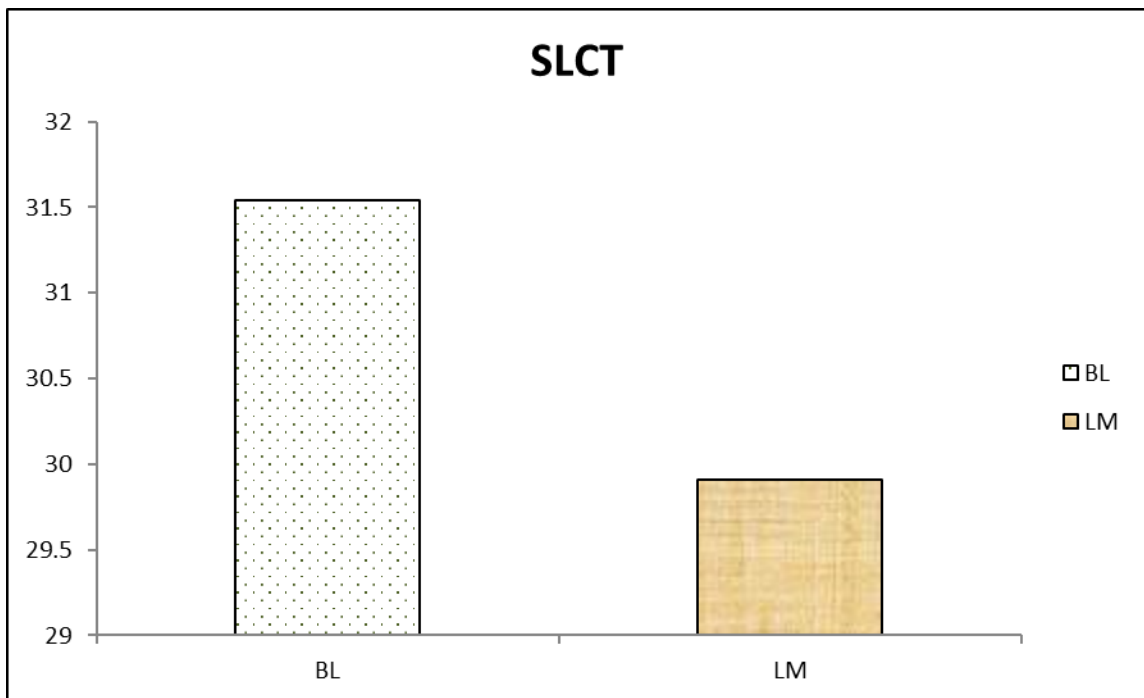


Fig-38: Figure showing the Mean scores of Baseline and No chanting Session in ‘Net score’ variable of Six Letter cancellation Test

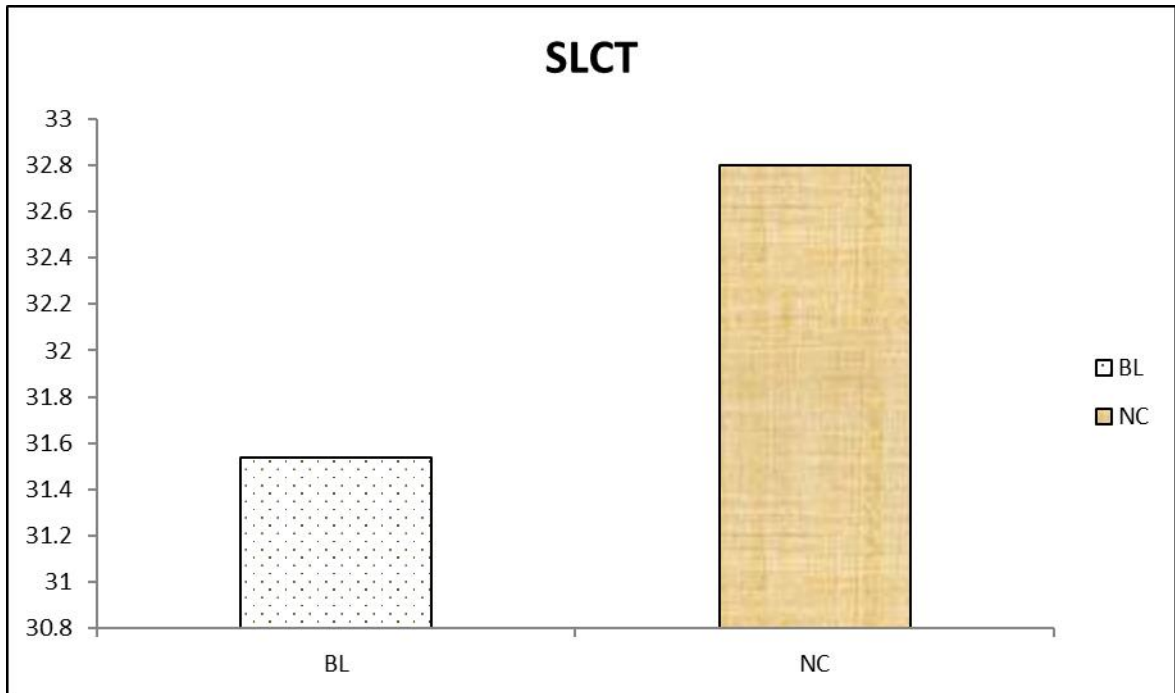


Fig-39: Figure showing the Mean scores of Baseline and Audio listening Session in ‘Net score’ variable of Six Letter cancellation Test

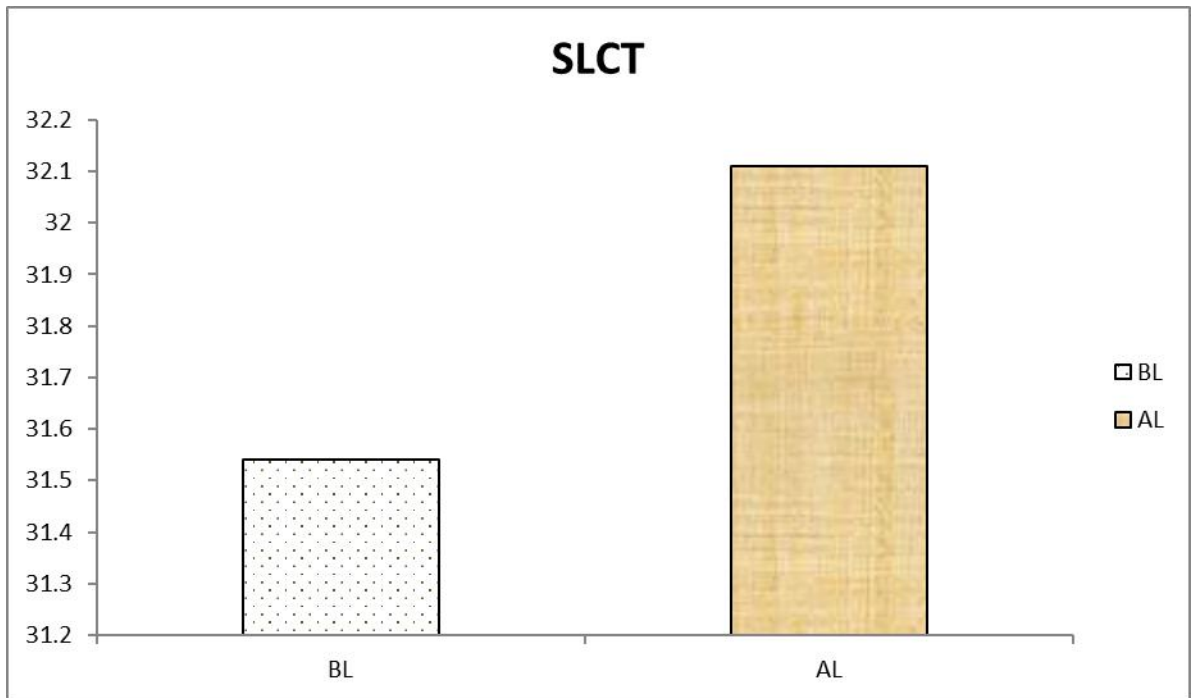


Fig-40: Figure showing the Mean scores of Baseline and Silent chanting Session in ‘Net score’ variable of Mindfulness Attention and Awareness Scale

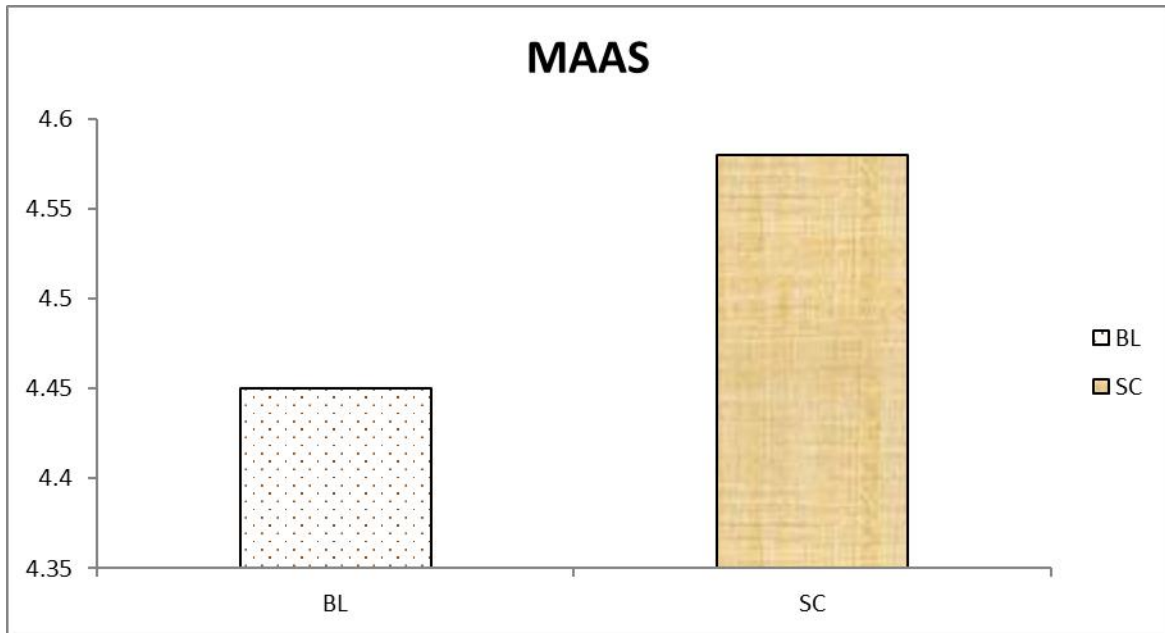


Fig-41: Figure showing the Mean scores of Baseline and Loud chanting Session in ‘Net score’ variable of Mindfulness Attention and Awareness Scale

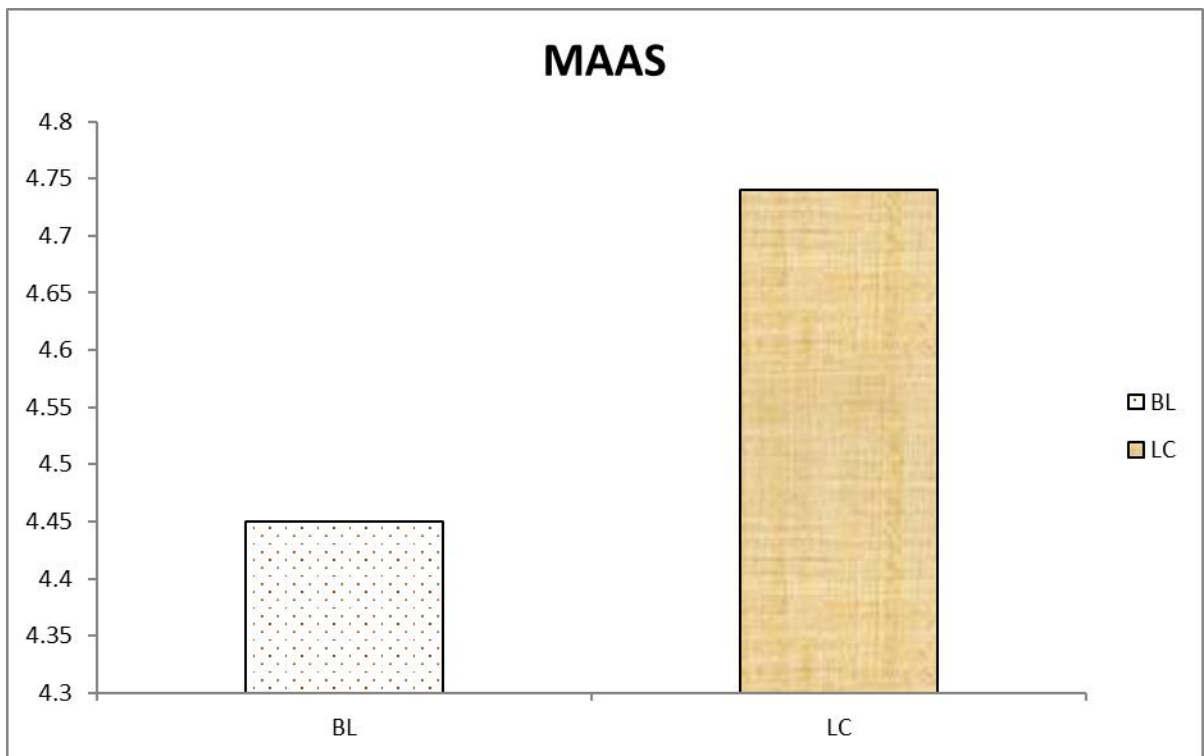


Fig-42: Figure showing the Mean scores of Baseline and Lips movement Session in ‘Net score’ variable of Mindfulness Attention and Awareness Scale

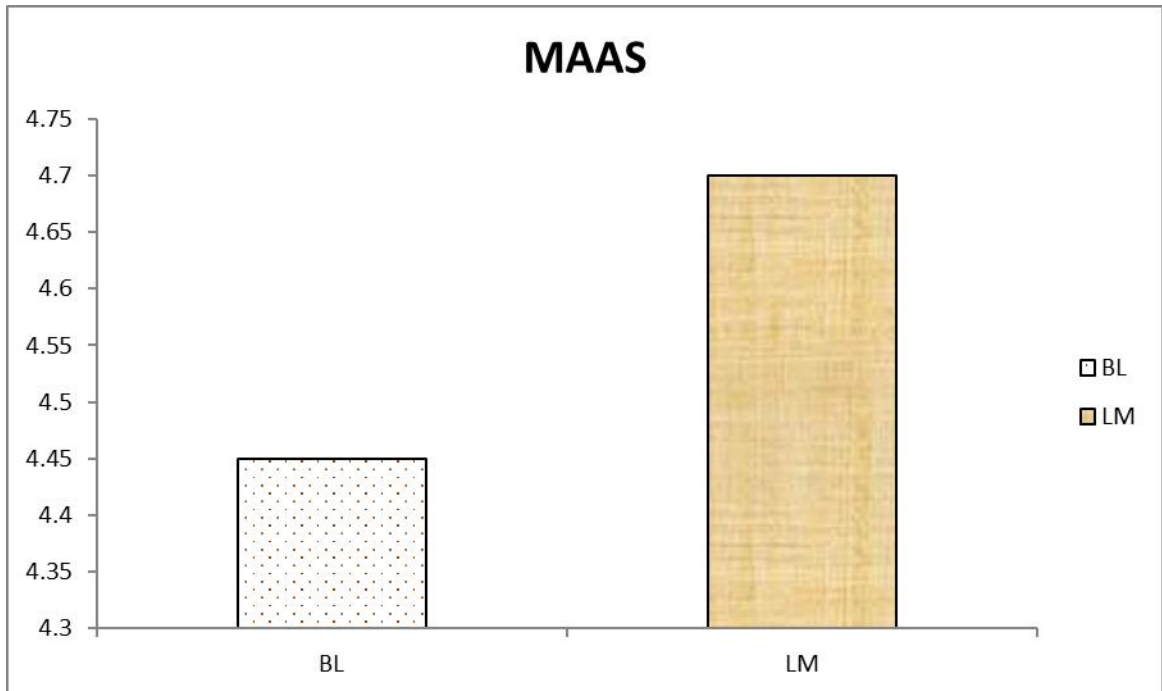


Fig-43: Figure showing the Mean scores of Baseline and No chanting Session in ‘Net score’ variable of Mindfulness Attention and Awareness Scale

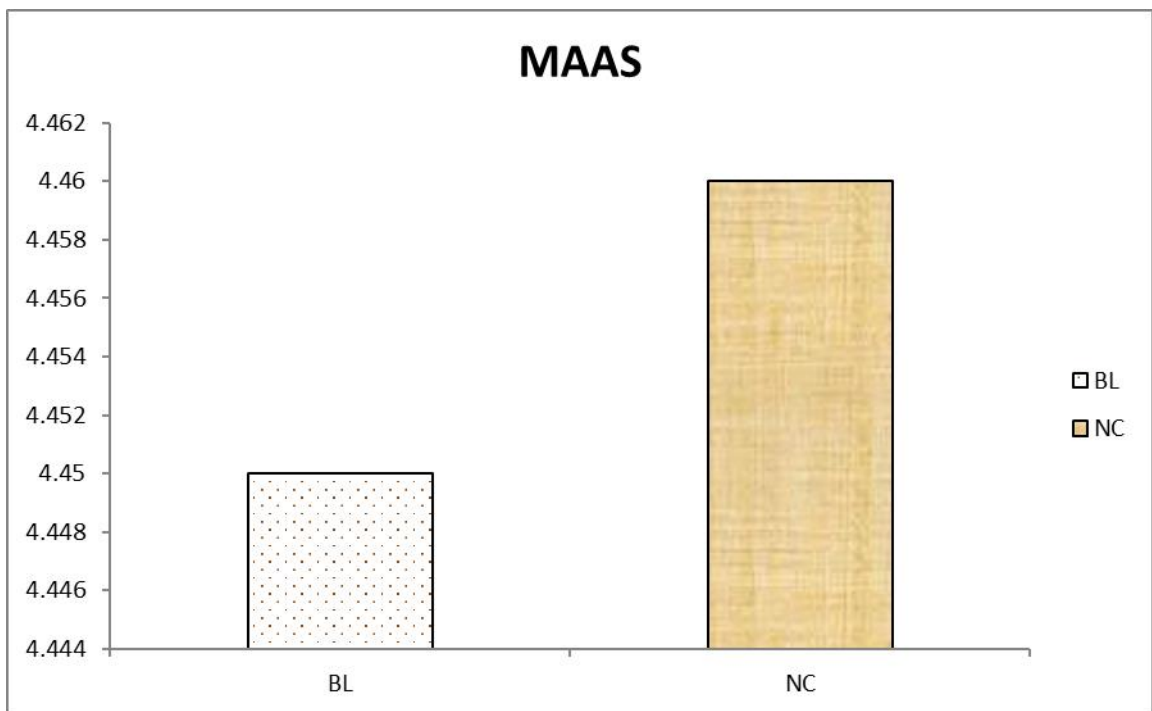


Fig-44: Figure showing the Mean scores of Baseline and Audio listening Session in ‘Net score’ variable of Mindfulness Attention and Awareness Scale

