International Research Journal of Ayurveda & Yoga
Vol. 6 (3),41-50, March,2023
ISSN: 2581-785X: https://irjay.com/
DOI: **10.47223/IRJAY.2023.6305**

Effect of the common AYUSH Yoga protocol in the management of Dyslipidemia: A clinical study

Manju Bora,[1] Jaideep Arya[2],

1. Chairman- Haryana Yog Aayog, Secretary General- National Yogasana Sports Federation, and Ph.D Scholar, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India – 246169.
2. Professor, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India – 246169.

Article Info

Article history:
Received on: 20-1-2023
Accepted on: 19-03-2023
Available online: 31-03-2023

Corresponding author-
Jaideep Arya, Chairman- Haryana Yog Aayog, Secretary General- National Yogasana Sports Federation, and Ph.D Scholar, Maharaja Agrasen Himalayan Garhwal University, Uttarakhand, India – 246169.

Email: sunilatraye@gmail.com

ABSTRACT:

The present study was undertaken with a view to evaluating the effect of common Ayush Yoga protocol in the management of Dyslipidemia patients. A study was conducted on a clinical experimental basis. The interventional module used the common Ayush Yoga protocol which has a different form of Yogic practice, such as Yogasanas, Pranayama, Dhyana, etc. Interestingly, it is assumed that different Yogic practices have a different impact on physiological and psychological variables. This research aimed to find out the effect of common Ayush Yoga protocol practices on Dyslipidemia patients. Sixty (60) sample were selected for the Haryana region dist. Bhiwani only. The primary data for investigation were derived from clinical reports and personal observations. They were divided into two groups of 30 – 30 sample people. Group I served as the Yoga intervention group, and Group II as the control group. Common Ayush Yoga protocol practices were given to an experimental or interventional group only and the control group was not given any exposure and was kept under control. Initial and final data records were collected and statistically analyzed using the pre-post 't-test'. Results showed that common Ayush Yoga protocol treatment has prevention in the condition of Dyslipidemia patients.

Keywords: Ayush Yoga Protocol, Yoga, Dyslipidemia.

INTRODUCTION

Yoga is derived from the Sanskrit word *'Yuj'*, which means "Yoking or connecting". Mainly three senses were included, first is a spiritual union which means the combination of the soul with the supreme soul, second is the attentiveness of the mind and third is complete control of the mental manner which *Maharishi Patanjali* emphasized in his *sutra*. Yoga includes breathing exercises to balance biofuel, physical exercise to balance and stretch; psychophysical ease, and mediation[1]. Various type of Yoga such as *Hatha Yoga, Bhakti Yoga, Jnana Yoga, Karma Yoga, Raja Yoga, Dhyana Yoga, Kriya Yoga, Tantra Yoga, Mantra Yoga* and many more has only one goal moksha i.e. liberation[2]. Yoga, also known as a way of living life, is distinguished by stability, calmness, and physical-mental coordination & balance. Yoga is not only about postures or

physical exercises, it also includes breathing, concentration(*Dhyana*), *Mudras*, and *Bandhas*[3]**.**

In the present era, physical postures (*Yogasanas*), breathing exercises (*Pranayama*), cleansing exercises (*Shatkarma or kriya*), and mediation are the most widely used practices[4]. Yoga increases parasympathetic tone & reduces sympathetic tone which brings a balance between the autonomic nervous system[5]. Every practice under Yoga therapy has different effects. *Yogasana* or postures works at the physical level while meditation & deep relaxation act on the spiritual and mental level whereas breathing exercises or *Pranayama* provides a bridge between mind and body or it harmonizes & interlink physical, spiritual & mental level[6].

Lipids:

Lipids are non-polar hydrophobic molecules comprising the essential components of all living cells. In the human body, they perform several important functions by playing an important role in the cellular structure, serving as concentrated storage forms of energy, metabolic regulators, protecting internal organs by a cushioning effect, etc. Some of these lipids, stored in the body areas are known as depot lipids whereas others circulate in the blood.

These lipids present in the body can be further classified into two types viz

1. **Element constant:** It is present in the body in fixed proportions and constitutes structural components of the body like phospholipids and is thus essential for life.
2. **Element variable:** It is present in variable amounts and serves to nourish other body structures like neutral fat (triglycerides) etc.

Lipoproteins:

Lipoproteins are large mostly spherical complexes of lipids and proteins that transport lipids (primarily triglycerides, cholesterol esters, and fat-soluble vitamins) through the body fluids (plasma, interstitial fluid and lymph). Their functions are:

A. In the absorption of dietary cholesterol, long chain fatty acids, and fat-soluble vitamins.
B. The transport of triglycerides, cholesterol, and fat-soluble vitamins from the liver to the peripheral tissues; and
C. The transport of cholesterol from the peripheral tissues to the liver.

Depending upon density (by ultracentrifugation) or on the electrophoretic mobility, the lipoproteins in plasma are classified into 5 major categories:

1. Chylomicrons
2. Very low-density lipoproteins (VLDL) or pre-beta lipoproteins.
3. Intermediate density lipoproteins (IDL) or broad-beta lipoproteins.
4. Low density lipoproteins (LDL) or beta lipoproteins.
5. High density lipoproteins (HDL) or alpha lipoproteins.

Dyslipidemia and Yoga

Yogic practices are a type of exercise that combines physical postures, breathing techniques, and meditation in a number of ways to help people improve their physical and mental health. Because it is high-impact and safe for patients when taught by a well-trained instructor, Yoga is a high-impact, safe, and cost-effective method in the treatment of Dyslipidemia or any other ailment.

Patients' health improves substantially after practicing Yoga, according to several studies and clinical trials. Task conducted research on the use of Yoga to cure Dyslipidemia. The study group that followed a 3-month Yoga programme and practiced showed a decrease in TGL(Triglyceride level) and LDL levels as well as an increase in HDL when compared to the non-practicing group[7]. The findings of a recent study conducted on pre-diabetic women at the National Yoga camp of *Niyantraita Madhumeha Bharata Abhiyaan* (2017) revealed that after performing the DYP (Diabetic Yoga Protocol) recommended by the Ministry of Ayush, the group who followed the proper protocol had significantly lower levels of HbA1c (glycosylated hemoglobin) and glucose levels[8]. One recent study that looked at the efficacy of Yoga in diabetic dyslipidemia in both urban and rural populations found that there is a positive correlation between HbA1c and total cholesterol levels, and significantly reduced TGL and LDL after DYP[9]. In Ahmedabad, India a research was done on 100 people, 50 of whom were healthy and 50 of whom were dyslipidemia, all under the age of 20 years. The goal was to see the effect of Hathayoga practices on dyslipidemia. There was a modest drop in LDL and TGL values after a year of Yogic practices. It can be utilized as an adjuvant in the treatment of dyslipidemia, according to the findings[10]**.** a study on **"**Diet and Yoga for prevention of dyslipidemia (Medoroga) – A review"**.** Dyslipidemia is one of the lifestyle disorders, occurs due to faulty food habits, less physical activities, irregular sleep, stress etc. It is defined as a metabolic disorder in which the levels of lipoproteins, cholesterol, and triglycerides are raised in plasma, as well as there is a deposition of lipids (esterified cholesterol) in the walls of arteries. This study concluded that Ayurveda and Yoga are invaluable gifts of ancient

Indian tradition with holistic approach to health and well-being. The causes for primary dyslipidemia may be considered in Ayurveda under the concept of *beeja dushti*, and secondary dyslipidemia under the *kapha-vatapradoshaja vikara i.e., medoroga.* The equilibrium between *doshas, dhatus, malas and agni* helps in preventing the occurrence of pathology of the disease. *Nidana parivarjana*, specificdiet, regular Yogic practices and exercise help in prevention and further progress of dyslipidemia.[11]

In this study, the different studies were undertaken to assess the effect of Yogic-practices, diet management and drugs on the lipid profile in patients with dyslipidemia.

OBJECTIVES OF THE STUDY:

The objectives of the study were as under:

1. To investigate the effect of common AYUSH Yoga protocol on dyslipidemia patients.
2. To compare the effect of common AYUSH Yoga protocol on dyslipidemia patients (Interventional group) and dyslipidemia patients (control group).

Hypothesis:

1. There exists no significant difference of common AYUSH Yoga protocol on dyslipidemia patients (Interventional group) and dyslipidemia patients (control group).

METHOD

In study, the assessment of biochemical parameters before and after 12 weeks of Yoga interventional of Dyslipidemia patients was conducted in the New Era Labs, Bhiwani for medical examining the reading.

The institutional ethical committee had approved the study protocol and design of the intervention module.

Selection Of The Subject:

Sixty patients of dyslipidemia were selected, with a history of low-density lipoproteins, in the age group of 19-54 years, were selected. The diagnosis of dyslipidemia patients was done according to the WHO criteria.

The scope and objectives of the present study was explained to all the subjects.

Methodology

The patients were divided into two separate groups:

Group I (n=30) Dyslipidemia patients belonged to the common Ayush Yoga protocol intervention group were put through various Yogic practices (Mantras, SukshmaVyayama, Yogasana, Pranayama, Mudras, and Dhyana) for 12 weeks. All these patients performed Yogic practices for 12 weeks/ 45 minutes under the guidance of an expert Yoga trainer.

Group – II (n=30) Dyslipidemia or control group patients, were retained on the diet plus normal medical therapy only. The controls were matched with respect to age, sex, lipid profile parameters.

The observations and results were enumerated in the succeeding paragraphs.

Common Ayush Yog Protocol

All The Subjects Within The Yoga Intervention group were taught specific Yogic practices. The duration of the practices were 45 minutes from 8:15 AM to 9:00 AM. It was advised to keep towel and bladder empty prior to Yogic practices. The practitioner was to perform lastly shavasana to normalize the breathing. This relaxed the mind and body after session.

1. *Invocation*
2. *Sadilaja/Cālana Kriyās /Loosening Practices*

I. Neck Bending (Grivā Śakti Vikāsaka)
Stage I: (Forward And Backward Bending/Stretching)
Stage - Ii: (Right And Left Bending/Stretching)
Stage - Iii: (Right And Left Twisting)
Stage Iv: Neck Rotation
Shoulder's Movement
Stage I: (Shoulder's Stretch)
Stage Ii: Skandha Cakra (Shoulder Rotation)
III. Trunk Movement (Kaṭiśakti Vikāsaka)
IV. Knee Movement
3. Yogāsanas
A. Standing Postures
Tāḍāsana (Palm Tree Posture)
Vṛkṣāsana (The Tree Posture)
Pāda-Hastāsana (The Hands To Feet Posture)
Ardha Cakrāsana (The Half Wheel Posture)
Trikonāsana (The Triangle Posture)
B. Sitting Postures
Bhadrāsana (The Firm/Auspicious Posture)
Vajrāsana (Thunderbolt Posture)
Ardha Uṣṭrāsana (The Half Camel Posture)
Ustrasana (Camel Posture)
Śaśakāsana (The Hare Posture)
Uttāna Mandūkāsana (Stretched Up-Frog Posture)
Vakrāsana (The Spinal Twist Posture)
C. Prone Postures
Makarāsana (The Crocodile Posture)
Bhujaṅgāsana (The Cobra Posture)
Śalabhāsana (The Locust Posture)
D. Supine Postures
Setubandhāsana (The Bridge Posture)

Uttāna Pādāsana (Raised Feet Posture)
Ardha Halāsana (Half Plough Posture)
Pavana Muktāsana (The Wind Releasing Posture)
Śavāsana (The Corpse/ Dead Body Posture)

3. *Kapālabhāti*
4. *Prānāyāma Naḍīśodhana Or*
   Anuloma Viloma Prānāyāma (Alternate Nostril Breathing)
   Śītalī Prāṇāyāma
   Bhrāmarī Prāṇāyāma (Bhrāmarī Recaka)
5. *Dhyāna*
6. *Sankalpa*
7. *Śhanti Pātha*

Biochemical Parameters

The basal parameters included in the biochemical investigations were: -

1. Lipid panel from a blood

This blood sample were analyzed by autoanalyzer PLUS.

Descriptive Statistics

Data related to biochemical tests were analyzed by using SPSS programme version of 20.0 software facilities. The data were expressed as Mean± S.D. The computed values of mean, standard deviation of the total sample. Frequency distributions are graphically represented in the frequency polygons.

1. Interventional group indicates (common AYUSH Yoga protocol),

2. Control group

In this table 1 and figure 1 depicts that the level of cholesterol decreases in dyslipidemia interventional group patients i.e., 283.431±12.76 as compared to dyslipidemia control group patients i.e., 315.453±14.34 that shows the 12 weeks of common AYUSH Yoga protocol intervention decrease the cholesterol level and significantly improve the health of patients.

In this table 2 and figure 2 depicts that the level of triglycerides decreases in dyslipidemia interventional group patients i.e., 189.621±15.89 as compared to dyslipidemia control group patients i.e., 206.729±17.56 that shows the AYUSH Yoga protocol intervention decrease the triglycerides level and significantly improve the health and decrease the chance of illness in dyslipidemia patients.

In this table 3 and figure 3 depicts that the level of high-density lipoprotein i.e., good cholesterol increases in dyslipidemia interventional group patients i.e., 60.291±7.91 as compared to dyslipidemia control group patients i.e., 57.629±8.72 that shows after 12 weeks of AYUSH Yoga protocol intervention practice increase the level of HDL and significantly improve the health of patients and reduce the level of cholesterol in the blood. High levels of HDL cholesterol can lower the risk for heart disease and stroke.

In this table 4 and figure 4 depicts that the level of very low-density lipoprotein (VLDL) decreases in dyslipidemia interventional group patients i.e., 27.414±6.09 as compared to dyslipidemia control group patients i.e., 37.514±6.21 that shows after 12 weeks of common AYUSH Yoga protocol intervention practice has significantly decrease in the VLDL level and significantly improve the Heart health which seems a decrease in the percentage of triglyceride, which shrink narrow passage and restrict blood flow.

In this table 5 and figure 5 depicts that the level of low-density lipoprotein (LDL) i.e., bad cholesterol decreases in dyslipidemia interventional group patients i.e., 92.319±10.21 as compared to dyslipidemia control group patients i.e., 108.991±11.05 that shows after 12 weeks of Yoga protocol intervention practice has significantly decrease in the level of LDL and significantly improve the Heart health and also decrease the risk of heart disease, stroke and any other kind of illness.

In this table 6 and figure 6 depicts the comparison in the level of low-density lipoprotein (LDL) and high-density lipoprotein (HDL) in dyslipidemia interventional group patients i.e., 2.011±0.41 (post-test) as compared to dyslipidemia control group patients i.e., 2.519±0.71 (post-test) which shows after 12 weeks of common AYUSH Yoga protocol intervention practice group has significant improvement in the percentage rather than control group which indicate that the heart health has significantly improved.

In this table 7 and figure 7 depicts the comparison in the level of total cholesterols and high-density lipoprotein (HDL) in dyslipidemia interventional group patients i.e., 4.101±0.61 (post-test) as compared to dyslipidemia control group patients i.e., 4.241±0.65 (post-test) which shows after 12 weeks of common AYUSH Yoga protocol intervention practice group has significant improvement in the percentage rather than control group.

RESULTS

After interpretation of the data, it is concluded the data analysis which is statistically highly significant ($p<0.005$). The overall effects of common Ayush Yoga protocol on physiological properties of dyslipidemia patients showed

that more effective to improve the overall health, decrease the level of Cholesterol that improve the health of heart.
Although, after treatment period over, the patients reported a feeling of betterment physically and psychologically. This indicates the role of Ayush Yoga protocol practices helps in prevention and management approaches in overall health.

DISCUSSION

Yogic practices can increase the health of heart and also increase the parasympathetic nervous activity. Thus, it is possible, Yoga can improve the health of blood vessel and junction of the capillaries. It can help you to maintain the function of bio-chemical and psychological of Human body. It also seems that AYUSH Yoga protocol has become a complete form of treatment of any illness. Therefore, it has tremendous potential for overall healthy life.[12]

CONCLUSION

The finding of this study shows that Yoga practices management help to alleviate the high cholesterol level and intervention program common Ayush Yoga protocol is systematically enhanced the health of Dyslipidemia patients.

Acknowledgement

I would like to acknowledge my wife Dr. Jyoti Arya who gave me support at every step. I also thank my all-supportive staff who helped me in finalizing this research.

Source Of Finance & Support: None, Self-Financed.

Conflict Of Interest: Nil

ORCID

Manju Bora , https://orcid.org/0009-0000-2498-8234

REFERENCES

1. Ahn, C. H., & Choi, S. H. (2015). *New Drugs for Treating Dyslipidemia : Beyond Statins*. 87–94.
2. Baptista, M., & Dantas, E. (2002). Using Yoga to control stress. *Fitness & Performance Journal*, *1*(1), 12–18. https://doi.org/10.3900/fpj.1.1.12.e
3. Bhatia, S. K. (2010). Coronary Artery Disease Coronary. *Biomaterials for Clinical Applications*, 23–49.
4. Dr. Singh, Vet.al (2020)- Diet & Yoga for prevention of Dyslipidemia (Medoroga)- A review". *Medical Clinics of North America*, 69(6), 789-801. https://doi.org/10.1016/S0025-7126(17)30999-2
5. Ebrahimi, H., Hassan, M., Hashemi, H., & Fotouhi, A. (2016). Diabetes & Metabolic Syndrome : Clinical Research & Reviews Dyslipidemia and its risk factors among urban middle-aged Iranians : A population-based study. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 1–8. https://doi.org/10.1016/j.dsx.2016.01.009
6. Gaggini, M., Bugianesi, E., & Gastaldelli, A. (2013). Non-alcoholic fatty liver disease (NAFLD) and its connection with insulin resistance, dyslipidemia, atherosclerosis and coronary heart disease. *Nutrients*, *5*(5), 1544–1560. https://doi.org/10.3390/nu5051544
7. GM, K. (2014). Role of Yoga in Chronic Kidney Disease: A Hypothetical Review. *Journal of Nephrology & Therapeutics*, *04*(03). https://doi.org/10.4172/2161-0959.1000167
8. Gupta, R., Rao, R. S., Misra, A., & Sharma, S. K. (2017). Recent trends in epidemiology of dyslipidemias in India. *Indian Heart Journal*, *69*(3), 382–392. https://doi.org/10.1016/j.ihj.2017.02.020
9. Improvement, P. (2018). *Dyslipidemia*. https://doi.org/10.7326/AITC201712050
10. J, M. D., Noce, A., Bertucci, P., Manca, S., Zenobi, R., Castagnola, V., Addessi, E., & Daniele, N. Di. (2013). *Atherosclerosis , Dyslipidemia , and Inflammation : The Significant Role of Polyunsaturated Fatty Acids*. *2013*.
11. Joshi, S. R., Anjana, R. M., Deepa, M., Pradeepa, R., Bhansali, A., Dhandania, V. K., Joshi, P. P., Unnikrishnan, R., Nirmal, E., Subashini, R., Madhu, S. V., Rao, P. V., Das, A. K., Kaur, T., Shukla, D. K., & Mohan, V. (2014). Prevalence of dyslipidemia in urban and rural India: The ICMR-INDIAB study. *PLoS ONE*, *9*(5). https://doi.org/10.1371/journal.pone.0096808
12. Kapelka I. G., Sayko I. V., C. V. I. (n.d.). *The Composition And Technology Development Of The Dietary Supplement For Dislipidemia Treatment*. 115.

How to cite this article: Arya J, Bora M "Effect of the common AYUSH Yoga protocol in the management of Dyslipidemia: A clinical study" IRJAY. [online]2023;6(3);41-50.
Available from: https://irjay.com
DOI link- https://doi.org/**10.47223/IRJAY.2023.6305**

Table 1: comparative and monitoring the level of cholesterol of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*323.723*	*15.43*	*315.453*	*14.34*
2.	**Interventional group**	*320.563*	*13.55*	*283.431*	*12.76*

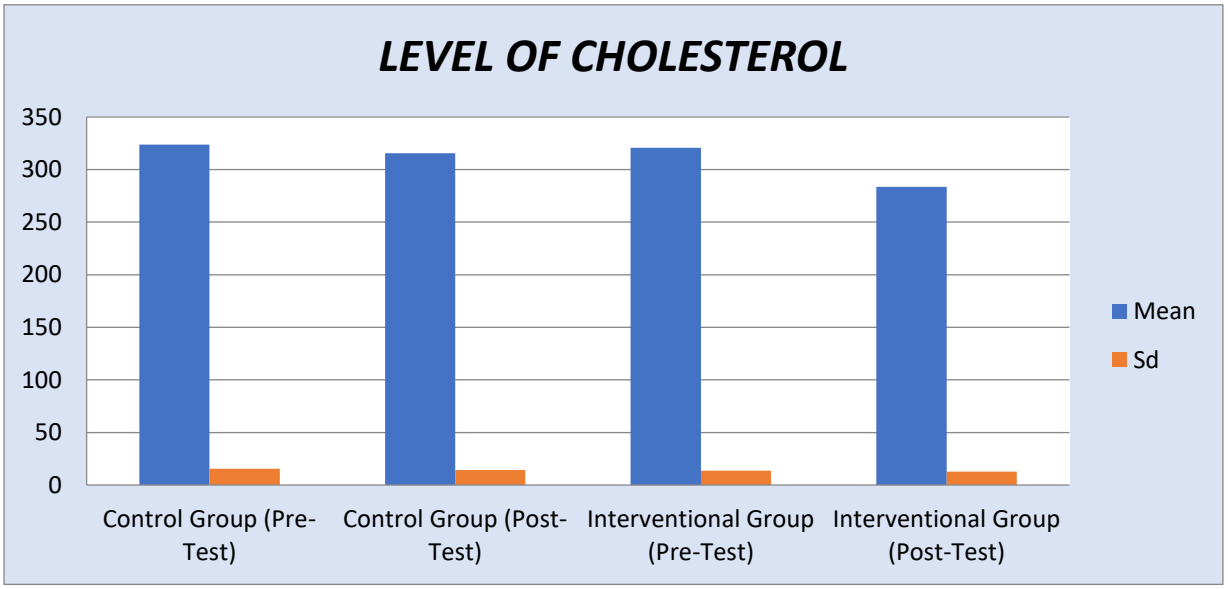

Figure 1: pre and post of analyses of both groups i.e., control group v/s interventional group to analyze changes in level of cholesterol, where (c=30, I=30) and level of significance (≤0.05)

Table 2: comparative and monitoring the level of triglycerides of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*205.627*	*16.72*	*206.729*	*17.56*
2.	**Interventional group**	*203.791*	*17.99*	*189.621*	*15.89*

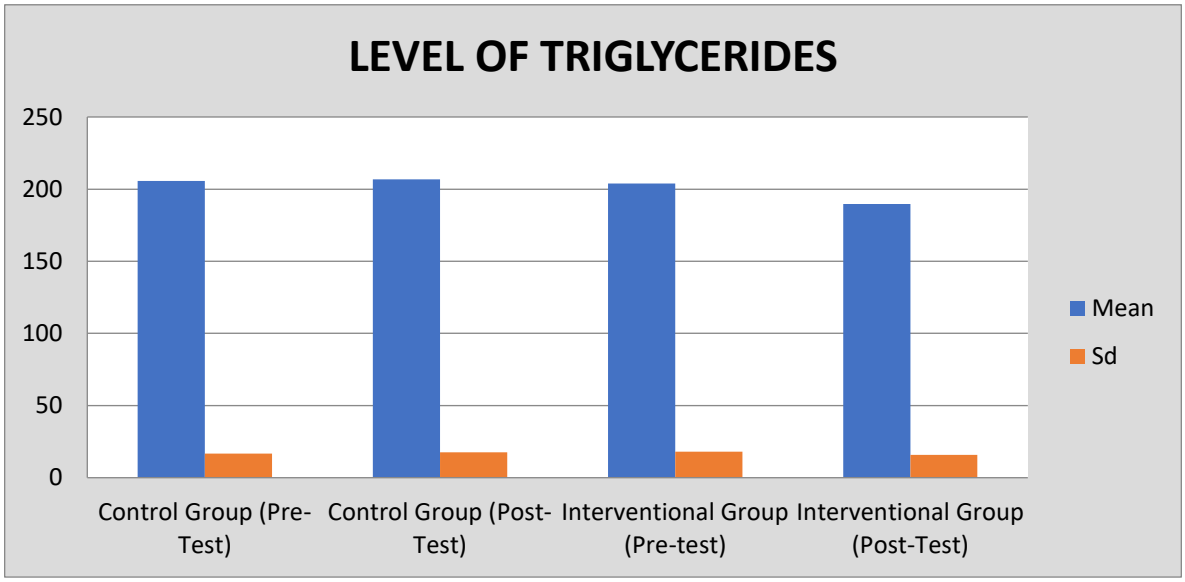

Figure 2: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of triglycerides, where (c=30, I=30) and level of significance (≤0.05).

Table 3: comparative and monitoring the level of high-density lipoprotein-s of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		**Post-test**	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*57.921*	*8.29*	*57.629*	*8.72*
2.	**Interventional group**	*56.615*	*9.56*	*60.291*	*7.91*

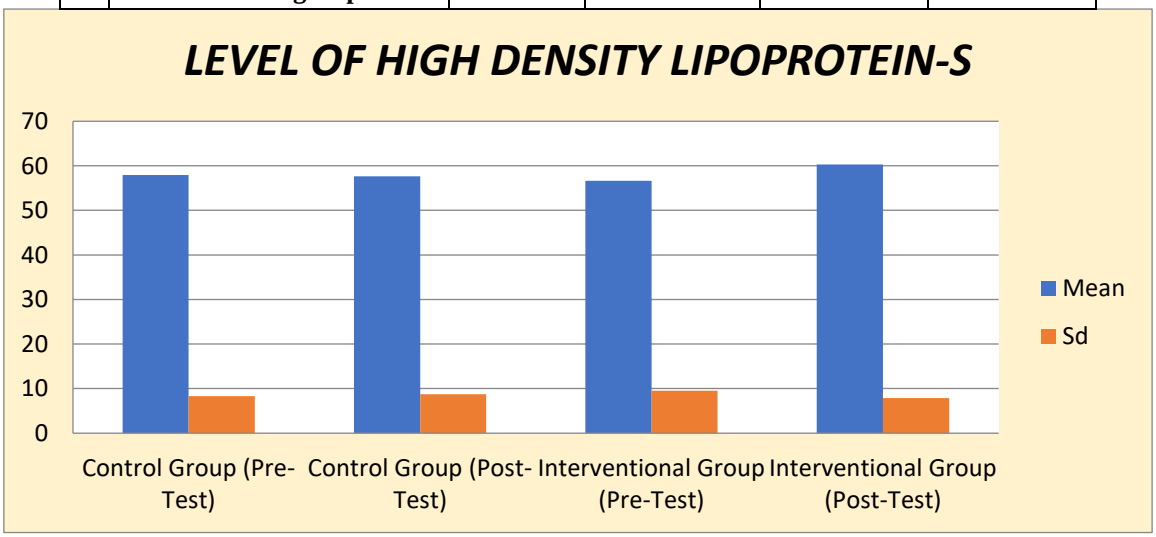

Figure 3: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of high-density lipoprotein, where (c=30, I=30) and level of significance (≤0.05).

Table 4: comparative and monitoring the level of very low-density lipoprotein-s of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*37.890*	*5.48*	*37.514*	*6.21*
2.	**Interventional group**	*36.219*	*5.31*	*27.414*	*6.09*

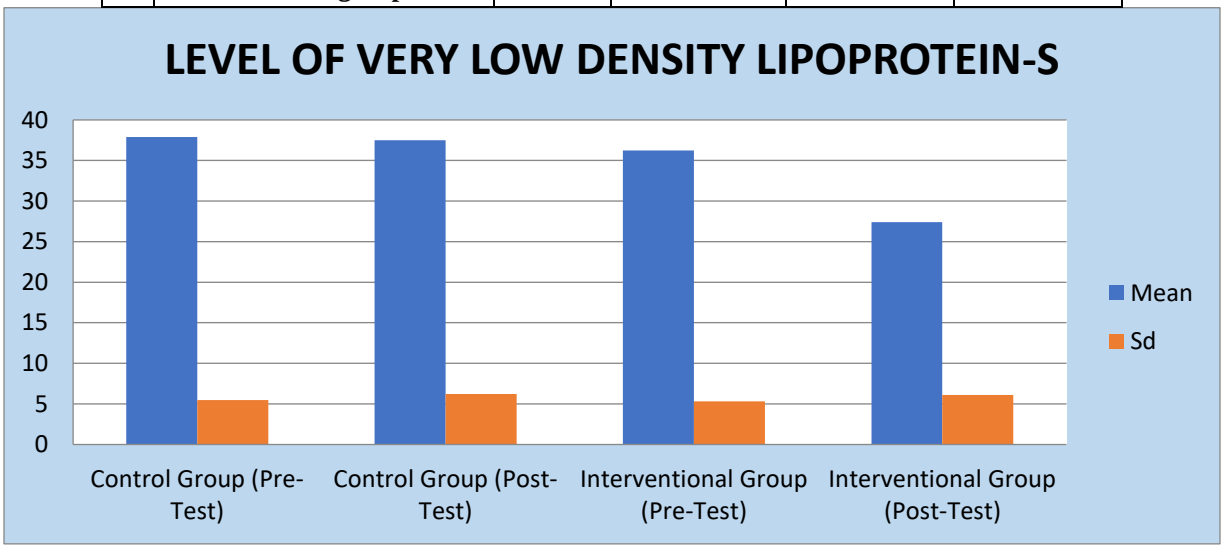

Figure 4: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of very low-density lipoprotein, where (c=30, I=30) and level of significance (≤0.005).

Table 5: comparative and monitoring the level of low-density lipoprotein-s of pre-test and post-test of control group and interventional group: A primary data source

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*109.791*	*10.51*	*108.991*	*11.05*
2.	**Interventional group**	*109.101*	*9.98*	*92.319*	*10.21*

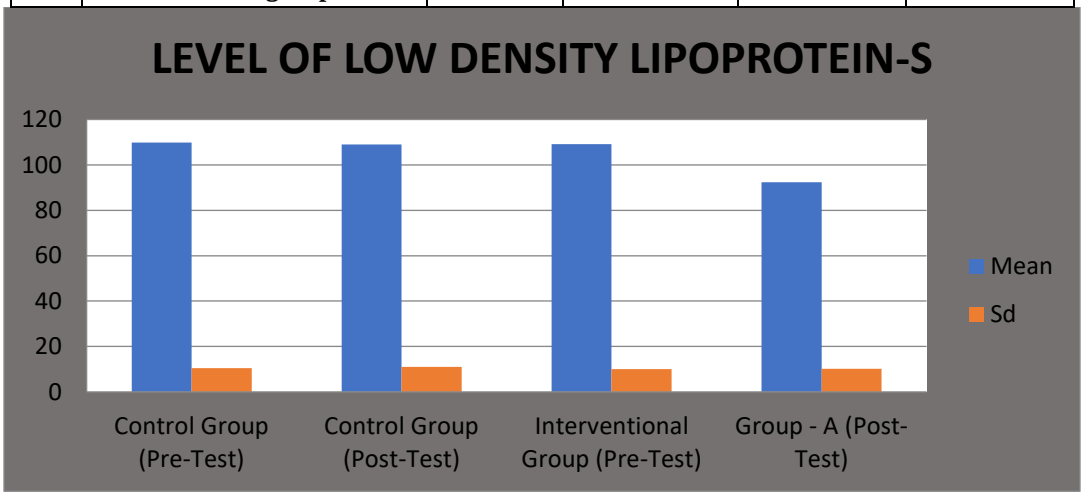

Figure 5: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of low-density lipoprotein, where (c=30, I=30) and level of significance (≤0.05).

Table 6: comparative and monitoring the level of low-density lipoprotein-s (LDL)/ high density lipoprotein-s (HDL) of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*2.514*	*0.44*	*2.519*	*0.71*
2.	**Interventional group**	*2.741*	*0.61*	*2.011*	*0.41*

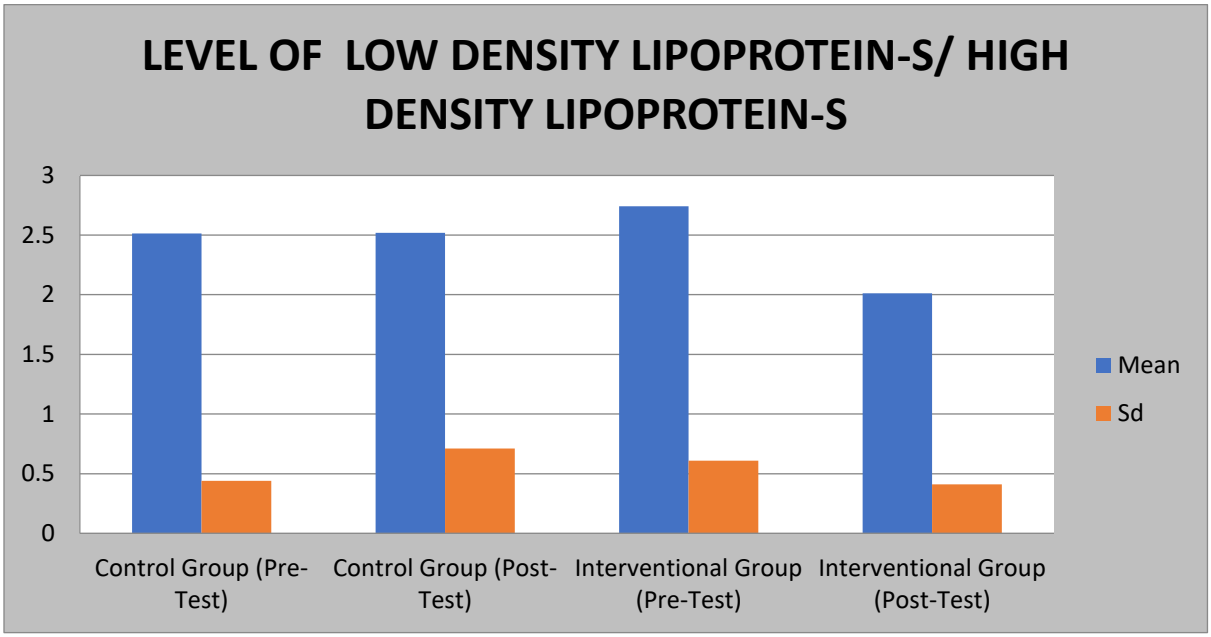

Figure 6: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of LDL/HDL, where (c=30, I=30) and level of significance (≤0.005).

Table 7: comparative and monitoring the level of total cholesterols/ high density lipoprotein of pre-test and post-test of control group and interventional group: A primary data source.

		Pre-test		Post-test	
		Mean	**Sd(σ)**	**Mean**	**Sd (σ)**
1.	**Control group**	*4.314*	*0.71*	*4.241*	*0.65*
2.	**Interventional group**	*4.601*	*0.74*	*4.101*	*0.61*

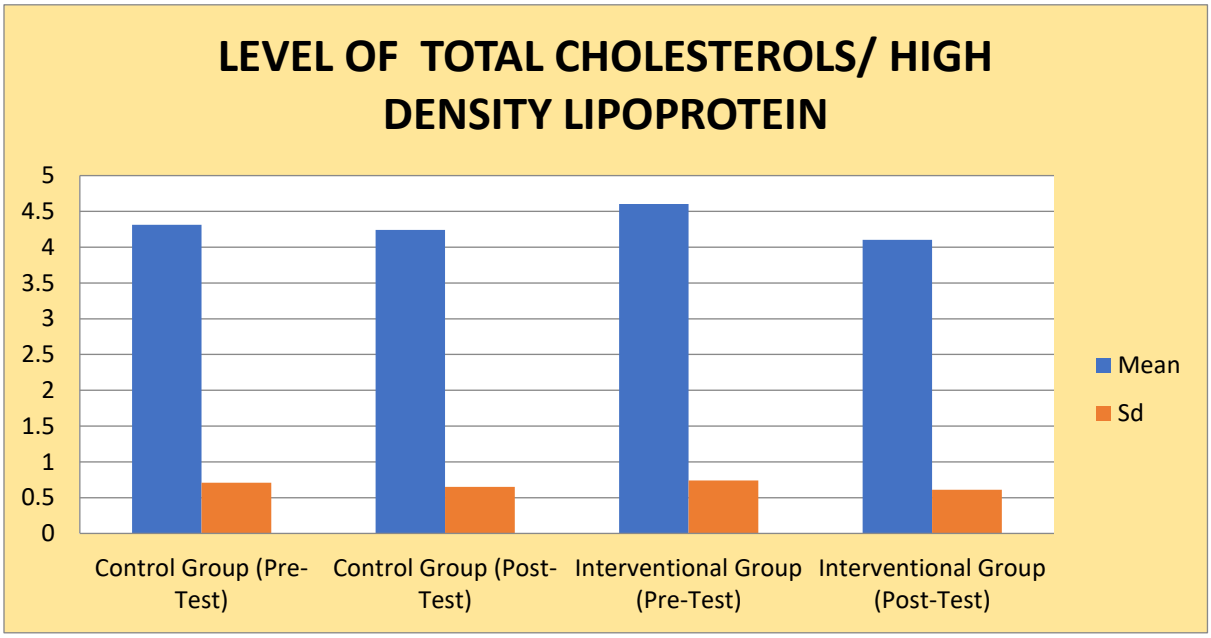

Figure 7: pre and post of analyses of both groups i.e., control group v/s interventional group to examine changes in level of total cholesterol/high density lipoprotein, where (c=30, I=30) and level of significance (≤0.05).