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Role of edible oils in the development and prevalence of cardiovascular disease & stroke in Bhopal (M. P.) India.

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Abstract - The Edible oils play an important role in the development of cardiovascular disorders & strokes various pathological, physiological persons after their metabolism changes seen in the use of various edible oils after their metabolism. Some edible oils produced the hyperlipidaemia or dyslipidaemia (bad edible oil) and some edible oils correct the ratio of good and bad lipids i.e. HDL & LDL ratio they known as good edible oils, Various socioeconomically condition also plays an important role in the development of cardiovascular disorders & stroke i.e. lower socioeconomically groups usually use polysaturated oils, hydrogenated oils and consumed trans fats abundantly which may result in to dyslipidaemia, hyperlipidaemia and finally cause the cardiovascular disorders & stoke and produce the various life threatening conditions. To ruledout this prevalence clinical research unit Bhopal was conducted a study in the urban as well as rural population of Bhopal.

Key Wards: cardiovascular disorders, stroke, edible oils, hyperlipidaemia, polyunsaturated fats, saturated fats.

Introduction- ischemic cardiovascular disorder is the major group of disorder that increase the mortality and disability in productive age group. Ischemic cardiovascular disorders are the Number 1 killer group of disease on global level.[1]

Present study was an observational study conducted by clinical research unit Bhopal. In urban as well as rural population, clinical research unit Bhopal worked under central council for research in Unani medicine. Which an autonomous body of Ministry of Ayush Government of India & its an apex body for research and development of Unani medicine in India. In present study we include the following major ischemic cardiovascular disorders & strokes and ruled out the prevalence with relation of edible oils consumption.

1- Hyperlipidaemia.
2- Ischemic heart disease.
3- Hypertension.
4- Strokes.

In the central India usually following edible oils used in daily life.

1- Soyabeen oils.
2- Sunflowers oils.
3- Palm oils.
4- Ground nut oils.
5- Sesame oils.
6- Other oils i.e. mustered oils.

According the WHO 31% of total death in the world is due to cardiovascular disorders [1] Social risk factor plays the important role in the development of cardiovascular disorders and death due to cardiovascular disorders. But following factors are plays the important role in the development of cardiovascular disorders and strokes.

1- **Age** - Aged person more than 50yrs age is more prone in compression of young adults.
2- **Weight**- overweight or obese are more prone than normal physique person.
3- **Socio economic status**- low socio-economic status than higher socioeconomic status.
4- **Diabetes mellitus** – diabetes causes the cardiovascular disorders development in many folds due to metabolic disturbances and its side effects.
5- **Hypertension**- hypertension is also an important factor in the development of cardiovascular disorders and stroke [5,6]

Introduction to edible fats and body fats-

Fat is important part of balance diet and maximum part of body fats comes through edible oils and, body fats play the important role in metabolic process and several defence process of body.

Various types of edible oils used in the M. P. or central India, according the requirement of health parameters the best edible oils are enriched with oryzanol, omega 3 fatty acids mono unsaturated fatty acid and poly unsaturated fatty acids [2,3,4]

Fats present usually in the various forms in body, but in the blood stream it presents the form of cholesterol, and cholesterol is essential part of normal metabolic function of body. It divided into two type High density lipoprotein (HDL) and low density lipoprotein (LDL)

HDL consider as good cholesterol and LDL consider bad cholesterol [1,3], LDL is responsible to deposition of fatty layers in vascular system or lumen of blood vessels and finally reach in to narrowing lumen of blood vessels and blockage blood vessels. [4,5] when it deposited in coronary arteries, it produce the coronary arterial disease(CAD) and result into ischaemic heart disease and myocardial infarction.[2,3,4] HDL is good cholesterol and its prevent the dangerous plaque formation[1,2,4,5]

Types of fats consumed as edible oils-

Following types of fats used in the forms of edible oils-

1- **Saturated fats**- saturated fats increase the thickness of edibles oils, and consumption of saturated fats increase the total cholesterol and low density lipoproteins (LDL) in the blood circulation and the contribute the development of cardiovascular disorders rich sources of saturated fats are ghee, butter, and vanaspati ghee (hydrogenated oils)[2,5,9]

2- **Poly unsaturated fats**- in this variety of edible oils when its consumed its reduced the body cholesterol level LDL& HDL (both reduced) [1,2,4]. Rich sources of pufa contained edible oils are sunflower oils, soyabeen oils etc.[1,2,5]

3- **Mono unsaturated fats** (MUFA)- Mufa enriched edibles oils are best variety of edible oils and best for body metabolism, when Mufa containing edible oils used its reduced the LDL & increase the HDL level [1,2] rich sources of Mufa fats are olive oil, mustered oil and ground nut oil.

4- **Trans fatty acid**- Trans fats produced in to the side effect of hydrogenation of animal fats eg. Margarine or vegetable fats. Trans fats is the worst variety of edible fats, when hydrogenation process is incomplete it produced the trans fats in this conditions carbon-carbon double bond is remains as transis or carbon-carbon double bond …hydrogenated and remain in item inform of trans fats [1,3,5]. Trans fats is responsible or caused the CVD and other metabolic disorder and various toxin related disorders ie. Alzheimer's disease, cancer, DM, obesity, CLD and infertility. [1,2,3,8]

Rich sources- processed and fried items ie. Bhujiyas, samosa, biscuits and confectionary items. Some studies suggest the transfats increased LDL& reduced the HDL and ultimately result into increases LHL; HDL ratio [1] study suggest the consumption of TFA also produced the other chronic illness ie. Non-alcoholic chronic liver disease, infertility and depression. [3,4,5,6]

Unani aspect of body fats, fat metabolism and related disorders- Ancient Unani scholar have the sufficient information about body fats and its metabolism and metabolic disorder, ancient Unani scholars mentioned the body fats into two types (1) Sheham (liquid body fat) (2) Sameen (solid body fats). They also mention the various types body fats according their function and situations in the body like. Sheham Sifaq (peritoneal fat), Sheham e Mufasil or synovial fluid [10,11,12]. They also mentioned the Aish wa Ishrat ki Zindagi (sedentary life and good fatty diet) result into accumulation of fats in the blood vessels and result into the narrowing of blood vessels, and result into reduced the blood circulation. Which may leads to reduction in the oxygen supply to cardiac muscles and result Aflas ul Qalb(Myocardial infarction). They also mentioned the Farbahi (obesity) and Uqr (infertility), Ziabetus Shakri (DM2) due to abnormal fat metabolism and Saman e Mufrat also. Unani scholar describes the Saman e Mufrat various cardiovascular and cerebrovascular disorders (CVA) in their own term ie. Tasallub e Shiraeen (arteriosclerosis), narrowing of blood vessels (atherosclerosis) due to accumulation of fats in blood vessels walls [12,13,14], Unani scholars also describe the role of temperament in the development of disorder due to fat metabolism. Modern Unani scholars describe the term Farte Tadassum fil dam or hyperlipidaemia

in their text [12,14,15], Unani scholar also mentioned the Sue Mizaj in the development of Farte Tadassum fil dam [14,15].

Objective of the study- Present study was performed to establishment of relation between the consumption of various edible oils between the prevalence of specific cardiovascular and strokes disorders in Bhopal M. P. India.

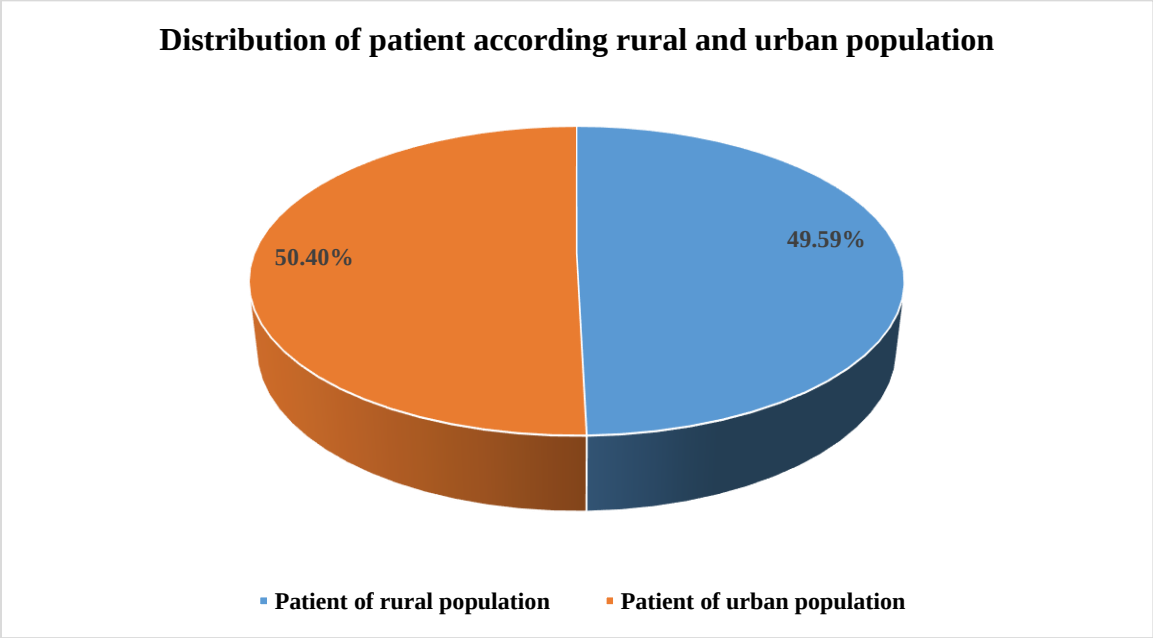
Methodology- Present study an observational study and carried out by clinical research unit Bhopal, which is situated at the heart of India ie. Bhopal M.P. India. Clinical research unit Bhopal working under the central council for research in Unani medicine. Which is an apex & autonomous body of ministry of Ayush Government of India for research and development in Unani medical field.

Total 2117 patient enrolled in this study in which the 1050 patient was observed from general OPD ginnori (urban population) and 1067 patient were observed from mobile OPD (from rural area population)

Observation and result- following observation found and calculated from this study.

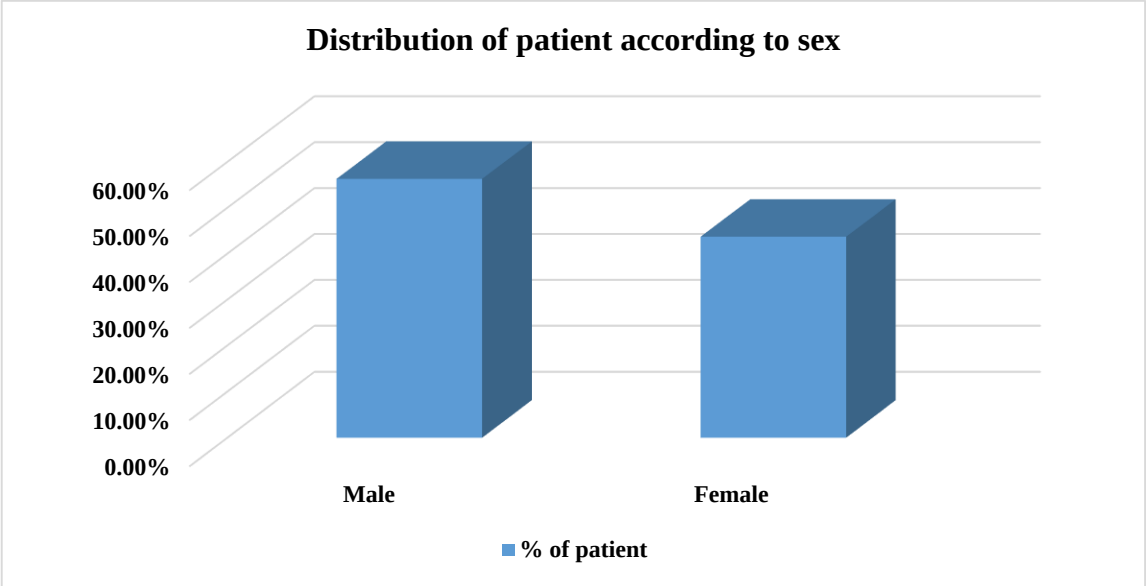
1- **Distribution of patient according rural and urban population**.

S N	According to population	No of patient	% of population
1	Patient of rural population	1050	49.59%
2	Patient of urban population	1067	50.40%



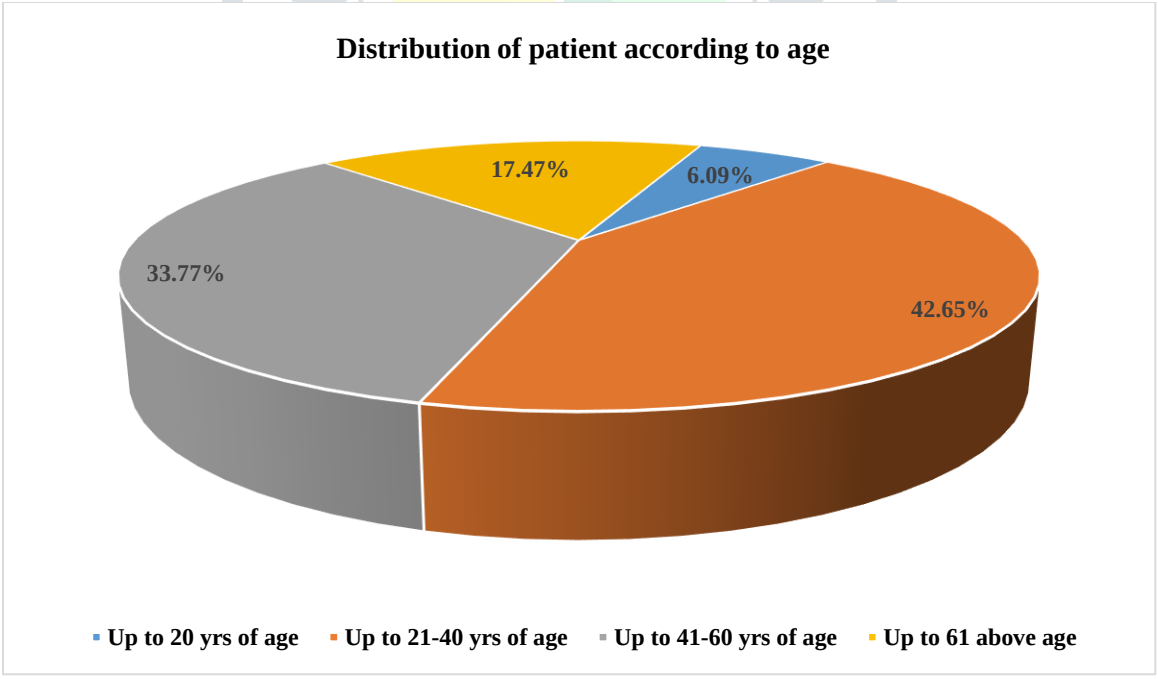
2- **Distribution of patient according to sex**.

S.N.	According to Sex	No of patient	% of patient
1	Male	1192	56.30%
2	Female	925	43.69%



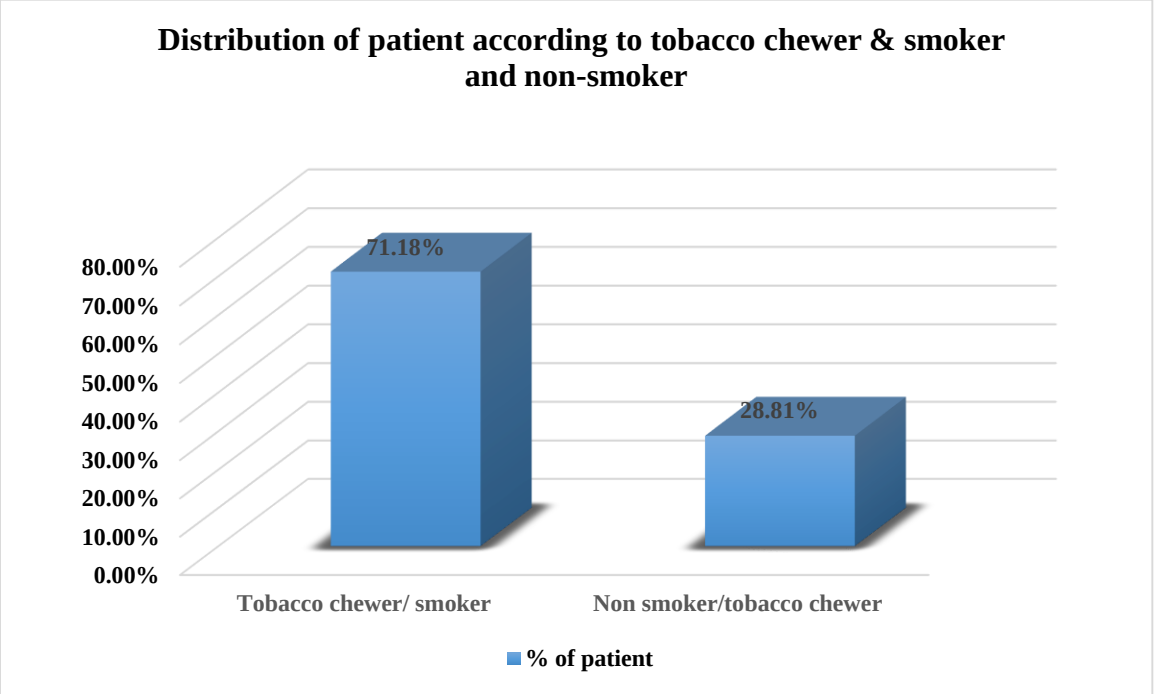
3- **Distribution of patient according to age.**

S N	According to age group	No of patient	% of age
1	Up to 20 yrs of age	129	6.093%
2	Up to 21-40 yrs of age	903	42.65%
3	Up to 41-60 yrs of age	715	33.77%
4	Up to 61 above age	370	17.47%



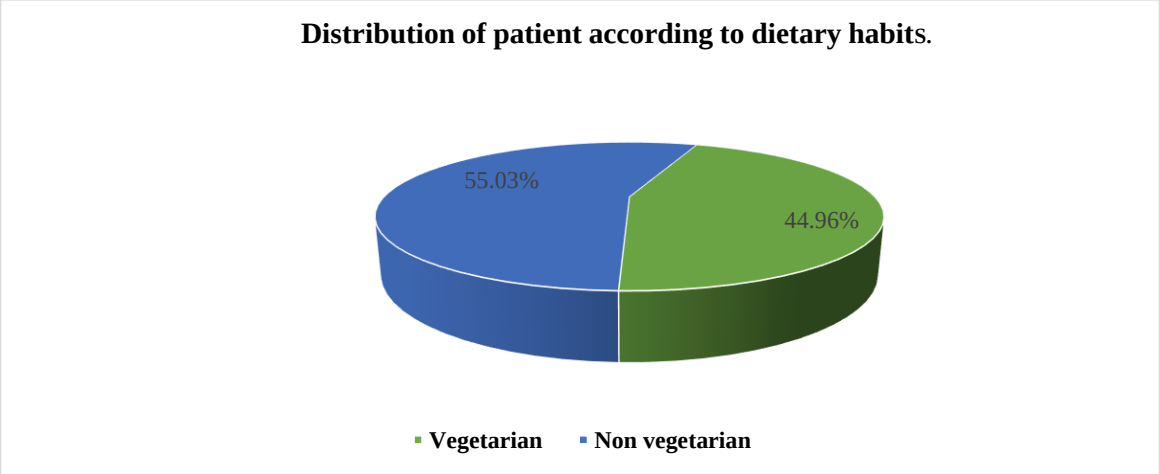
4- Distribution of patient according to tobacco chewer & smoker and non-smoker

S N	According to habits	No of patient	% of patient
1	Tobacco chewer/ smoker	1507	71.18%
2	Non-smoker/tobacco chewer	610	28.81%



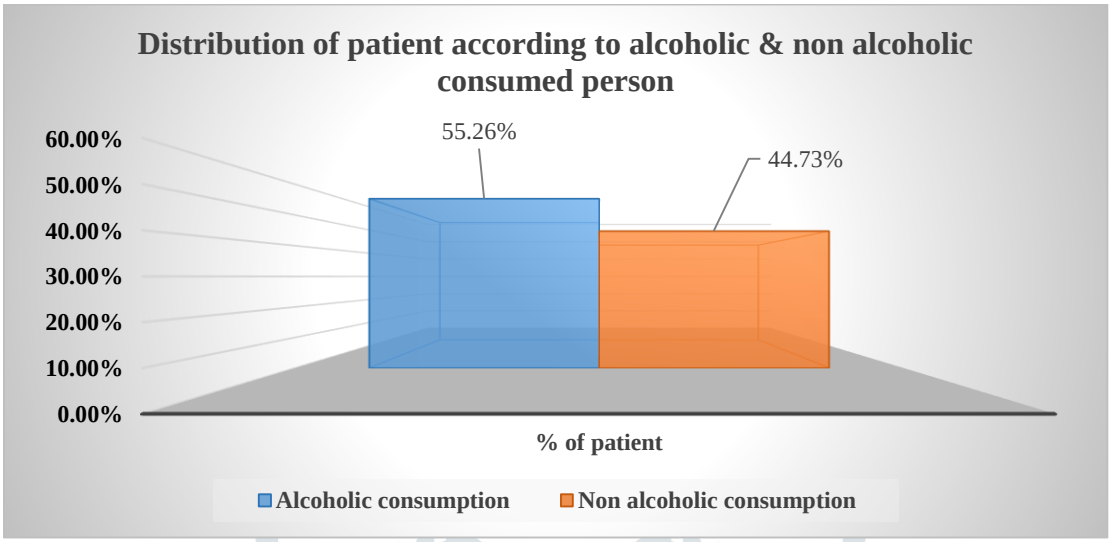
5- Distribution of patient according to dietary habits.

S N	According to dietary habits	No of patient	% of patient
1	Vegetarian	952	44.96%
2	Non vegetarian	1165	55.03%



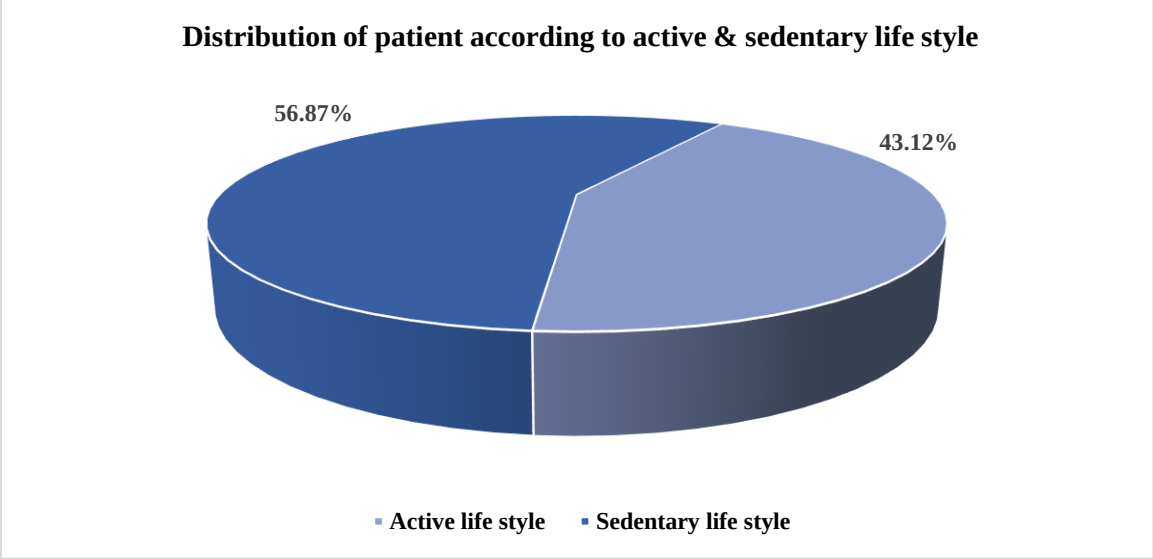
5- **Distribution of patient according to alcoholic & non-alcoholic consumption**.

S N	According to consumption	No of patient	% of patient
1	Alcoholic consumption	1170	55.26%
2	Non-alcoholic consumption	947	44.73%



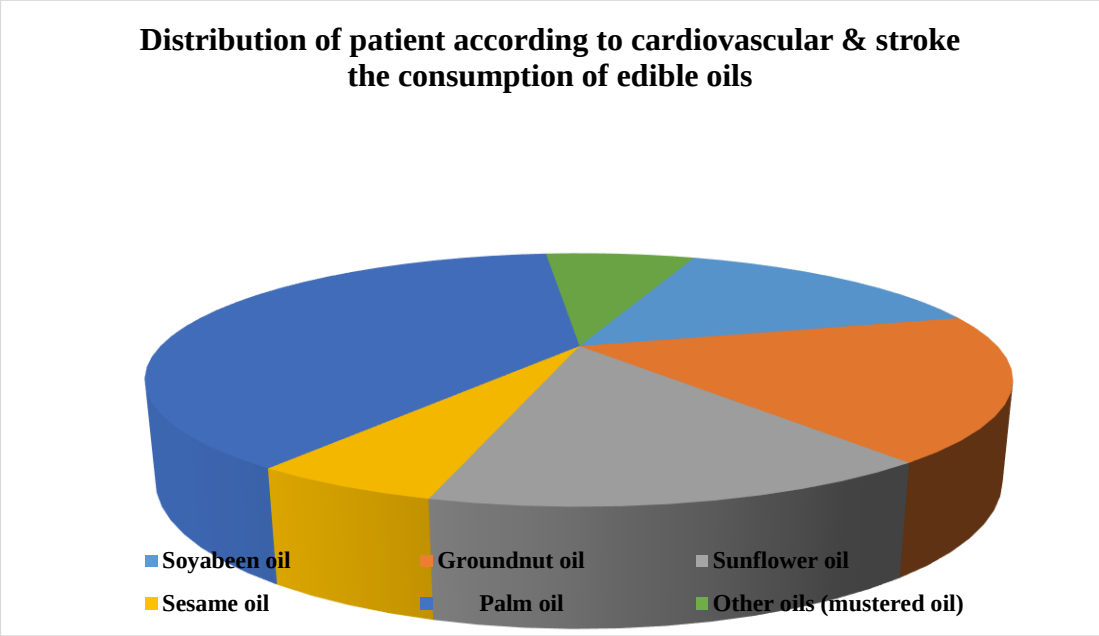
6- **Distribution of patient according to active & sedentary life style.**

S N	Type of life style	No of patient	% of patient
1	Active life style	913	43.12%
2	Sedentary life style	1204	56.87%



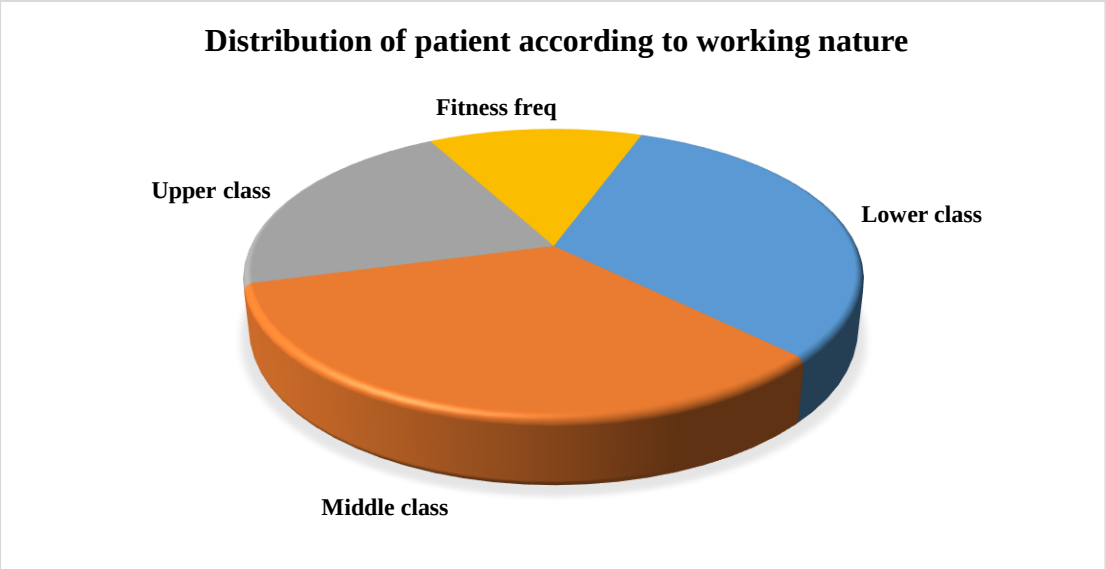
7- Distribution of patient according to cardiovascular & stroke disorders the consumption of edible oils.

S N	Types of edible oil	No of patient	% of patient
1	Soyabeen oil	325	15.35%
2	Groundnut oil	390	18.42%
3	Sunflower oil	317	14.97%
4	Sesame oil	118	5.57%
5	Palm oil	815	38.49%
6	Other oils (mustered oil)	152	7.18%



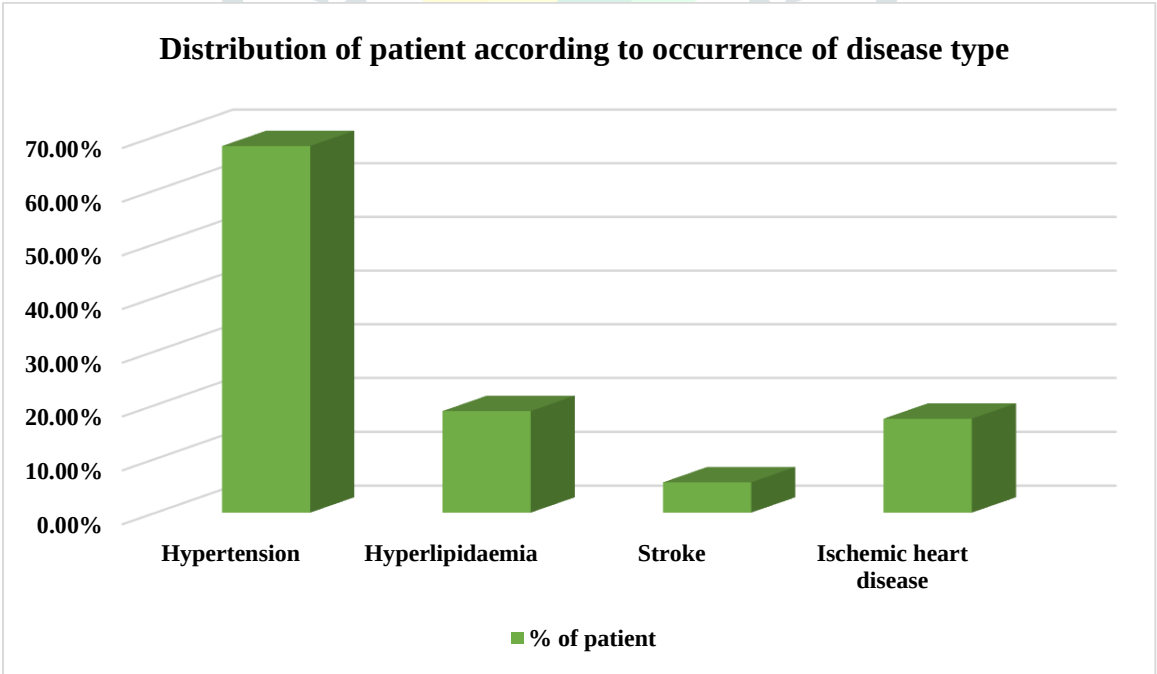
8- **Distribution of patient according to working nature**.

S N	According to working class	No of patient	% of patient
1	Lower class	673	31.79%
2	Middle class	709	33.49%
3	Upper class	450	21.25%
4	Fitness freq	285	13.46%



9- Distribution of patient according to occurrence of disease type.

S N	According to occurrence of disease type	No of patient	% of patient
1	Hypertension	1444	68.209%
2	Hyperlipidaemia	399	18.84%
3	Stroke	119	5.62%
4	Ischemic heart disease	390	17.42%



Discussion & conclusion- in present study suggest the role of edible oils in the development of cardiovascular and stroke disorders in the region of Bhopal M. P. India as follows.

In the comparison of **rural & urban** population 49.59% rural population and 50.40% urban population affected the disease, and according the age 21-40yrs **age** is more prone to develops above specific

disorders. And 41-60yrs group is on 2nd position, and also many conditions are the affection is youngster (6.093%).

Sex- males are more prone 56.306% and female are 43.69% are affected on the habit of tobacco chewing & smokers 71.185% patients are smokers/tobacco chewers. On the base of dietary habits non veg 55.03% are non-veg in 44.6% are vegetarians

Alcoholism- alcoholism consumption region more affected 55.266% population is having the alcoholism habits and rest 44.73% are not having the alcoholism habits.

Life style- sedentary life style is more prone 1204 (56.87%) are sedentary life style person and 913 (41.12%) are the person suffering with the active life style.

Edible oil- palm oil worst oil in the development of CVS, CNS disorders 38.49%, then ground nut oil 18.42% rather sunflowers oil 14.97% and in the last sesame oil and 7.18% for other and mustered oil in consumption of edible oils are 20%.

Social middle class is most affected 709 patient registered (33.49%) than lower class more affected 673 patient registered in the class (31.79%), than upper class 450 patient registered from this class (21.25%) and last is fitness frock 285 patient registered in this class (13.46%). That is due to lower class used the cheap edible oils i.e. palm oils in home and used fast foods made from palm oil, middle class also used palm oil, soyabeen oils and mustered oil with low quality methods of food processing.

Upper class is 450 patients (21.25%) due to quality care and low intake of oils and active life style. Fitness frock 285 patients registered (13.46%) it indicates no class is saved & only physical exercise not prevent the diseases.

Disease's type- hypertension 1444 (68.20%), hyperlipidaemia 399 (18.84%), stroke 119 (5.62%) and ischemic heart disease 390 (18.42%) are percent wise disease class but total no of total patient 2352, disease & total patient registered 2117 patient. This indicate over laping the disease and on patient having the more than one ailment.

Future scope of study- this study continues for more than two years to ruled out the disease and edible oils consumption reduces to minimum amount assumed.

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