God, in his infinite created man as the highest form of creation and provided us with everything we need for our sustenance and well being. The entire universe, all the physical laws of cosmos, the splendid earth and nature were created for the benefit of man. Hence it is the duty of man to safeguard the health of all human beings and make them strong by providing good food, disease free environment and peaceful life.

Human lifespan undergoes a series of developmental periods and changes right from conception to death. Each period has its own characteristic strategies that show a rational impact on physiological, psychological, mental, emotional and nutritional status of an individual irrespective of age and gender.

“A healthy mind resides in a healthy Body.” If our mind is disease free then our body too will remain safe from diseases, because most of the ailments are born due to the metabolic changes and hormonal imbalances which are directly related to the mental health and brain impulses of a person. Dr. Anand Kale (2005)

Health is a fundamental human right and integral part of development. But unfortunately it continues to be an neglected entity. Traditionally, the word “health” has been defined as “mere absence of disease” or “the ability to function effectively within ones environment.”
By clarifying the concepts of health in some cultures “health and harmony are considered equivalent, which provides peace to self and community.” The ancient Indians and Greeks shared this concept and attributed “Disease” to disturbances in bodily equilibrium of what they called “Humors” which were based on supernatural theories.

Webster, (2000) defines disease as “a condition in which body health is impaired or an alteration of the human body interrupting the performance of vital functions.” Thus disease is just opposite of health, which causes physiological or psychological dysfunction.

In today’s fast moving and busy world, health is taken for granted and its value is realized when the person looses it or suffers from any disease.

As a matter of fact, it is need of the hour to understand the health problems that are creating negative impact on our general wellbeing. It’s also necessary to introspect our lifestyle which allowed certain diseases to creep in our lives by making us unwell and addicted to medicines.

The present research is based on to study the prevalence of diseases like coronary heart disease, hypertension, anaemia, diabetes, obesity, arthritis, osteoporosis, breast cancer etc., whether found among middle age women along with menopausal complications experienced by women of same group. The manifestation and epidemiologies were collected through survey and was studied to rule out the ailments and sort out solutions to safeguard the health condition and ease the menopausal symptoms. Though menopause being a natural phenomenon in every woman’s life very little studies are highlighted till date. Considering the gravity of the problem and to make the present woman aware about menopause phase a pilot study followed by a detailed study was conducted based on the objectives set by the researcher:
Objectives of the Study:

a) To know and study menopausal disorders among Urban and Rural Women.

b) To study the awareness about menopause syndromes amongst middle age women.

c) To study the prevalence of diseases commonly found in middle age women.

d) Assessment of nutritional status of the women in menopause period.

e) To study the impact of Health Education and improvement in the daily routine of the subjects with regard to health and lifestyle changes.

Middle age period being a climacteric, dangerous and awkward phase of life is prone to diseases and health hazards. The person of this age is “cloaked in a conspiracy of silence” as narrated by E. Hurlock (1982). Especially middle age women between the age group 40-55 years undergo menopausal complications and also suffer from diseases like diabetes, hypertension, arthritis, osteoporosis, anaemia, coronary heart diseases, asthma, breast cancer or cervical malignancy, obesity, renal impairment etc. as well. In the Encyclopedia of science and human development Sybil. D. Parker and James Trefil (2001) recite that the “Menopause may occur at any time from the age of 40 onwards, rarely before it and normally around or after 45 of years.”

1.1. Menopause: It is the medical term for the end of a woman’s menstrual periods. It is a natural part of aging, and occurs when
the ovaries stop making hormones called estrogens. It usually happens between the ages of 45 and 55 but can also happen earlier. Menopause can also occur when the ovaries are surgically removed (Ovariectomy) or the woman undergoes a hysterectomy (removal of uterus).

The causative factors, which bring changes in middle age women are the hormonal imbalances, which occur as a natural phenomenon, the process of decline though, is very slow but the low estrogen levels affect the overall health of a woman in a drastic manner.

Estrogen known as “Female hormones” it play a key role in shaping the female body and controlling its functions. But due to commencement of menopause during middle age period the body suffers from scarcity of estrogen hormones which otherwise keeps the woman fit and normal i.e. by stimulating skeletal growth, maintaining healthy bones, protecting heart and maintaining cholesterol levels. Estrogen decline also affects woman’s sex drive, skin tone, hair texture and make her suffer from hot flashes, irregular periods, urinary incontinence, urinary tract infection, bone structure, mood swings, depression, insomnia and general physiological and psychological health.

To overcome all the said complications biomedical experts suggests for Hormone Replacement Therapy (HRT) or Estrogen Replacement Therapy (ERT), which can shows marked success and relief from menopausal and post menopausal symptoms with no or little side effects.
Basically, menopause is divided into 3-phases i.e. Peri-menopause, Menopause and Post menopause. Peri-Menopause is the initial symptom and turning point in a woman’s life. It takes around 3-4 years or more with peri-menopause or climacteric period when the body starts running out of eggs, ovulation becomes sporadic, hormone levels fluctuate and the cycles become unpredictable.

Apart from bringing a halt in the menstrual cycle in menopause it leads to other changes like sleeplessness, irritability, fatigue, anxiety, dry vagina, cystitis, joint pain, palpitations, muscle cramps, indigestion and memory lapses as narrated by Dr. Manju Purohit (1999).

A woman is medically declared in her menopausal phase, when her periods get missed for over a year or so, further her body may undergo symptoms which are prominent in post menopause phase i.e. hot flashes, vasomotor instability, fatigue, nervousness, mental disturbances, palpitations, insomnia, vertigo, headache, numbness, frequent urination, osteoporosis and atherosclerosis (Menopause –2003). Most postmenopausal women opt for HRT to ensure a healthier, more energetic lifestyle and better sleep. But regular monitoring of mammograms, endometrical biopsies vaginal ultrasound are entailed to check related carcinoma and periodic checkups of cholesterol, lipids, sugar and hypertension should be followed. It seems middle age ascertains to be most vulnerable period for various diseases which may be either due to hormonal imbalance, age factor or environmental factors which need a cross analysis and detailed study based on etiology and
epidemiological data of past and present to safeguard the future of generation from ailments and some other degenerative disorders.

1.2. **Hypertension (Blood Pressure):** Hypertension is a disease of the modern society. It strikes an individual without giving any indication, hence, it is termed as a silent killers. (Naturopathy – H.K. Bhakru – 1998).

In about 95% cases specific cause of raised blood pressure is unknown. Such patients are said to have essential hypertension. However, known factors are genetic or familial, socio economic or dietary, endocrine disorders or neurotransmitters, drug or pregnancy, renal diseases or deficit under lying in peripheral or vascular smooth muscles.

The main symptoms of high blood pressure are – obesity, heaviness in head, breathlessness, tiredness, insomnia, palpitation, redness of face and ears.

The normal pressures when measured should be below 85 mm/hg as diastolic and below 130 mm/hg as systolic (80/120). But patients with consistent and raised pressures of 90/140 or above need clinical checkups and treatment. Otherwise it may turn fatal if not treated. (B. Srilakshmi Dietitics, 1998).

Hypertension is defined as the pressure of blood arbitrarily at levels above generally accepted normal range of diastolic and systolic.

Blood pressures more than 140/90 at 20 age or 160/95 at 50 may cause headache or polyuria but some patients remain asymptomatic for it will the conditions turn fatal.
The pathogens of hypertension is not understood therefore overall checkups are followed with restricted diets and anti hypertensive drug therapy. Hypertension is synonymous with high blood pressure. Blood pressure is a measure of the force of blood against the walls of the arteries, which are the conduits that carry blood from the heart to other parts of the body.

In some people, the blood cannot flow easily through these arteries. For example, if the arteries are narrowed for some reason, the pressure will go up to keep the blood flowing. This is high blood pressure or hypertension.

Hypertension is a very common condition and can be kept under tight control; however, if left untreated, it can become serious. Especially, it becomes worst together with cigarette smoking, high cholesterol and diabetes mellitus, it constitutes the so-called cardiovascular risk profile as well.

When high blood pressure is not found and left untreated, it can cause:

- The heart to get larger, which may lead to heart failure.
- Small bulges (aneurysms) to form in blood vessels. Common locations are the main artery from the heart (aorta), arteries in the brain, legs, and intestines, and the artery leading to the spleen.
- Blood vessels in the kidney to narrow, which may cause kidney failure.
- May lead to stroke, paralysis or brain hemorrhage.
1.3. **Diabetes Mellitus:** Diabetes Mellitus is a nutritional disorder, characterized by an abnormally elevated levels of blood glucose, absolute or relative lack of insulin which leads to abnormalities in carbohydrate or glucose metabolism as well as in protein and fat respectively.

Diabetes mellitus is a clinical syndrome characterized by changes in body metabolism and glucose levels due to absolute or relative deficiency of insulin. In other words, it is a chronic metabolic disorder that prevents body to utilize glucose completely or partially (Sri Lakshmi – 1997).

Diabetes is a disorder of metabolism. Most of the food which is digested gets broken down into glucose (Sugar), which is main source of fuel for the body. Insulin hormone produced in pancreas helps the glucose to get absorb in the bloodstream for growth and energy. But when the secretion of insulin is not proportionate to quantity of glucose the person undergoes through hypoglycemia or hyperglycemia the condition better known as diabetes mellitus. It is a life long chronic disease in which glucose builds up in the blood or overflows into the urine making the body weak and short of energy though the blood may contain large amounts of sugar.

Basically diabetes occurs in three types as ascertained in About.com (2008) – type I, type – II and gestational diabetes. III Gestational Diabetes develops in late pregnancy but disappears after child birth but reappears again after 10 years about or so. About 3 - 8 % women suffer from G. Dia. NIDDK (2008).

**Type-I:** Diabetes is an autoimmune disease, which results when the immune system itself attacks or destroys the insulin
producing betacells in the pancreas, thus no or little insulin flow into the blood stream causes diabetic keto acidosis if left untreated therefore regular doses of insulin should be administered with prior tests and counseling conducted with an expert diabetologist. (Only 5-10% patients are found affected by it). Also known as Insulin dependant diabetes mellitus (IDDM).

**Type-II:** Diabetes found to be most commonly affected disease among middle age and elderly patients. It is also associated with obesity, family history and physical activity. The pancreas usually produces enough insulin, but when the body develops insulin resistance results in diabetic – 2, which has similar symptoms as type 1. Such as frequent urination, thirst, extra hunger, weight loss, blurred vision, fatigue and slow healing. It is termed as “Non-Insulin Dependant Diabetes Mellitus [NIDDM]. Nearly 80% of people suffer from type II diabetes which can be controlled by medication, exercise and diet modification.

Although the precise aetiology is still uncertain in both main types of primary diabetes [IDDM & NIDDM] and secondary diabetes results due to hormonal imbalance or some genetic associations.

Further more, diabetic conditions are referred as hyper glycemic or hypoglycemia when the sugar levels extends from normal range i.e. 70-140 mg% or 180 mg% the condition referred is called Hyperglycemia and when the body’s glucose is abnormally lower than the normal range i.e. below 60 mg% it is referred as hypoglycemia.
Epidemiological study has shown that diabetes is worldwide in distribution with prevalence of both types which vary considerably in different parts of the world and environments. Debra (2008) in her website states that the prominent symptoms of diabetes are weakness, tingling and numbness of hands and feet, (better known as neuropathy) impaired vision, hunger and poor formation of insulin.

1.4. **Coronary Heart Disease:** Cardiovascular diseases are characterized by a thickening of the arterial walls and their loss of elasticity – (Srilakshimi – 1993).

The symptoms of CHD are dyspnea, weakness and pain in the chest, retention of fluids in the extremities, increased LDL or elevated Blood pressure levels which further may lead to heart failure in severe conditions and it is accompanied with clinical causes and manifestation like – pulmonary infections, anemia, systemic hypertension, myocardial infarction, inactive life, dyspnea, fatigue, stress, inactive body, weakness etc – Harrison, Fauci-[1998].

Aetiologically evidences show that cardiac problems are due to abnormal food habits, addiction to alcohol, coffee, tobacco, consumption smoking, heredity, stress, obesity, sedentary lifestyle, diabetes and renal complications (Srilaxsimi-1998). Heart disease comprises a variety of disorders and conditions that can affect the heart. The most common type of heart diseases is coronary heart disease (CHD) also called coronary artery disease (CAD). The word coronary means crown, and it is the name given to the arteries that circle the heart like J-crown, and supply the
heart muscles with oxygen and nutrients (as depicted from website.healthcenters.com.2005).

The term heart attack covers a group of clinical syndrome arising particularly due to Angina pectoris, coronary thrombosis, ischaemic heart disease, myocardial infarction and atherosclerosis which leads to failure of the coronary arteries to supply blood to the heart mainly caused by fat deposition and plaque formation which leads to narrowing or blockage of arteries.

The study of Gupta R. & Wakil R.J. reported that there are increased incidences of heart disease in India and Western countries in the age group of 40-60 years.

The epidemiological study shows that heart failure (2005) occurs when a weakened heart cannot pump efficiently, fluids accumulate in the ankles, legs, lungs and other tissues. The combination of clogged blood vessels and high blood pressure often causes heart failure.

According to AHA (2005), Heart and blood vessel disease remain leading causes of death in North America despite dramatic reductions in their incidence since the 1960’s. Roughly one in five North Americans will suffer a heart attack and a million die every year as a result of a stroke or heart attack. In addition to the risk for premature death, cardiovascular disease represents a heavy financial burden to the health care system.

There have been numerous population studies since the early 1950’s that have confirmed beyond any doubt that diet is a major
force in both the cause and prevention of heart disease. One of the most extensive research projects is the Framingham Heart Study, which has followed more than 5,000 men and women in this Boston, Massachusetts, suburb for more than 40 years. Another large scale study, the “Seven Countries Study” compared the incidence of heart disease among men in seven countries and then correlated these statistics with diet, smoking habits, physical activity, and other lifestyle factors.

A survey carried out (2004) revealed that one in ten women aged 45-64 has some form of heart disease. The rate increases one in five for women of 65 years age and above.

More than 12 million Americans suffer from CHD, it is the number one killer of adult Americans, who also suffer from high blood pressure.

**1.4.1 Dyslipidemia:** Also known as hyperlipidemia, hypercholesterolemia, hyperlipoproteinemia. Hyperlipidemia consists of increased levels of cholesterol or triglycerides (TG) the major lipid components in the circulation. The plasma lipoprotein system provides a vehicle for transporting lipids in blood. Defects in lipid metabolism and absorption may result in elevated blood cholesterol which when crosses the limit set pathologically, it may increase morbidity and mortality from atherosclerosis, coronary heart diseases, brain attack and hypertension.

As according to Castelli and etal (1996) cholesterol is an essential metabolite in animal cells, the body needs it for digesting dietary fats, making hormones, building cell walls and other process.
Basically cholesterol is sub divided into 4-5 classes but the sum of cholesterol which contributes to equal the total plasma level of blood are VLDL (very low density lipoprotein) HDL (high density lipoprotein) LDL (low density lipoprotein)

According to NCEP (2008) the standards set for TCL (Total cholesterol level) should be < than 200 as if it increases more than 240 mg, it may lead to heart attack or stroke (bad cholesterol). So also the levels of LDL should be less than 100mg to avoid health risk, whereas HDL is considered as good cholesterol which should be above 60 mg to safeguard the heart and other functioning.

Latest news flashed on family doctor.com(2008) highlights on regular checkups of cholesterol after the age of 40 and if cholesterols go high it can be controlled by some lifestyle changes i.e. to stop smoking, control weight, do regular exercise, consume plenty of fruits, vegetables, whole grains, fish, unsaturated fats (PUFA & MUFA) and avoid trans fat overeating or else the patient must be subjected to cholesterol lowering medications.

1.5. **Arthritis:** Arthritis is a disease that involves inflammation of one or more joints. It can develop as a result of an infection and affects feet, knees, hip bone and fingers. Research shows that about 16 million Americans who are around 45 of age suffer from Arthritis. A study of M. Rahina (1991) proves that Arthritis is a chronic progressive disorder where the weight bearing joints are degenerated.
Arthritis is a condition which affects a large number of people each and every year. The term arthritis means “inflammation of a joint.” The most common form of arthritis that occurs in older adults is osteoarthritis, which is also known as the “degenerative joint disease,” as narrated by Dr. Rajesh J. Parikh. (My Doctor, May 2001).

Normally a person suffering from arthritis or osteoarthritis has problems related to joints and hip pain, neck pain, elbow pain, knee pain, foot or ankle pain, low back pain and spondylosis (Principles of medicines-1996).

Aetiological factors depend upon the type of pain, age, food habits and environmental factors. The common types of transient acute pain and stiffness are not associated with definable etiology or spinal pathology. Other known causes may be mechanical, inflammatory, metabolic, neoplastic, developmental, neuropathic or interdependent – E.R. Chilvers (1996).

Radiological survey shows a steady rise in degenerative changes in joints from the age 30 onwards. Acute neck pain and stiffness occur in 40-50% of all adults ranging over the age of 45 years. Rheumatoid arthritis can be established in patients with clinical features of inflammatory arthritis of 6-weeks duration and records show no age is exempted for its onset and prevalence world-wide.

1.6. **Obesity:** Obesity is a health hazard and is determined factor to one’s well-being. Obesity leads to breathlessness on moderate exertion, and the afflicted person is prone to diseases such as – angina pectoris, coronary thrombosis, hypertension, stroke,
diabetes, gall bladder disease, abdominal hernia and osteoarthritis of the weight bearing joints. Dietary restriction and increased physical activity both can contribute to reduce weight and further disease control as well. Pooja Talikoti (1998) evaluates that irrespective of gender middle age period is prone to many health complications and disorders. The most common and dreaded suffering is obesity problem faced by many people worldwide.

Obesity may be described as a bodily condition characterized by excessive deposition or storage of fat in adipose tissue. Dr. Bakhru (2004) reported that obesity is common among people in western countries and among the middle and higher groups in India and other developing countries.

Dr. J.C. Thampi (2003) declares that obesity may influence the whole life and may lead to other diseases.

A study carried out by Betler (1977) shows that excessive accumulation of fat is associated with an increased risk for diabetes, hypertension, cardiovascular and musculoskeletal problems.

A survey of Micronesian Islanders indicates that 93% of females are overweight and 62% of Hawaiians women are obese due to wrong food habits and endocrinal disturbances in middle age.

The epidemiological estimate shows that obesity has reached epidemic proportions in some populations. The cited statistics on weight are those from NHANES III based on random sample of the US population between 1988-1991 reveals that 35-49% females of all age group were overweight or obese.
The etiological factors of obesity are inheritance, over eating, hormonal influences, post-menopausal period or surgical removal of gonads or uterus and family planning methods among women.

Diet control and active physical exercises are the permanent management on obesity and other conditions like diabetes, hypertension, etc (2003) Nisargopchar.

1.6.1. **Body Mass Index** – BMI and Waist Circumference, which relates to the weight and height of a person and is used to define obesity level. Whereas waist circumference is the calculation of actual waist fat within the range. Both are the measure which provides estimates of overweight/underweight, Normal Weight, Obesity and body fat distribution. With the help of the universal formulae used Body Mass Index is measured BMI = \( \frac{h}{w^2} \) (Appendix – 3).

Waist circumference also can be measured by simple tape measure around the bare abdomen placing it just below the rib bone and above the navel line. If the waist measurement falls more than 35” inches in a woman she may be prone to diseases with to higher risks as compare the woman with to smaller waist measurement.

The estimates of BMI calculations show some standard ranges to be followed – i.e.

- A person with a BMI of 18.5 to 24.9 is considered healthy or normal.
- A person with a BMI of 25 to 29.9 is considered overweight.
- A person with a BMI of 30 or more obese.

Extra weight and obesity can put the person at health risk by making her suffer from:

- type 2 diabetes,
- high blood pressure,
- heart disease and stroke,
- other cancer,
- osteoarthritis,
- gall bladder disease,
- liver disease,
- irregular menses


1.7. Osteoporosis: Osteoporosis is the bone disease resulting in reduction in the mass of the bone which make them susceptible to fractures (Bulletin: 2005).

According to Mercy Paul (2002) Osteoporosis is characterized by low bone mineral density (BMD) and micro architectural deterioration of bone tissue leading, to bone fragility and susceptibility to fractures. Also postmenopausal osteoporosis is very common problem leading to increased risk of fractures.

Osteoporosis is defined as a breakdown in the constant remodeling of the skeleton. It is also called as the silent epidemic because post-menopausal bone loss has hardly any symptom and becomes clinically apparent only when a fracture has occurred, by which time the disease has progressed considerably as revealed by Madhuri A. Patel, S.S. Khadilkar (2004).

The recommended calcium intake according to ICMR is 1000-1500 mg/day along with Vitamin-D of 400-800 mg/day to avoid osteoporosis complications. Research stresses on ERT and HRT for treating osteoporosis and osteopenia, which is known to be the initial stage of osteoporosis.

1.8. **Anaemia:** A condition in which a deficiency in the size or number of erythrocytes (red blood cells) or the amount of haemoglobin is reduced leading to disease condition commonly known as anaemia. A person may suffer from varied type of anaemia. Like Normocytic anaemia (aplastic anaemia) caused due to (pernicious anaemia) reduction in bone marrow functioning, megaloblastic anaemia caused due to B₁₂ or folic acid deficiency, Microcytic anaemia (hypochromic) due to iron protein, or vitamin deficiency (vitamin A & E) in specific which leads hemoglobin impairment and malformations; sickle cell anaemia occurring due to hemoglobin variant in which the red blood cells gets elongated or rickled causing cell rapture or obstruction in blood capillaries. This type of anaemia leads to organ damage or alpha-beta thalassemias in early years of life. Blood transfusions, diet rich in zinc, low in iron (with exception) and water soluble vitamins may cure the patients, Hemolytic anaemia is found due to diet related deficiency, destruction or hemolysis of blood cells due to morphological or mechanical changes.

Thus most anaemias may cause either due to inadequate intake of iron, protein, vitamins (B₁₂, folic acid or pyridoxine) copper or other mineral deficiency which is called as nutritional anaemia.
As quoted by Andrews (1999) anaemia is the last manifestation of chronic long term iron deficiency.

The etiological factors for iron deficiency usually include loss of iron, inadequate diet or malabsorption. A woman’s body is physiologically challenged at different phases of life i.e. monthly menses, pregnancy, child birth, irregular bleeding and menopause complications lead to blood loss or nutrition0n deficiency among women.

Evidences of epidemiological studies show that 60% of anaemias in Britain are due to foliate deficiency associated with malnutrition, infection or other health problems.

Also, the records show that sickle cell traits in Mediterranean population, tropical Africa and American blacks was prevalent with frequency ranging around 8 percent.

1.9. **Cancer**: Cancer is a term used to refer malignant neoplasm or tumors, in which the cells spread to adjacent tissues and interfere with the function and often has undesirable systemic effects. Cancer is caused by mutation or abnormal activation of cellular genes which are called ontogenesis. It can occur at any site or tissue of the body and may involve any type of cells. Cancer is neither a hereditary disease nor is it communicable or contagious. Its nomenclature depends on the organs which get affected i.e. in case or membrane surface cancer it is referred as carcinoma, Sarcoma is related with tissues, muscle or bone cancer, Melanoma is identified as pigment or cell cancer of skin, Leukaemia which arise from the cells of bone marrow and commonly known as blood cancer and lymphoma results due to
formation of lymphatic nodes and abnormal immune system (2002).

Though cancer can affect the body at any age, during middle age women are more prone to malignancy due to hormonal imbalances, alcohol consumption, dietary factors and negligence towards primary health abnormalities.

1.9.1. **Cervical cancer (1986)** is of concern among middle age women as epidemiological evidences prove that in developing countries cervix cancer was equally prevalent (around 4,16,000 cases) as other cancers of cervical cancer mainly are HPV (Human Papilloma Virus) and other sexually transmitted infections, multiple sexual partners, early marriage, early child bearing.

A WHO study (1986) study finds that oral contraceptive pills and some other female contraceptive methods are the causative agents for cervix cancer. The findings also stress on the poor genital hygiene among lower socio-economic group and other co-factors responsible for the carcinoma in females.

It can be manifested by viral lesions, genital warts which further affects the epithelial tissues internally causing dysphasia which persist and continues to spread into Lymph nodes and pelvic region during a period of 8-20 years, further which can be massively treated.

1.9.2. **Breast Cancer**: Breast cancer happens when benign cells in the breast begin to grow and capture nearby tissues or spread throughout the mammary gland. Large collections of these tissues are called tumors. However, some tumors are not really cancer
because they cannot spread or threaten someone’s life. These are called benign tumors. The tumors that can spread through the body or invade nearby tissues are considered cancer and are called malignant tumors. Theoretically, any of the types of tissue in the breast can form a cancer, but usually it comes either the ducts or the glands. Because it may take months or years for a tumor to get large enough to feel in the breast; therefore women after forty should go for mammograms for early detection of breast cancer.

The epidemiological record shows approximately more or less 2,20,000 women die due to breast cancer worldwide. Recently reviewed (2002) in ten observational studies on breast cancer and use of HRT revealed about 20-30% reduction in breast cancer mortality but two other studies showed contrast findings with 80-90% of increased risk at a significant level.

The etiology counts Hormone replacement therapy as the major factor for breast cancer. Other causative factors include high fat diet, obesity, family history, early menarche, late menopause, hormonal factors, contraceptives, radiation and unhealthy lifestyle. The manifestations are complicated and should be studied by expert oncologist to reach the positive goals.

The early stages breast cancer may not have any symptoms. As a tumor grows in size, it can produce a variety of symptoms including lump or thickening in the breast or underarm, change in size or shape of the breast, nipple discharge or nipple turning inward, redness or scaling of the skin or nipple, ridges or pitting of the breast skin, as revealed in about.com(2006).
1.10 Tuberculosis:

Tuberculosis is a specific infectious disease caused by M. tuberculosis the disease, which primarily affects lungs and causes pulmonary tuberculosis. It can also affect intestine, meninges, bones, joints, lymph glands, skin, kidney and other tissues of the body. The disease is usually with varying clinical manifestations.

Tuberculosis even today remains a worldwide public health problem, despite availability of highly effective drugs and vaccine which can cure and control the disease, its prevalence show a shocking figure. In 2000, global survey results reveal that nearly 1.66 million people died due to TB alone. The recent epidemiological study show that with the combination of HIV and AIDS virus increased the risk and threat of prevalence and control of TB in India.

This disease generally affects all age group and if not treated harbours the human body till death.

Aetiological factors include human sputum, bouine infected milk and social causes like unhygienic living patterns, poverty, illiteracy, overcrowding, early marriages, stress and some other non medical reasons contribute to the occurrence and spread of tuberculosis.

The advent of advance tests and treatments carried out by DOTS and RNTCP cured the disease to a large extent and also improvements in the quality of life had suppressed the spread of this contagious disease. (K, Park – 2002).
TB most commonly affects the lungs (as pulmonary TB) but also affect nervous system, Lymphatic system, circulatory system, genitourinary system, bones, joints and even the skin. Over one third of the world’s population now has the TB bacterium in any form in their bodies and now infections are occurring at a rate of one per second. Not everyone who is infected develops the disease and asymptomatic latent tuberculosis infection is most common. However, one in ten latent infections will progress to active disease, if left untreated, kills more than half the victims. In 2004 14.6 million people had active TB and there were 8.9 million cases and 1.7 million deaths. The epidemiology among developed in developing countries and their evidences which vary widely in neighbouring countries show a serious graph with etiological factors based on health care, negligence, immune systems becoming resistant to drugs or influenced by other suppressive drugs prescribed for HIV / AIDS.

1.11 Asthma:

Asthma is a disease of bronchial hyper responsiveness and airway inflammation, leading to airflow obstruction. The syndrome appears to result from complex interactions among genetic, immunologic, and environmental factors. As stated by Silverman (2000), asthma can develop at any age and irrespective of sex, its continued inadequate management can lead to a life-threatening situation known as status asthmaticus. Etiologically, the airways get narrowed somewhat when exposed to smoke, pollutants, cold air, or substances that are harmful are inhaled, other allergens are smoke, perfume, pollens, heredity
factors, certain food items or environment itself which elevates the irritation and sometimes leads to suffocation (short of breath) and restlessness all these factors exacerbate the disease.

According to FABH (2007) (Foundation for better health care) Asthma affects almost any vulnerable group and sex which may be either due to the triggering factors or environmental based factors. Manifestations vary according to its severity and disease condition or the irritants which make the patient uncomfortable. The patient may complain about breathlessness, tightness in the chest, cough, blueing of nails and lips, difficulty in speech due to irregular breathing with wheezing and sweating, difficulty in walking and swallowing water and no quick effect of drug or medicine. During asthma attack the walls of the airways become inflamed, mucous membraned wall becomes swollen with fluid and sticky mucous in between make the breathing difficult with whistling sound heard.

1.12 Other Health Complaints:

History reveals the evidences for many communicable and non communicable diseases which are still the major killers of mankind, moreover the morbidity and mortality depends on the severity of the ailment, health conditions and line of treatment followed for the patient. Communicable diseases are due to environmental etiologies whereas non communicable are either inherited, pathological or lifestyle oriented.

As updated by Mathur (2008), an association between certain metabolic disorders and cardiovascular disease has been known since the 1940s. In the 1980s this association became more
clearly defined and the term metabolic syndrome (also known as syndrome X or the dysmetabolic syndrome) was coined to designate a cluster of metabolic risk factors that come together in a single individual. In more current times, the term metabolic syndrome is found throughout medical literature and in the lay press as well. There are slight differences in the criteria of diagnosis- depending on which authority is quoted. Regardless, the concept of a clustering of risks factors leading to cardiovascular disease is well accepted.

The main features of metabolic syndrome include insulin resistance, hypertension (high blood pressure), cholesterol abnormalities, and an increased risk for clotting. Patients are most often overweight or obese.

Other problems associated with metabolic syndrome include obstructive sleep apnea, polycystic ovary syndrome, increased risk of dementia with aging, and cognitive decline the elderly.

Common complaints of middle age period mostly get manifested by hormonal imbalance, degenerative metabolism, poor resistance and deficiency syndromes which may lead to certain types of malignancies, tumors, infections, incontinence, insomnia, depression, pulmonary or peripheral problems, cerebrovascular diseases, kidney diseases, spondylytis, liver complications, different allergies and psychological trauma which seem to be more apparent during menopause and middle age women.

According to Pack (2005) There is a growing body of literature, describing disorders of bone health and manifestations of
epilepsy, seizure or convulsions lead to incidents of hip or spine fractures due to etiologies related to BMD (Bone mass density) AED (antiepileptic drugs) and other multiple co-morbidities as well.

1.13 Health Education:

‘Health’ is vital for survival, evolution of life, and also a feeling of well being. Our ancestors gave us a road map to health, according to them the key to health lies in our “Aahar (food), Vihar(pleasure), Vichar (judgement / prudence) and Aachar (conduct).” Today and perhaps in the past we frequently violated these rules and made the body unhealthy.

Michael (2007) discovered our environment affects our behaviour, well being and health. The way we nurture ourselves with our eating habits, how we work and rest, struggle and fight with environment, for peace, war with our own selves, also decides health. We should know that our lifestyle also influences our health favorably or adversely. Adverse lifestyle also causes many non-communicable diseases that hasten degenerative processes of the body. To name a few such diseases are obesity, high blood pressure, heart attacks, diabetes, dyspepsia, irritable bowel syndrome, depression, tension, insomnia, sexual disorders, etc. There is a belief that these diseases are restricted to the affluent but statistics show these diseases are fast affecting all sections in our society. This phenomenon parallels economic growth, when this happens people eat more, many usually end-up eating wrong foods, they do less exercise become lethargic, burn less calories and expose the body to unhealthy lifestyle. Few
years ago WHO gave slogan, “Move to Health” that stressed importance of exercise, diet and advised to abstain from intoxicants.

Presently, diet and exercise and awareness about health can be acquired through health education programmes and literatures.

Health education is one of the most cost-effective interventions. A large number of diseases could be prevented with little or no medical intervention if people are adequately informed and made aware about health problems and are informed to take necessary precautions in time.

The World Health Organization states that “The extension to all people of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health.” The targets for educational efforts may include the general public, patients, priority groups, health providers, community leader and students.

The objectives of health education seems to achieve physical and mental well being by inculcating the knowledge about food habits, life style, diseases and its possible modifications which can apparently change the behaviour, improve quality of life, promote health, prevent ailments and rehabilitate the individual or community with surveillance and holistic approach as such.

According to Somers (1999) the concept approved by National Conference of USA is that – Health education is a process that informs, motivates and helps people to adopt and maintain
healthy practices and lifestyles, advocates environmental changes as needed to facilitate this goal and conducts professional training and research to the same end.

Previously, health education disseminated only information and changing behaviour but now according to the Alma-Ata declaration (1983) emphasis has shifted from prevention of disease to promotion of healthy lifestyles, modification of social environment rather than behaviour and community involvement and awareness as a whole.

1.13.1 Diet and Diet Modifications:

DIET has vital role in keeping body active, energetic, alert and healthy. A faulty diet could lead to several nutritional disorders. However, few know that diet has close association with non-nutritional diseases as well of late, the association of diet with disease has attracted much attention. Research into dietary patterns have unfolded a complex interplay between nutrients in the diet and specific diseases. Diet has central importance in reducing or accelerating the risks related to numerous diseases. Diseases such as cancer, heart attack, hypertension, diabetes, osteoporosis, food allergy, constipation, etc. have been found to have a close link with the dietary intake.

A well-balanced diet, therefore, can reduce the likelihood of developing many health problems. Some researchers estimate that we could reduce the incidence of certain types of ailments through (diet modification) diet therapy or therapeutic diets. As
asserted by Ziesel (2000) Diet modification is making partial change in food habits to suit a person’s health and control disease.

Diet modification be regarded as a change in the normal diet to treat a disease or illness. A modified diet may change one or more dietary factors i.e. modification in diet consistency, modification in texture, modification in flavour which can / may modify the diet into liquid, semi-solid, low fibre diet, low calorie diet, bland or clear fluid diet. Thus considering the above factors the goals for diet therapy or diet modification can be any one or combination with certain changes.

Furthermore, diet modification in most instances is not a remedy in itself but is a measure which supplements or alters the nutritional requirement as per need and disease condition.

According to Carrol (1997) a special or modified diet is often an important component of a client’s total medical care. Special dietary measures are often required to maintain the lives of patients who have chronic heart, kidney disease or metabolic imbalance like diabetes, hypertension, anaemia and so on.

Research evidences prove that nutrition plays an important role in controlling and preventing many degenerative and pathological diseases therefore stress is given on diet and behaviour modifications as a source of therapy through motivation and counseling.

There are certain foods, nutrients or some nature based sources which can benefit health or control disease conditions.

Recent studies, proved to be fruitful as these concentrate on the diets which can be partially modified by adding or deleting some
nutrient based products so as to improve health, increase longevity and wellness by developing resistance and controlling the ill elements that may otherwise make the body diseased or morbid.

Besides, basic nutrients i.e. carbohydrates, protein, fats, vitamins, minerals and water there are certain newly found sources like – phytochemicals, nutraceuticals, phytoestrogens, chemoprevention which are basically the natural forms of remedies and which are said to possess (as further research in progress) the healing capacity and ability to control many lifestyle diseases and in specific they are playing a potential role in protecting against certain (post menopausal) chronic diseases and also found to be effective in reducing the menopausal symptoms.

The food sources like-fruits, vegetables, cereals, soyabean, flaxseed, olives, beans, nuts broccoli contain the contents vitamins, minerals besides they are also rich in phytochemicals, phytoestrogens like isoflavoues, Lignins, Coumestans, SERMS etc. According to Serena (2005) the detail of new concepts introduced in nutrition are:

<table>
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<tr>
<th><strong>Chemoprevention</strong></th>
<th>Using one or several chemical compounds to prevent, stop, or reverse the development of cancer.</th>
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<tr>
<td><strong>Designer Food</strong></td>
<td>Processed foods that are supplemented with food ingredients naturally rich in disease-preventing substances.</td>
</tr>
<tr>
<td><strong>Functional Food</strong></td>
<td>Any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains.</td>
</tr>
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</table>
**Nutraceutical** – Specific chemical compounds in food, including vitamins and additives, that may aid in preventing disease.

**Pharmafood** – Food or nutrient that claims medical or health benefits, including the prevention and treatment of disease.

**Phytochemical** – Nonnutrient plant chemicals that contain protective disease-preventing compounds.

**Phytoestrogens** - Estrogen based plant – derived compounds which may confer health benefits related to CHD, cancers, osteoporosis and menopausal symptoms.

Intervention of diet modification may include, low calorie diet, low-carb-diet, sugar-free-diet, low-fat-diet, high protein diet, liquid or semi-solid diet, specific nutrient rich diet with the view to compensate any deficiency or disease control.

### 1.13.2 Life style changes:

Life is immortal, but we all are mortal. Aging is a normal process of life that begins at conception and ends at death. Senescence (growing old) (2002) this period starts after the age thirty during which anabolic processes out number catabolic changes and once the body reaches physiologic maturity, the rate of catabolic or degenerative changes may become greater than the regenerative anabolism. The resultant loss of cells during and after middle age can lead to varying degrees of decreased efficiency and impaired functions, which further affect the chronological, biological, psychological and social aspects of an individual as ascertained in the study (2001) of united nations which can reduce disease.
conditions and increase life expectancy. Lifestyle changes can be achieved through regular exercise, diet modification, health, education and awareness programme about diseases and its preventive tips, counselling etc.

Further more, the age-wise changes which are associated are with illness genetics, food, socioeconomic and lifestyle factors reflect the health status and well being.

Scientific evidence as advocated by Vellas (1999) clearly shows that regular physical activity has powerful positive effects on psychological and physical well-being.

As referred by Yanagisama & et.al. (2007), metabolic syndrome comprises visceral obesity, hypertension, dyslipidemia, and impaired glucose tolerance. As is true with many medical conditions, genetics, and the environment both play important roles in the development of the metabolic syndrome.

Genetic factors influence each individual component of the syndrome, and the syndrome itself. A family history that includes type 2 diabetes, hypertension, and early heart disease greatly increases the chance that an individual will develop the metabolic syndrome.

Environmental issues such as low activity level, sedentary lifestyle, and progressive weight gain also contribute significantly to the risk of developing the metabolic syndrome.

Lifestyle contributes and influences the overall health of an individual. It is the pattern of life and state of living in which a
person adopts the habits considering his own comforts irrespective of unknown consequences he may face in near future. Positive lifestyle include regular exercise, healthy diet, physical activity, meditation, health and diet consciousness, yoga and work outs.

According to Dr. Parwana (2008) Top Lifestyle Diseases are:

<table>
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<tr>
<th>Disease</th>
<th>Description</th>
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<tbody>
<tr>
<td>Alzheimer’s Disease</td>
<td>No one knows the exact cause, but a real breakdown of the cells of the brain does occur. There is no treatment, but good nutrition may slow the progress of this lifestyle disease, which lasts about seven years in most people who have it.</td>
</tr>
<tr>
<td>Arteriosclerosis:</td>
<td>Plaques (atheromas) deposited in the walls of arteries are major causes of heart disease, chest pain (angina pectoris), heart attacks, and other remains are deposited in the walls of large and medium-sized arteries. Atherosclerosis usually occurs with aging. It is linked to overweight, high blood pressure, and diabetes.</td>
</tr>
<tr>
<td>Cancer:</td>
<td>Cancer has been the number two cause of death since 1938. But, at the turn of the 20th century, it was only #8. Cancer is definitely considered the number one Disease of Civilization. There are more than 150 different kinds of cancer and many different causes.</td>
</tr>
<tr>
<td>Diabetes:</td>
<td>There are four main types of diabetes mellitus. Type I diabetes is also called insulin-dependent diabetes, juvenile-onset diabetes, brittle diabetes,</td>
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or ketosis-prone diabetes. Type II diabetes is also called non-insulin-dependent diabetes, adult-onset diabetes, ketosis-resistant diabetes, or stable diabetes. Type II often develops in over weight adults. Type III, or gestational diabetes, occurs in some women during pregnancy. Type IV includes other types of diabetes linked to disease of the pancreas, hormonal changes, side effects of drugs, or genetic defects.

| Heart Disease: any of several abnormalities that affect the heart muscle or the blood vessels of the heart. | Heart disease has been a major cause of mortality and morbidity. There are a couple dozen forms of this lifestyle disease. Heart disease and other forms of cardiovascular disease can lead to congestive heart failure, a condition in which the heart cannot pump sufficient blood to meet the demands of the body. The various forms of heart disease may also cause disturbances in normal heartbeat, called arrhythmia. |
| Stroke: a condition due to the lack of oxygen to the brain that may lead to reversible or irreversible paralysis. | Stroke is linked to advanced age, high blood pressure, previous attacks of poor circulation, cigarette smoking, heart disorders, embolism, family history of strokes, use of birth-control pills, diabetes meelitus, lack of exercise, over weight, high cholesterol, and hyperlipidemia. |

Lifestyle behaviors i.e. consumption of alcohol, tobacco, excess fats, deficient, nutrient diet, inadequate sleep, and inactive routines may lead to negative lifestyle, and the body gets vulnerably susceptible to diseases like obesity, cardio vascular
problems, diabetes, hypertension, stroke, cancer and other clinical and pathological disorders which may turn risky and life threatening; therefore, these diseases are now related and referred as lifestyle diseases.

Lifestyle changes can be referred as new phenomena which can create havoc and bring revolutionary changes in medical world. It is an optimistic approach towards healthy lifestyle behavior.
The data literature cited is based on the research topic, “To Study the Prevalence of Diseases and Impact of Health Education in Middle-Age Women.” The work has been written very systematically, under various heading and subheadings. Collecting huge and supporting reference material related to different diseases was literally a tedious job.

Voss Carolyn (2008) quotes that: Women’s health care has made great strides in the past two decades. The recognition that women have different health care needs than men has enabled changes to take place in clinical care, research, and education. However, much remains to be done. Providing health care coverage to all women must be a high priority. Research must address the differences between men and women and how they respond to disease and treatment. The physician workforce needs to be expanded; physicians should be well trained to provide comprehensive health care to women. Strategies, such as used in Comprehensive Centers of Women’s Health and women’s health residencies, can improve education and increase the number of women in academia.

The researcher of present study too felt the concern for women’s health belonging to middle age group of working, non-working, below poverty line, upper class, educated, uneducated and middle income group as such. The need was felt to acknowledge all the fair sex group
(females) of the society about the prevailing diseases and its risk factors. The relevant references are portrayed in detail.

2.1. Menopause & Middle age:

The pattern of menopause tends to be highly variable (popline bulletin (2004)), it may occur early in women from the developing countries and later in women in the developed countries of the world. Also familial pattern or environmental factors may onset early or delayed menopause.

A woman is said to be through her menopause if she has had no bleeding for a year. Bleeding occurring after this is formed as post menopausal bleeding and may signify diseases. The menopause is also associated with certain health risk factors like – loss of bone density (osteoporosis), risk of heart attacks and stroke, increased BP, weight gain, increased cholesterol levels and other remarkable symptoms like hot flushes, night sweats, mood disturbance, vaginal dryness, insomnia etc. which can be controlled through hormone replacement therapy and phytoestrogens.

According to Abraham D. (1997) the effects of estrogen/androgen combination was seen positive on 66 postmenopausal women who were treated for a period of two years to reduce their somatic menopausal symptoms like hot flushes, vaginal dryness, insomnia with decreased serum lipids and increased bone mineral density. Androgens as revealed in the recent study can be used as a co-therapy with estrogen and progesterones for both surgically treated and maturely menopausal women. Only ERT (Estrogen Replacement Hormones) may aggravate the pre-existing androgen deficiency in menopausal women thereby causing low energy levels which can be rectified by androgen
replacement therapy also to improve sexual dysfunctioning and relaxing menopausal complications. Estrogen plays important role not only in reproductive system but also in the normal functioning of cardiovascular, central nervous, immune and skeletal systems. Fall in the level of estrogens after menopause leads to detrimental effects on the above mentioned systems. After menopause, as a natural phenomenon there is increase in total cholesterol (TC), low density lipoproteins (LDL-C), triglycerides (TG), fibrinogen (FG) and reduction in high density lipoproteins (HDL-C) all these are important metabolic markers of cardiovascular diseases as reported and elicited by Clemett and Banithon (2005).

Hormone replacement therapy (HRT) in the form of estrogen or combination with progesterone given during menopause phase can prevent bone changes and also reverse lipid changes. However, as revealed by Manson (2001) there are certain newly discovered non steroidal derivatives namely as Raloxifene and Selective estrogen receptor modulators called as SERMS which has the potential to reduce osteoporosis and various surrogate markers of cardiovascular risk in menopausal women. As study was conducted to evaluate the effects of HRT and raloxifene separately on two healthy groups of postmenopausal women. The results were analyzed by applying paired t-test and unpaired t-test by Depinder Kaur, Vijay Khajuria et.al (2005). The results after six months showed significant changes, it was also observed that treatment of raloxifene and HRT lowered total cholesterol by 6% and 4.74% respectively. Levels of LDL were reduced more than HRT (14.18%) than with raloxifene (8.18%). TG, VLDL and HDL levels were raised by HRT (11.5%, 11.02% and 24.37% respectively) but were
not significantly altered by raloxifene, which lowered levels of fibrinogen by 7% while HRT showed no effects.

As expressed by Raksha Arora and J.B. Sharma (2005) the menopause constitutes a watershed in a women’s life leading to profound changes in several symptoms. Although it is a natural process, it may be artificially induced due to surgical removal of their ovaries (oophorectomy) along with uterus (hysterectomy). Almost all women during and after the menopause suffer from typical symptoms with approximately 40% seeking a medical help for various symptoms like hot flushes, excessive sweating vaginal dryness and lack of interest is sex, palpitations, lack of energy, poor concentration etc. Menopause also increases the women’s risk of developing osteoporosis and heart diseases.

Metabolic studies had inspired confidence that estrogen therapy would reverse the negative impact of menopause on lipid profiles and arteriosclerosis and improve tone and resilience of the vascular system.

A consensus development conference concluded that estrogen is a drug of choice for preserving bone loss in post menopausal women – Menopause and H.R.T. (18) Osteoporosis and HRT.

The first clinical outcomes trail of HERS (Heart and Estrogen) Progestin Replacement Study) revealed a contradictory results about 52% women increased cardiovascular events who received HRT for first year and also increase in LDL and risk factors were observed by 3 times. An update – Conventional Hormonal Replacement Therapy Menopause – 1 Urvashi Prasad Jha (2003).
Vasomotor symptoms are commonest and earliest climacteric symptoms, they are experienced even before cessation of menstruation by about 40% of perimenopausal women and by 60% of menopausal women. Due to socio cultural factors its incidence is less in India, compared to west i.e. 27-32% respectively, in Hong-Kong it is 10-22% and 17% in Japan, 23% in Thai, 45% in North America and 80% in Dutch Women respectively – as depicted in Vasomotor symptoms and its management – Medical Review (March – 2002).

2.2. Blood Pressure - Hypertension:

Hypertension is not a disease of separate identity but usually appears as a symptom of other disease. (Yoga and Health – 1997).

Hypertension is a classical disorder with multifactorial causation. Moreover, for majority of the persons, no definite cause is found, labeling them as essential hypertension. The search for various factors continues to explain the etiology of hypertension. As the dividing line is an arbitrary one, the factors influencing hypertension will also influence the normal variations of blood pressure in a community.

The study (2005) was carried out by S.K. Sadhukhan & A Dan with the objective to check the blood pressure variations between Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) in relation to different risk factors of hypertension in a racial community of West Bengal.

The study revealed four important factors to significantly contribute for the SBP and DBP variations i.e. age, BMI occupational physical activity and Additional salt intake. Nevertheless about 61% and 76.5% of total SBP and DBP variations respectively were found to
be unexplained indicating that we have miles to go before revealing all the factors responsible for blood pressure variations and hypertension.

The individual role of each factor (after controlling for other variables) revealed that age was the most important explaining 16.57% of SBP and 7.90% of DBP variations alone. Similar figures for other factors were -3.10% and 7.78 for BMI, 3.18% and 0.66% for Occupational physical activity and 1.55% and 1.53% for additional salt intake respectively.

Epidemiological data (2006) reveals that 25-30% of the population in urban area and 10% - 12% in rural area of India suffer from high blood pressure. It usually has other complications such as renal failure, food habits and atherosclerosis (blocked arteries) which may lead to heart attacks, stroke, retinopathy, brain hemorrhage and sudden death.

A study carried out by NIH (1997) discovered that over 60 million North Americans have blood pressure that is too high, or hypertension in its early stages. High blood pressure is symptomless, so many people don’t realize they have a potentially life-threatening disease. If the condition goes unchecked, high blood pressure damages the heart and blood vessels and can lead to a stroke, heart attack, and other serious consequences.

In about 5 percent of cases, there’s an underlying cause for high blood pressure; for example – a narrowed kidney artery, an adrenal gland disorder, or a drug side effect. More often, there is no identifiable cause; this is referred to as primary, or essential hypertension.

Blood pressure rises when the arterioles, the body’s smallest arteries, narrow or constrict, requiring the heart to beat more forcefully
in order to pump blood through them. Increased blood volume, often due to the body’s tendency to retain excessive salt and fluids, raises blood pressure; so do high levels of adrenaline and other hormones that constrict blood vessels.

Apparently, with age, blood pressure rises somewhat, but no one fully understands precisely what leads to hypertension, although a combination of factors seems to be involved. Because it tends to run in families, an inherited susceptibility is suspected. Diabetes, obesity, and certain other disorders increase risk. Stress prompts a surge in adrenal hormones and a temporary rise in blood pressure; some researchers believe that constant stress may play a role in developing hypertension. Other contributors include smoking, excessive alcohol, and a sedentary lifestyle.

There is little doubt that keeping blood pressure at normal levels makes a difference in the quality and length of life.

The findings given by Rose G. (1981) associates coronary heart disease, kidney, stroke and obesity with high blood pressure as it is considered a major risk factor for health.

Evidences of WHO (1986) clearly show the prevalence of hypertension among the developed and developing countries like America, Europe and Gulf are rising at alarming rates. In India the incidences recorded were 69.9% among urban women and 35.9 % among rural women of Haryana state as declared by Pedoe H.T. (1982).

As highlighted by health screen (2006) Female hormones are supposed to protect high BP and prevent heart related illnesses. It is also reported that above the age of 55 years that is after menopause when
the hormonal protection no longer exists women are as prone to BP and related heart diseases as men.

The worst part about this disease whether in India, US or elsewhere is that more than 30% of the patients do not know they have the disease and in another 35% it is not properly controlled.

Although the exact cause of primary hypertension is not yet understood a number of genes that contribute to the disease have been identified. This indicates that this can be an inherited disease although the ground realities are not as simple as that. It is observed by researchers that in nearly 30% patients it can be genetic and that it runs in families, although no single gene disorder or test is yet identified to indicate it as a risk factor.

One other cause has been identified and this relates diabetes and BP. One of the causes of diabetes is insulin resistance where the body does not use the insulin present properly that results in type II diabetes. Recently researchers have enough evidence to suggest that high BP is associated with insulin resistance.

Symptoms are vague and not always indicative of the disease. It is usually the diagnostic and clinical acumen of the doctor that helps in diagnosis. Nearly 35% of the patients have no symptoms at all while some may experience some of the following manifestations but may not be able to relate the same to high BP.

. Fatigue,
. Confusion,
. Nausea or upset stomach,
. Vision changes or problems,
. Excessive sweating,
. Nose bleeding,
. Anxiety or nervousness,
. Strong, fast or obviously irregular heartbeat,
. Ringing or buzzing in ears,
. Headache,
. Dizziness.

2.3. Diabetes:

A bulletin published (2001) estimated that nearly 154 million cases of diabetes mellitus are prevalent worldwide. The WHO estimates that by 2010 the number of cases will increase to more than 300 million, also it regards DM as a major health problem that is predicted to rise up to 500 million within the next two to three decades.

As illustrated in Express Health Care (2008), the risk factors for diabetes are:

- **Age**- Indians develop diabetes at a very young age, at least 10 to 15 years earlier than the western population. An early occurrence of diabetes gives ample time for development of the chronic complications of diabetes. The incidence of diabetes increases with age. In India, the life span has increased, hence more number of people with diabetes are being detected.

- **Family History**- The prevalence of diabetes increases with a family history increases with a family history of diabetes. The risk of a child developing diabetes with a parental history increases above 50 percent. A high incidence of diabetes is seen among the first degree relatives. Indians have a high genetic risk for diabetes as observed in Asian Indians who have migrated to
other countries. They have been found to have a higher rate of diabetes as compared to the local population.

- **Central Obesity** - The association of obesity with Type II diabetes is well known. Even with an acceptable body weight range, weight gain could increase the risk of diabetes. An excess of body fat specially concentrated within the abdomen has an increased risk of diabetes. The cut-off limit for waist circumference for Indians have been recommended to be 90 cm for males and 80 cm for females. Abdominal obesity is defined by waist circumference above these limits.

- **Physical Inactivity and Sedentary Living** - There is enough evidence to demonstrate that physical inactivity as a independent factor for the development of type II diabetes. The availability of motorized transport and a shift in occupations combined with the plethora of television programmes has reduced the physical activity in all groups of populations.

- **Insulin Resistance** - Asian Indians have been found to be more insulin resistant as compared to the white population. They have a higher level of insulin to achieve the same the blood glucose control. A cluster of factors consisting of abnormal fats (Dyslipidemia), high blood pressure, obesity and abnormal glucose levels known as metabolic syndrome is highly prevalent in Asian Indians.

- **Urbanization** - The developing countries like India are undergoing rapid urbanization. Urbanization is associated with increasing obesity, decreasing physical activity due to changes in
lifestyle, diet and a change from manual work to less physical occupations.

- **Stress**– The impact of stress both physical and mental along with lifestyle changes has a strong effect of increasing incidence of type II diabetes amongst persons is a strong genetic background.

Further study revealed that Type-II Diabetes was the most common form of diabetes, which manifests with age, level of obesity and other factors as well.

According to Uma and Minitha Suson Joseph (2004) the prevalence of Diabetes in metropolitan cities in India is 11.6% in New Delhi, 9.3% in Mumbai, 11.7% in Bangalore and 16.6% in Hyderabad respectively.

Diabetes mellitus is one of the most burdensome chronic diseases which is increasing in epidemic proportion throughout the world. The reasons for the predisposition of Indians to the disease may be due to genetic factors or central obesity in middle and younger age group. This downward shift has serious implications for the development of complications like cardiovascular diseases, neuropathy, retinopathy, nephropathy and foot infections as well.

Chennai Urban Population Study (CUPS) reports that coronary heart disease was 11% with a higher prevalence in persons with impaired glucose tolerance (14.9%) and diabetes (21.4%). Also premature atherosclerosis contributes to 75% of deaths among individuals with both Type I and Type II diabetes.

The study revealed that about 65% females were affected by angina pectoris and other complications which were sorted out through diet counselling, change in lifestyle, exercise and yoga.
Infection of the foot or diabetic foot ulcers are commonly affecting two to three percent every year. The reason for the development of ulcers are neuropathy (loss of sensation), is chemical poor circulation, corn formation, infection due to long diabetic period.

A bulletin published through Diabetes health center (2005) reveals that about 16 million people in the U.S. have type II diabetes among which many found to be unaware of the condition.

India is considered as capital of diabetes world wide. About 25 million known diabetic patients are suffering type I and type II diabetes. By 2010 India may count 35 million diabetic patients. Every year there is 40% increase in insulin and medicine production. A survey carried out by UKPDS [United kingdom prospective diabetes study] has shown that hypertension, stress, irregular food patterns, lack of exercises and hereditary factors increase sugar levels in the body making a person prone to diabetic conditions.

A research paper published by V. Moha, R. Deepa et.al reveal that India contributes about 19% of the total world’s diabetic patients, and the numbers are projected to increase by 80 million by 2030. This rising trend predicts a significant health burden due to diabetes in India.

The data recorded by National Diabetes Control Programme through the IDRS [Indian Diabetes Risk Score] advocates about 50% of the diabetic subjects in India remain unaware of their diabetes status, which under scores the need for mass awareness and screening programmes to identify and overcome the burden due to diabetes. IDRS is the most cost effective programme based on results of multiple logistic regression analysis which includes four risk factors i.e. age (35-60) abdominal obesity (waist > 80 for female and > 100 for male)
family history either one or both parent of diabetes and physical activity. [regular exercise or sedentary lifestyle].

Various studies in the west as discovered by Alberti K.G., (1998) have derived different diabetes risk scores, based on simple anthropometric, demographic and other factors to detect undiagnosed diabetes. This method was found easy, simple and accurate as it can be done on a very high-risk population and on large group of subjects. Hence to be concluded, it was a first study of its kind for a simplified diabetes risk score.

The Globe today faces an epidemic of non-communicable diseases (NCD) India is no exception, according to Shashank R. Joshi (2005) NCD due to lack of clear etiological agent is heavily dependent on identifying and tackling risk factors. The risk factors like age gender and family history are non-modifiable while others like smoking, diet, physical activity, hypertension and some diseases are modifiable. For assessment and detection many risk tests, and associations like ADA (American Diabetes Association) were made for classic screening and metabolic syndrome as set and defined by National Cholesterol Education Programme (NCEP) disclosed by stern MP (2004) also found to be partially suitable for predicating Diabetes Mellitus and Cardiovascular diseases separately.

Lindstorm J and Mohan et.al.(2003) modelled for India from CURES Cohort (Chennai Urban Rural Epidemiology Study) have attempted to develop a simpler user friendly Indian Diabetes Risk Score, which has two modifiable risk factors i.e. waist circumference and physical inactivity and two non-modifiable risk factors i.e. age and family history of diabetes. The method given by IRDS & CURES has
many advantages as it is simple to apply, low cost and is easily applicable for mass screening programmes. The scores can be incorporated into proposed Indian National Diabetes Programme and Surveillance Studies on NCD by WHO and ICMR, which may get validity and reliability too.

The rising prevalence of diabetes as quoted by Vijay Vetal (2003) and Sadikot S.M. (2004) is really noteworthy and cause of concern as India stands 10 folds ahead in diabetes than three decades before. (from 1.2% to 12.1%) There was 4 fold difference between urban and rural diabetic prevalence but recently carried out survey by Diabetes India group estimated the prevalence of IGT (Impaired Glucose Tolerance) and disease condition which was surprisingly high by 3 folds. The change may be due to socio-economic transition in rural population besides factors like education, income, living style, transport and occupational structure has changed the scenario of rural subjects which contributes directly to the emerging epidemic of diabetes as greater portion of population belong to rural areas. The prevalence of urban and rural being 5.6% and 2.7% respectively and prevalence of IGT recorded was 6.3% and 3.7% both among urban and rural population.

Prevalence of IGT and IFG is highest among Indians which may increase upto 132 millions in 2025 as discovered by Ramachandran and Kapur (2001). These factors not only lead to early diabetes but also leads to CVD, dyslipidimia, hypertension and insulin resistance.

Hypoglycemia is relatively common among diabetics. It occurs when too much insulin or oral anti-diabetic medication is taken, not enough food intake, sudden insulin shock or over exertion without food consumption.
The etiological factors related to diabetes vary from person to person like – fatigue, restlessness, irritability, headache, hunger, cold sweats, double vision, confusion, muscle pain, palpitation, hallucination, dizziness, decreased consciousness, numbness, neuropathy, coma etc.

These symptoms can be reduced by regular food intake, instant glucose or sugar drink, regular exercise and meditation. (http:diabetes-2005).

The epidemiological research data presented by Dr. Manoj L. Bhatamadekar and Dr. Nadeem Rais (2002) highlights India will have over 30 million diabetics by 2010, the data also showed the associated factors to diabetics - depression, cancer, osteoporosis compared to aging.

Millions of Americans suffer by Diabetes II which further leads to stroke, nerve damage, blindness, kidney failure and general weakness – health.com. (2005).

2.4. CHD (Coronary Heart Disease):

The epidemiological reports presented by Vakil, Rajeev & et.al (2001) on CHD and hypertension in India emanated from observations show that these diseases were present in significant numbers in urban subjects of flourishing metropolitan cities. The studies also highlight the prevalence of CHD in 1960 (3.5%) which went on increasing decade wise as (9.5%) in 1990 and so mortality in India due to cardiovascular diseases (CVD) in 1998 accounted for 16.9% of all CVD deaths worldwide and the standardized mortality ratio (SMR) was used which
showed significant factors responsible for CVD, most commonly recorded are smoking, hypertension, diabetes, food habits and lifestyle.

Studies revealed by Deedwania (2000) also show association between illiteracy, low socio-economic status type of food intake and physical activities.

Age and gender base data by Gupta R., (1997) discovered that the significant prevalence of CHD in men belonging to 30-39 and 40-49 age group with increase in percentage from 5.35% to 6.28% whereas among women the rise was also observed between 7.64% to 11.37% respectively during 30-49 age group. Few studies also highlight the nine-fold increased in urban (1.04% in early 1960 to 9.45% in the mid 1990’s) as compare to rural population.

The incidence of CHD in any population is associated with the relative etiological factors which may be either biological, pathological, environmental or metabolic due to unhealthy food intake. Pais. P. Pogue (1996) in his review stressed on the major coronary risk factors, namely high blood cholesterol levels, smoking, hypertension and a rich diet – two factors – high calorie food and cigarette smoking are considered as life-style that became mass phenomena in the 20th century in western industrialized countries. The other two above optimal levels of serum cholesterol and of high BP are endogenous traits prevalent in a majority of adult population of the human race which are unmasked as a result of mass consumption of rich diet. Thus eating pattern with more fat intake can be considered as the key in one of these four established major coronary risk factor.

Among the other risk factors for CHD which were significantly affecting rural as well as urban population though differing from each
other but has increased by 10% or so. Gupta and Reddy et.al., performed comparison of CHD and risk factor prevalence in urban and rural populations of northern India using similar epidemiological tools. CHD prevalence in urban subject was twice that of the rural. There was greater prevalence of sedentary life-style, obesity, truncal obesity, hypertension high levels of LDL and low levels of HDL which lead to hypercholesterolaemia and dyslipidaemias in urban as compare to rural subjects. The data collected from Rajasthan show that near about 26.1% urban subjects were suffering from CVD problems and had high cholesterol levels. (greater than 200 mg/dl) and comparatively, less rural subjects i.e. 22.3% were CVD affected with raised cholesterol levels.

A survey based on risk factors and alcohol consumption conducted by Maria Averina et.al. (2005) of Russia reveal that high level of alcohol consumption is a significant risk factor for cardiovascular diseases. The study also throws light on how improper diet pattern, blood pressure, lack of physical activity, high cholesterol, BMI poverty and socio-economic distress are the main reasons for setback in population health and increase in CVD mortality rates.

The study showed that 35% of patients in the age group 55-65 years diagnosed with heart diseases, while 26% of these diagnosed age range between 45-55 years as per Numjoshi and study shown by IPCF (Institute of Preventive Cardiology Foundation) who conducted a city metro survey of 1,588 cases – in one year – IPCF deals with reversing heart disease and preventing heart attacks through effective stress mgt, correct diet of high fibre and high anti-oxidants, yoga and cardio exercises for young middle aged persons. Trust of India (2005).
By Kountey a Singh, Dr. A.L. Batra, President TNN of Batra Hospital revealed coronary heart disease is the number one killer disease in India. Recent Global study on graded by WHO revealed that each year 3.8 million men and 3-4 million women world wide die from coronary heart disease. India has the highest number of deaths from coronary heart disease.

The best way to manage it to treat it early is through timely detection. Delhi’s Batra Hospital & Medical Research Centre has installed the most advanced light speed volume CT System that can allow physicians to non-invasively capture images of the heart in just five (4 seconds) heart beats with minimum cost of 10,000 as compared to 20000 Rs. for angiographies.

A population based case – control study in Minnesota, concluded that if all eligible women utilized estrogen, myocardial infraction (CVD) could be reduced as much as 45% (Leisure World Study) – menopause – Jaypee – Swarna Khadilkar – 2004 FOGSI Publication.

According to National Institute of Health Statistics the leading cause of death in both men and women around 55-65 years in USA is athersclerosis, and in U.K. about 2.7 times more the mortality rate was noted due to cardiovascular diseases:1. Further study shows that postmenopausal women are at risk for arterial diseases as compared to menstruating women. Epidemiological Report – Cardiovascular changes 6 – Quarterly Medical Review.

Focus on educating women about CVD risk and CHD risk reduction therapies must be established to benefit women of post menopausal phase. Also women should be asked for lipid test, pap test
and knowledge about coronary risk factors should be given according to Dr. Sahney Cardiologist at Gangaram Hospital – Menopause SS Khadilkar.

2.5 ARTHRITIS:

There are more than 100 different kinds of arthritis, these are the most common types and their manifested diagnosis are presented by consumer health.com (2005)

Osteoarthritis, Arthritis, which is also called degenerative disease occurs when the cushioning cartilage in a joint breaks down. It commonly affects feet, knees, hips, and fingers. 16 million Americans, mostly 45 and older, are found to be affected.

RheumaId Arthritis, its immune system attacks the lining, or synovial membrane, of the joints. Joint damage can become severe and deforming, involves the whole body, and may also cause fatigue, weight gain or weight loss and anemia, and affect the lungs, heart and eyes. Till date it has affected about 2.1 million Americans, three times more women than men.

Gout Arthritis, which causes sudden, severe attacks, usually in the big toe, but any joint can be affected. A metabolic disorder in which uric acid builds up in the blood and crystals form in joints and other places. Drugs and attention to diet can control gout. Epidemiology shows about 1 million Americans being affected (70 to 80 percent men), also women starting between 40 and 50 years of age, get prone to it.

Ankylosing Spondylitis Arthritis, a chronic inflammatory disease of the spine that can result in fused vertebrae and rigid spine. Often
milder and harder to diagnose in women. It affects about 318,000 Americans, usually men between the ages of 16 and 35.

Juvenile Arthritis, the most common form is juvenile rheumatoid arthritis. Arthritis diagnosis, treatment, and disease characteristics are different in children and adults. Some children recover completely; others remain affected throughout their lives. It affects about 200,000 Americans as declared through health-website.

Psoriatic Arthritis, in this bone and other joint tissues become inflamed, and, like rheumatoid arthritis, it can affect the whole body. It affects about 5 percent of people with psoriasis, a chronic skin disease, which is likely to affect fingers or spine. The symptoms are mild in most people but can be quite severe, it affected about 160,000 Americans.

Systemic Lupus Erythematosus, it involves skin, joints, muscles, and sometimes internal organs. Symptoms usually appear in women of childbearing age but can occur in anyone at any age. It can be mild or life threatening. It affects at least 1,31,000 Americans, nine to ten times as many women as men as highlighted in - Health.yahoo.com / arthritis (2005).

Arthritis can develop as a result of an infection. For example, bacteria that cause gonorrhea or Lyme disease can cause arthritis too. Infectious arthritis can cause serious damage, but usually clears up completely with antibiotics. Scleroderma is a systemic disease that involves the skin, but may include problems with blood vessels, joints, and internal organs. Fibromyalgia syndrome is soft-tissue rheumatism that doesn’t lead to joint deformity, but affects an estimated 5 million Americans, mostly women.
According to Neil (2001) some scientists believe that osteoarthritis may develop in some people if they abuse their joints (injure them many times or over-use them while injured). Take care not to over-work a damaged or sore joint, as this may help postpone or eliminate possible development of osteoarthritis.

Excess weight also increases the risk for developing osteoarthritis in the knees, and possibly in the hips and hands. Women are at special risk for this. In men, being overweight increases the risk for developing gout. Maintain your recommended weight, particularly as you get older. Research shows that overweight middle-aged and older women who lose 11 pounds or more over 10 years can cut in half their risk for developing knee osteoarthritis.

2.6. Obesity:

The risk of death increases with increasing body mass as stated in Medical Times (2003). Obese adults have 50-100% increased risk of premature death compared to lean adults, as obesity leads to associated complications of coronary heart disease, hypertension, diabetes & pulmonary insufficiency. Modified diet and exercise can change the ‘bad gene’ of obesity.

The etiological factors according to the articles published in medicine health.com (2005) which are responsible for obesity are the genetics, gender, age, environment and psychology of an individual. As obesity tends to run in families because of genes and metabolic changes or hormones gender also seems to be the causative factor as men have more muscle than women which burn more calories thus depriving from being deposited in their body in the form of fat and adipose tissues. Whereas the same calories get stored in women’s body making
her obese and overweight. Age also seems to be the significant factor, as the age increases the metabolism of a person slows down, body tends to lose muscle, gains fat and consume more/less calories making the person obese.

Further the environmental factors like the lifestyle, eating habits and activity level effects the weight especially over eating and sedentary habits are found to be the risk factors for obesity. Sometimes emotions and psychological problems like depression, anger anxiety may force the person for overeating or some social pressures may lead to obesity and weight gain.

The international obesity task force estimates that up to 1.7 billion people may be exposed to weight related health risks which includes Asian Population with a BMI of 23 or more. It is estimated through a report of WHO (2000) that overweight attributes to other diseases and insulin resistance in females up to 50% with age group 30 and above, also sedentary lifestyle and wrong food habits had pushed the younger group towards obesity and future life-threatening diseases.

To control weight and maintain good health (2006) experts and nutritionists are of the view that women who include fiber, grains, fruit and vegetables in their daily diets can reduce their breast cancer risks significantly. Research indicates that eating fiber helps to protect against a number of disorders of the digestive tract such as constipation, gastrointestinal disease, hemorrhoids and possibly cancer of the large intestine or so. In addition, fiber-rich foods are ideal for weight control since they are filling but low in calories. Certain types of fiber in a meal slow down the uptake of sugars. Therefore, they play an
important role in the prevention of diabetes and related diseases i.e. obesity, cardiovascular diseases.

Obesity is found to be associated with etiological factors like physical inactivity, socio-economic status, familial tendency, endocrine factors (Cushing’s syndrome hormone deficiency) and eating habits.

BMI (body mass index) and WHR (waist hip ratio) counts for obesity and its complications to a greater enter.

Prevalence of overweight and obesity are associated with numerous co morbidities affecting cardiovascular risk, hypertension, diabetes and metabolic syndrome.

Dietary guidelines target both diet and physical activity and their balance to avoid metabolic disturbances in the body.

R.L. Billani & Taypee narrates that, Nutrition generally implies the interaction of food with the human body in health and diseases, which further relates with the requirements and appropriate amount of nutrients needed according to the physiological states, diseases condition and deficiency or so further more:

1. Obesity has been linked to increased mortality and morbidity in nearly all organ systems. The psychosocial stigmatizing of the obese, has an adverse impact on their education, occupation, social interaction and self esteem.

2. Obesity is promoted not only by the consumption of fat but also by over consumption of carbohydrates and protein. American women of 19 – 50 years of age get more fat from salad dressings than from any other food (Data from NHANES (1970) and Hurley and Collins (1997).
2.7. Osteoporosis:

Postmenopausal osteoporosis is a very common problem leading to increased risk of fractures. Osteoporosis is a global health problem and is characterized by low bone mineral density (BMD) and micro architectural deterioration of bone tissue leading to bone fragility as noted by Mercy Paul (2002).

The epidemiological factors show that there can be more incidences of vertebral and hip fractures as osteoporic bones become more fragile as the age advances, this can be predicted so also due to the increase in life expectancy and demographic changes.

Low body mass index (BMI) and low estrogen levels during menopausal phase are the main aetiological factors for osteoporosis in middle age and elderly women. Also other risk factors which are found responsible are genetics, gender, diet low in calcium and Vit-D, lifestyle, lack of physical activity, exercise and addiction etc.

The prevention strategies for osteoporosis to be followed as suggested by Marchigiano G. (1999) includes adequate nutrition during menopause with high intake of calcium and Vit-D. Also low doses of estrogen replacement therapy can reduce bone fractures if followed along with load bearing and back strengthening exercises and avoiding medications that affect bone health and absorption of nutrients.

Researcher – Dr. Ethel Siris, an osteoporosis expert at Columbia University states that the number of vertebroplasty treatment was doubled by 2004 i.e. 27,000 in which a form of cement is injected into the broken spinal cord where it shores up or nearly destroy the nerve endings that transmit pain.
According to Osteoporosis consensus development conference in Hong Kong (2002) – Osteoporosis is defined as a metabolic disease characterized by decreased bone mass and bone tissue leading to increased bone fragility and increase in fracture risk.

Osteoporosis is a chronic, progressive disease characterized by reduced bone mass and microarchitectural deterioration of bone. It is highly prevalent, affecting approximately one-third of women aged 60-70 years, and two-thirds of those aged 80 years and older- roughly 200 million women worldwide. It is the major cause of fractures – the most serious clinical consequence of osteoporosis – in middle aged and elderly adults. As estimated 40% of women aged 50 years and older will sustain an osteoporotic fractures in their remaining lifetime; however, these figures are likely to underestimate future risk because they are based on the assumption that life expectancy will remain stable. When accounting for future mortality trends, these fracture estimates rise to 47% for women and 22% for men.

Fractures have a profound impact on quality of life. Approximately 20%-25% of women over age 50 years have had one or more vertebral fracture, the most common osteoporotic fracture. They are associated with back pain, height loss, deformity and immobility. Hip fracture is often devastating, leading to chronic pain, reduced mobility, disability and loss of independence. In Europe and the US combined, more than 50,000 patients have hip fractures each year. Both vertebral and hip fractures are associated with excess mortality. For instance, approximately 20% of hip fracture patients aged 50 years and older die within one year.
The studies carried out by Quigley (2003) and Lips also suggest an optimal level of vitamin D serum for maximal absorption of calcium needed for better and healthy life.

As expressed in the A.D.A.M. editorial (2002), Researchers estimate that 13% to 18% of American women over the age of 50 have osteoporosis. In addition, 30% of them have osteopenia, which is abnormally low bone density that may eventually deteriorate into osteoporosis, if not treated.

They estimate that 50% of women over the age of 50 will suffer a fracture of the hip, wrist, or vertebra. Fewer men over the age of 50 have osteoporosis, with researchers estimating that 3-6% suffer from this disorder. In 1995, direct medical expenditures relating to osteoporotic fractures totaled $13.8 billion.

Etiology attributes menopause to advanced age, genetic and ethnic background. Women who are white especially those with a family history of osteoporosis, have a greater risk of developing osteoporosis. In fact, it is estimated that one out of two white women will experience a fracture relating to osteoporosis at some point in her life.

Smoking, eating disorders, low body weight, low amount of calcium in the diet heavy alcohol consumption, early menopause, absence of menstrual periods (amenorrhea), and use of certain medications, such as steroids and anticonvulsants, are also risk factors.

According to website (2005), there are no symptoms associated with the early disease. As such, osteoporosis is a silent risk factor for
fracture and manifested with fractures of the vertebrae, wrists, or hips usually the first indication i.e.

   Low back pain

   Neck pain

   Bone pain or tenderness

   Loss of height over time

   Stooped posture

   Treatment with – Estrogen can slow or stop bone loss and if estrogen treatment begins at menopause, it can reduce the risk of hip fractures up to 50%. Therapy is most effective if started at menopause as most bone loss occurs 3-6 years after the onset of menopause.

   Many post-menopausal women choose estrogen replacement therapy (ERT) because of its proven usefulness is slowing the progress of or preventing osteoporosis. In some cases, ERT alleviates some of the irritating symptoms of menopause.

   As advocated by Cooper. C. (1992),

   The National Osteoporosis Risk Assessment (NORA) study found that, compared with white women, black women were at lower risk, and Hispanic and Asian American women were at higher risk of having osteoporosis, which suggests that the absolute fracture risk in black women is substantial, although less than that of other racial/ethnic groups.

   Study of Women’s Health Across the Nation (SWAN) reported that after adjustment for covariates, femoral neck bone mineral density was highest in Blacks and similar in Chinese, Japanese and white
women. After adjustment for bone size and body weight, white women had significantly lower BMD values than Asian women, which could explain the higher rates of fracture in white women. The prevalence of osteoporosis at various regions of hip in the Chinese women are 10.1 – 193.8%, while that in the Japanese women are 11.6 – 16.8% as measured by DXA.

The epidemiology presented by Gulberg B (1997) reveals that bone loss in populations of Asian heritage especially Indians is still poorly known. Osteoporosis is widely prevalent in India and osteoporotic fractures are a common cause of morbidity and mortality in adult Indian women. It is possible that a dietary deficiency of calcium, beginning early in life, leads to lower bone mass and consequently osteoporosis at an earlier age. A low serum 25-hydroxy vitamin D level is possibly one of the reasons for lower bone mineral density in urban north Indian hospital staff.

Evidences of National osteoporosis foundation (2003) unveil that – Bone loss is most rapid during the first postmenopausal decade and due to oestrogen deficiency and advancing age it affects entire skeleton. In early postmenopausal years, bone loss averages 1-2% per year. Because the rate of remodeling is greater in cancellous bone than in cortical bone, bone loss due to oestrogen deficiency and ageing may be more rapid and manifest earlier at predominantly cancellous skeletal sites such as lumbar spine. Although, low bone mass is a major, consistent characteristic of postmenopausal osteoporosis, it is not associated with symptoms. But a strong inverse relationship exists between bone mass and susceptibility to fracture. Therefore bone mass is the primary indicator of fracture risk in women without fracture.
Vertebral fractures are hallmark of osteoporosis but hip, Colles and other fractures are also common. Certain nutritional and lifestyle factors or the presence of concurrent disease may accelerate bone loss independent of the effects of declining oestrogen concentration; thus the risk of postmenopausal osteoporosis can be further increased.

Osteoarthritis is the most common variety of arthritis in the United States. There are more than 100 kinds of arthritis with many different possible causes as depicted on website – health/arthritis.com.2005 – 1243 – html.

2.8. Anaemia:

The review published by Ezra E.W. Cohen, (2002) reveal that Aneamia develops slowly after the normal stores of iron levels deplete in the body and bone marrow. In general, women have increased loss of blood through and during menstruation, child birth, post menopausal bleeding and sometimes due to peptic ulcers, colon cancer or use of certain drugs like aspirin, steroids etc.

Approximately 20% women suffer from anaemia mainly due to iron deficiency and low hemoglobin levels. The study also highlighted the symptoms like fatigue, weakness, shortness of breath, sore tongue, decreased appetite and headaches associated with the patient suffering from long term disease condition.

The clinical reports in Health Encyclopedia given by Rebecca Elstrom (2001) show that deficiency of Vit-B-12 and folic acid are the most common causes of megaloblastic anaemia, which is characterized by blood disorder and longer size of red blood cells than normal which
may cause and show symptoms like tingling and numbness of hands and feet’s, pale skin, tiredness, sore mouth etc.

Causes of Anaemia include blood loss, nutritional deficits, medication reactions, heavy bleeding and iron deficiency most commonly found in menopause women – Overview health.yahoo.com. (2005). Iron is an important element in human metabolism. It is present in all cells of the body and involved in many intracellular processes in almost all the tissues of the body.

According to M.B. Agarwal (2004) the increased insight into the physiological process has helped to understand the clinical and pathological manifestations of Iron deficiency anemia which further leads to major health problems.

As elicited by Vivin M. Thomas (2004) et.al, iron deficiency anemia is the commonest anaemia both in developed and developing countries. Globally 30% of the world population is anaemic as observed by the general practitioners and haematologists. Comprehensive surveys were conducted by NHANES (National health and nutritional evaluation survey) in USA and Canada between 1971 – 2000. Latest NHANES detected the prevalence of iron deficiency among children (7 – 9%), female adolescents (16%) and among adult and middle age women (19 – 22%).

As quoted by Krishnadas (1980) the prevalence of IDA and the resultant morbidity needs to be highlighted, as it badly hinders the mental development of a child and progress of a country gets hampered therefore awareness about consumption of iron, ascorbic acid must be publicized, cooking in Iron utensils should be encouraged through
health education programs in antenatal civics, anganwadie and mahila mandals.

A national family health survey (1999) revealed the poor nutritional conditions of different states. Evidences of IDA was prevalent at a lower rate in Kerala and Manipal and higher in Bihar and tribal groups of Sikkim and Assam.

The result of a multi-centre survey of ICMR (2000) highlighted the prevalence and etiology for IDA. It suggested prophylactic doses of iron and folic acid (60mg & 500mg) for women and children (20mg & 100mg) to overcome iron deficiency with NNACP (National Nutritional Anemia Control Program) collaboration.

Historically, as revealed by Gourdek (1990) iron deficiency anaemia is characterized by pollor, dyspnoea and odema which was described in and around 1500 B.C. in Papyrus bears a manual of therapeutics. In 17 century anaemia was also known as ‘green sickness’ or ‘cholorosis’ which most commonly affected women with poor diets, multiple pregnancies and menstrual irregularities. Then in 1832 a French professor (Pierre bland) reported successful treatment with iron tablets.

As interpreted by Lee (2001) the clinical and psychological manifestations of anemia include – neuromuscular and behavioural changes, dizziness, headache, irritability, stomatitis, spoon shaped nails, numbness and tingling of peripherals, lack of interest and concentration.

According to Weinberg E.D. (1996) anaemia in cancer patients is common and may contribute significantly to quality of life. Its
prevalence approaches 50%. This figure may rise to over 90% in patients with more advanced cancer and in those receiving radiotherapy and/or chemotherapy. Anaemia in the cancer patient can be multifactorial. It can be caused by blood loss, iron or vitamin deficiency, chemotherapy, radiation to the marrow, stem cell damage, hemolysis, hypersplenism, drug toxicity and tumor involvement of the marrow. Among these, iron deficiency anaemia is frequently encountered. Equally important is anaemia of chronic disease (ACD), a form of anaemia in cancer patients mediated by inflammatory cytokines.

2.9. Cancer:

A survey carried out by G. Mishra in rural known areas showed that the case studies which were analyzed under the supervision of Tata Memorial Hospital, Mumbai, were carried out to facilitate the medical aid and checkups based on pathological and clinical profiles of cancer patients. The study revealed that both genders were equally found malignant and especially 49.53% women among cancer detected were suffering from either carinoma of breast, cancer of cervix, ovary or oral cavity. The subjects selected were between 41 to 60 years and were suggested for further treatment through surgery, chemotherapy or radiotherapy respectively.

Breast cancer is the second most common cancer in women world wide as stated in the ICMR Bulletin (2003), which 1.05 million of new cases being estimated in the year 2001. North America and US white women are at high risk with incidence rate 103.5 per 10,000 white women. Developed and developing countries like India too has an increasing trend for cancer in most of the metropolis with Mumbai topping the list. Late menopause, early menarche, late Child birth and
factors such as estrogen replacement therapy and hormonal pills seem to be responsible and some genetic or stress factors may also cause increase in the risk for breast cancers.

The Website Oncolink unveiled (2005) that breast cancer is the most common malignancy affecting women in North America. Every woman is at risk and breast cancer is the second leading cause of cancer death in United States next to lung cancer. The lifetime risk of any particular woman getting breast cancer is about one in eight, although the lifetime risk of dying from breast cancer is much lower as 1 in 28 or so.

The most important risk factors for the development of breast cancer cannot be controlled individually. There are some risk factors that are associated with an increased risk, but there is a clear cause and effect relationship. In no way can strong recommendations be made like cause and effect relationship seen with tobacco and lung cancer. There are a few risk factors that may be modified by a woman which potentially could influence the development of breast cancer possible, a woman should avoid long-term hormone replacement therapy, avoid having children before age of 30, avoid breastfeed them, avoid weight gain through exercise and proper diet, and limit alcohol consumption to 1 drink a day or less. For women already at a high risk, have chance of developing breast cancer by about 50% by taking a drug called Tamoxifen for five years Tamoxiten has some common side effects (like hot flashes and vaginal discharge), which are serious and some uncommon side effects (like blood clots, pulmonary embolus, stroke, and uterine cancer), which are life threatening. Tamoxifen isn’t widely used for prevention, but it is useful in some cases. There are limited
data suggesting that vitamin A may protect against the cancer but further research is needed before it can be recommended for prevention. Others being investigated include phytoestrogens (naturally occurring estrogens that are in high in soy), vitamin E, vitamin C, and other drugs. Further testing of these substances is also needed before they can be recommended for breast cancer prevention. Right now, the most important thing any woman can do to decrease her risk of dying from breast cancer is to have regular mammogram screening, learn how to perform breast self exams, and have a regular physical examination by their physician and get more information on breast cancer prevention.

According to Logan (1975) breast cancer is one of the commonest causes of death in many developed countries in middle aged women, and is becoming frequent in developing countries as well, eg. Egypt, Tunis, Europe, Scotland, India, Japan, North America and other world wide records show 3, 76,000 due to late diagnosis of breast cancer and its treatment.

Cervical cancer is also found to be increased at alarming rate with 5,24,000 new cases in 1995 among the women of North America, Western Europe, Africa, South East Asia including India and Pakistan.

According to Prof. Hasan Mukhtar of the University of Wisconsin, USA (2006), obesity is also linked to an increased risk of breast cancer especially in premenopausal women who gain weight during young adulthood. Obese women are more likely to get breast cancer. ‘Obese’ means more than 40% overweight. It is best to maintain a healthy weight, limit red meats and choose foods from plant sources.
According to Prof. S.M. Hadi of the Department of Biochemistry, Aligarh Muslim University, Aligarh, the proxidant action of plant polyphenois is an important mechanism responsible for their anticancer properties. Moreover, the green tea polyphenol, Epigallocatechin-3-gallate (EGCG), was found to be the most effective anticancer polyphenol.

However, family history of breast cancer, sedentary lifestyles, and diets high in saturated fat also place women at risk for breast cancer. Furthermore, pesticides have also been linked to breast cancer as for example Lindane. Studies of Prof. Javed Musarrat at the department of agricultural Microbiology, AMU, Aligarh showed that the agrochemical –DNA/protein adduct formation could initiate the process of carcinogenesis. Therefore, it is good to wash all fruits and vegetables before use so that all pesticide residues are removed.

Stress can cause Breast Cancer in women study of 40 patients (MCH) by Dr. Varsha Sagdeo revealed that stress and pscho-neuroendocrinology and pscho-immunological factors can be a potential cause.

The chance of Breast Cancer increases with age especially after menopause. Upto 50 years of age, the baseline breast cancer risk is 18 per 1000 women i.e. 2% risk and between age group of 50 – 60 the risk of cancer increases upto 4% in 1000 women, which shows lack of estrogen may lead to breast cancer according to the study – HRT Menopause.
2.10. Tuberculosis:

There are Evidences of wikipedia (2007) which highlight many causative factors that make people susceptible to TB infection: worldwide the most important of these is HIV. Co-infection with HIV is a particular problem in Sub-Saharan Africa, due to the high incidence of HIV in these countries, lifestyle, or environmental aspects.

Tuberculosis has been present in humans since antiquity. The earliest unambiguous detection of Mycobacterium tuberculosis is in the remains of bison dated 17,000 years before the present. However, whether tuberculosis originated in cattle and then transferred to humans, or diverged from a common ancestor, is currently unclear. Skeletal remains show prehistoric humans (4000 BC) had TB, and tubercular decay has been found in the spines of mummies from 3000-2400 BC. Phthisis is a Greek term for tuberculosis; around 460 BC. Hippocrates identified phthisis as the most widespread disease of the times involving coughing up blood and fever, which was almost always fatal. Genetic studies suggest that TB was present in South America for about 2,000 years.

According to World Health Organization (WHO), nearly 2 billion people—one-third of the world’s population have tuberculosis. Annually, 8 million people become ill with tuberculosis, and 2 million people die from the disease worldwide. In 2004, around 14.6 million people had active TB disease with 9 million new cases. The annual incidence rate varies from 356 per 1,00,000 in Africa to 41 per 100,000 in the Americas. Tuberculosis is the world’s greatest infectious killer of women of reproductive age and the leading cause of death among people with HIV/AIDS.
In 2004, the country with the highest incidence of TB was South Africa, with 718 cases per 100,000 people. India has the largest number of infections, with over 1.8 million cases. In developed countries, tuberculosis is less common and is mainly an urban disease. In the United Kingdom, TB incidences range from 40 per 100,000 in London to less than 5 per 100,000 in the rural South West of England; the national average is 13 per 100,000. The highest rates in Western Europe are in Portugal (42 per 100,000) and Spain (20 per 100,000). These rates compare with 113 per 100,000 in China and 64 per 100,000 in Brazil. In the United States, the overall tuberculosis case rate was 4.9 per 100,000 persons in 2004.

The incidence of TB varies with age. In Africa, TB primarily affects adolescents and young adults. However, in countries where TB has gone from high to low incidence, such as America, TB is mainly a disease of older people.

The research centre Mayodinic (2007) reveals that in the United States, concern about the spread of tuberculosis played a role in the movement to prohibit public spitting except into spittoons also personal hygiene was emphasized. In Europe, deaths from TB fell from 500 out of 100,000 in 1850 to 50 out of 100,000 by 1950. Improvements in public health were reducing tuberculosis even before the arrival of antibiotics, although the disease remained a significant threat to public health, such that when the Medical Research Council was formed in Britain in 1913 its initial focus was tuberculosis research. Besides surveillance, treatment, surgical intervention and chemotherapy were included since last many decades. The resurgence of TB resulted in the declaration of a global health emergency by WHO in 1993, even though
in 2000 there were 6,300 confirmed cases and over 8,100 cases in 2005. Due to the elimination of public health facilities in New York and the emergence of HIV, there was a resurgence in the late 1980s. The number of those failing to complete their course of drugs is high. NY had to cope with more than 20,000 “unnecessary” TB-patients with multidrug resistant to at least, both Rifampin and Ionized and others.

The report (2006) highlighted a national level meeting of experts held in September 2005 to discuss and finalize operational and technical guidelines for implementation of DOTS plus in the country, with an objective to prevent and have surveillance to make the cost effective treatments nation wide for tuberculosis.

At the end of 3rd quarter, 2005, DOTS services under Revised National Tuberculosis Control Programme are accessible to 95% of the population in 604 districts in 35 states and Union Territories of the country. The population coverage in the 3rd quarter has increased from 1030 million to 1059 million. Almost the entire country has access to DOTS services except a few districts in Bihar and Uttar Pradesh, which are likely to be covered by end 2005.

The performance of RNTCP in most parts of the country is satisfactory. However, compared to new smear positive case detection rate of 75% in 3rd quarter 2004, the performance in the current quarter is low (68%). The performance of populous states of Bihar (28%) and Uttar Pradesh (49%) is low resulting in decrease in national average. It might be a result of the expansion in several districts of Bihar and Uttar Pradesh, but is viewed seriously and the programme implementation
and performance in these states needs to be monitored closely by all concerned.

As the programme enters Phase II of project implementation, there is a need to consolidate and sustain the achievements for 2-3 decades to have an impact on epidemiology of TB. For this prolonged battle towards TB control, the highest level of commitment from the states is required to maintain the quality of the DOTS services and achieve the ultimate goal of TB control in the country.

2.11. Asthma

As per the online information about Asthma (2001), Healthy lungs are essential to feeling good. The lungs are the organs we use to breathe. They work by taking oxygen from the air we breathe in and then exchanging it for carbon dioxide, a deadly waste product made by the cells of the body. Once this exchange has taken place, we can then get rid of the carbon dioxide by breathing it out, or exhaling.

Asthma is a disease that affects the lungs and the airways that deliver air to the lungs. It causes periodic attacks of wheezing and difficult breathing. An asthma attack occurs when the airways become inflamed in response to a trigger, such as dust, mold, pets, exercise, or cold weather.

However, some attacks start for no apparent reason. Triggers may inflame the airways to the lungs, allowing disease-fighting cells to

Whatever your race, it is important for all people with asthma to develop a plan for controlling asthma attacks. By noticing warning signs and acting on them, you or your child may be able to avoid a serious episode of asthma.

There are some special concerns for African Americans and Hispanic Americans with Asthma ....
accumulate and causing swelling in the lungs. In addition, the airways may become blocked or obstructed when the muscles surrounding the lungs tighten or go into spasm.

This keeps air from circulating freely in the lungs. Or, mucus may clog and narrow the airways in the lungs making breathing even more difficult.

Reveals that some asthma attacks are quickly reversed by taking a bronchodilator medication. These ease symptoms by opening the constricted airways. Other episodes are more prolonged, and, as the airways become more inflamed and clogged with mucus, breathing becomes increasingly difficult. In such cases, an injection of epinephrine (Adrenalin) and a corticosteroid drug may be needed to stop the attack.

Although asthma is a chronic disease, the changes that occur during an attack are temporary, and the lungs generally function normally at other times. When asthma starts during childhood, the frequency and severity of attacks tend to lessen as the youngster grows and may disappear by adulthood. Some adults, however, suffer a recurrence, often as an aftermath of a viral infection. In such cases, the asthma may be even more severe than it was in childhood.

Doctors agree that the best treatment for asthma entails identifying and then avoiding its triggers. In some instances these are obvious- for example, exposure to tobacco smoke and other noxious fumes, cold air, exercise, or an allergy to animal dander. Seasonal asthma is usually due to various pollens, molds, and other environmental factors. Suspected allergens can usually be identified by blood and skin tests.
In many asthma sufferers, food allergies are a trigger; in these cases, identifying the culprits may require considerable detective work, especially in children. Because food allergies vary from person to person, there is no handy list of offenders. But sometimes a child unconsciously links a food with his asthma by fussing or refusing to eat it. Complaints such as “it makes my mouth feel funny” may point to an allergy. Often, foods that trigger asthma are identified by keeping a careful record of the time and ingestion of all foods and drinks, as well as any asthma symptoms. After a few weeks, a pattern of offending foods may emerge. A doctor can then do confirming skin or other allergy tests.

For some people, inadvertently ingested environmental allergens are the problem rather than the foods. People allergic to ragweed, for example, may also react to pyrethrum, a natural pesticide made from chrysanthemums, or to other allergens related to plants. Similarly, people allergic to mildew and other environmental molds may react to molds in foods; common offenders include cheese, mushrooms, hot dogs and other processed meats, as well as anything that is fermented, including soy sauce, and vinegar.

As stated there were no specific foods that prevent asthma, but some may lessen its complications. Omega-3 fatty acids, found in salmon, mackerel, sardines, and other cold-water fish, have an anti-inflammatory effect and may counter bronchial inflammation. Evidence continues to grow on the protective effects of fruits and vegetables on lung function. (2004).

Eat at least 5 to 10 servings of fruits and vegetables daily and include one citrus fruit. These foods all provide a variety of vitamins,
minerals, and antioxidants important for healthy lung function. Vitamin ‘C’ helps promote a healthy immune system and may be helpful in reducing wheezing in children with asthma. Some studies have linked weight gain with adult-onset asthma. In addition, when obese people with asthma lose weight, there can be an improvement in asthma symptoms.

Like everyone else, asthma patients need to consume a healthful, balanced diet, but this is sometimes difficult if allergies require eliminating entire food groups (for example, milk and other dairy products). A dietitian can recommend substitutes or supplements to ensure maintaining good nutrition.

Asthma drugs can create nutritional problems. Long-term steroid use, for example, causes bone loss; vitamin D and calcium supplements may be needed to strengthen bones. Potassium deficiency is another potential problem; it can be prevented by eating ample citrus fruits, bananas, dried fruits, berries, beets, tomatoes, and green leafy vegetables. Epinephrine and other bronchodilator drugs can cause feelings of nervousness which are exacerbated by caffeine. It may be advisable to switch to decaffeinated coffee.

### 2.12 Other Health Complaints:

According to Dr. Manoj L. (Managing Anxiety & Depression) (2003) Anxiety with underlying depression is a common disorder and accounts for one of the 10 leading health complaints worldwide. Research data have shown association between the chronic illnesses and depression. Depression is associated with diabetes, cardiovascular disease, multiple sclerosis, abnormalities, cancer, osteoporosis, obesity, anaemia and aging.
The epidemiological studies show the relationship between depression, diabetes and co-prevalence of other complications and ailments with a significantly higher rate ranging between 8 – 27% prevalence among female patients more as compared to male patients.

Stroke is the third leading cause of death and common ailment found among middle age people.

As declared by Dalal (2001), Stroke is a goal epidemic and an important cause of morbidity and mortality. It ranks next to cardiovascular and Cancer as a cause of death. He was warned that “India will face an enormous socio-economic burden to meet the cost of rehabilitation of stroke victims owing to increased life expectancy”. Statistical evidence suggests that 1880 stroke victims die every day which is 22 times of death due to malaria and 1.4 times of that due to tuberculosis. Though, there are national programs in malaria eradication and tuberculosis control, there is hardly any government support in stroke management and rehabilitation. National Health Policy should aim both at primordial and primary prevention, community awareness, stroke management and research promotion.

According to Hastak (2006), STROKE IS AN EMERGENCY AND “TIME IS BRAIN”. Early detection and prompt treatment can prevent morbidity as well as mortality. The hospital system should offer emergent stroke health services with due flexibility based on previously set evidence based guidelines meant for stroke management.

Relatives fail to recognize the symptoms of stroke and exhibit reluctance to seek emergent medical care. Other factors causing delay in early stroke detection are lack of transport system, improper or delayed diagnosis Valuable time may be saved by educating the
community through awareness programs and training the team of Neurologist, Radiologist, Intensivist, Neurosurgeon, Junior doctors and Nursing staff through accredited stroke management course by recognized bodies and the institution itself. Emergency Medical personnel should be trained to identify early signs of stroke, practise triage and co-ordinate with radiologist and stroke team to safeguard the health of the patients. Strokes come under CUD and the person suffer form partially brain cell damage and disability.

Dhayan (2003) associates sleep with general health as Insomnia is the most commonly reported sleep complaint, with surveys performed in the United States, Europe, and Asia suggesting a prevalence rate for chronic insomnia (typically defined as an insomnia duration of 1 month or longer) of between 10% and 20%. Intermittent problems with insomnia are even more common, with an additional 20-30% of the adult and middle age population likely to report experiencing insomnia at some point in time over a 1-year period. Insomnia also tends to increase in prevalence with age, with an incidence of nearly 30% observed in patients over the age of 65 (Fig. 1). In the primary care setting, roughly half of all patients experience insomnia, and of those, about 33% discuss it with their physician; only 5% of these patients eventually seek treatment.

The study carried out by Michael (2007) reveal that Insomnia is a common disorder that affects patients with greater frequency as they age. With an understanding of its characteristics, including factors that may precipitate, predispose to, or perpetuate insomnia, clinicians can devise on overall management strategy aimed toward providing a restful night’s sleep for their patients. Techniques that improve sleep
hygiene should be encouraged, as these methods can contribute to the emergence of improved sleep.

The new updates flashed on website (2008) Medicine Net.com revealed that, based on the guideline from the 2001 National Cholesterol Education Program Adult Treatment Panel (ATP III), any three of the following traits in the same individual meet the criteria for the metabolic syndrome.

1. Abdominal Obesity: a waist circumference over 102 cm (40 inches) in men and over 88 cm (35 inches) in women.
2. Serum triglycerides 150 mg/dl or above.
3. HDL cholesterol 40 mg/dl or lower in men and 50 mg/dl or lower in women.
4. Blood Pressure of 130/85 or more.
5. Fasting blood glucose of 110 mg/dl or above. (Some groups say 100 mg/dl).

Metabolic syndrome is quite common. Approximately 20% - 30% of the population in industrialized countries have metabolic syndrome. By the year 2010, the metabolic syndrome is expected to affect 50 – 75 million people in the U.S. alone.

2.13 Health Education:

The project report presented by George & Etal (2006) advocates that, The Disease Control Priorities Project (DCPP) is a joint project of the Fogarty International Center of the US National Institutes of Health, the WHO, and The World Bank, was launched in 2001 to identify policy changes and intervention strategies for the health problems of low-
income and middle-income countries. Nearly 500 experts worldwide compiled and reviewed the scientific research on a board range of diseases and conditions. A major product of DCP 2 (DCP2), focuses on the assessment of the cost-effectiveness of health-improving strategies (or interventions) for the conditions responsible for the greatest burden of disease. DCP2 also examined crosscutting issues crucial to the delivery of quality health services, including the organization, financial support, and capacity of health systems.

So as to improve health conditions globally with a positive approach through health education, medical support and primary prevention strategies are necessary as suggested by Prabhat (2006).

Health education is indispensable in achieving individual and community health. It helps to increase knowledge and reinforce desired behaviour patterns and changes.

Green (1999), elicits that health education brings together the art and science of medicine, and the principles and practice of general education.

Good health education is based on facts- that means it must be consistent and compatible with scientific knowledge and also with the local culture, educational system & social goals.

The health educator must find out the real health needs, most of them which are unaware by the people. A high degree of participation tends to create a sense of involvement, acceptance & interest.

In health, education motivation and comprehension are important factors as unless the health programmes are not presented in simple and lucid language, motivation may not be possible.
Other factors which make health education more effective are reinforcement, communication, individual approach, acknowledgement, planning, counseling and feedback.

World Health Organization (1995) has set a new division of health education and health promotion, which will support and connect the regional and international offices to strengthen the capabilities of these medical based health services.

2.13.1. Diet and Diet Modification:

Trials of women’s Intervention Nutrition Study (WINS) (2005), which included 2,500 women are based on dietary experiment which were presented at American Society of Clinical Oncology reveal that low fat diets showed significant results in breast cancer risk.

Lower the fat intake lower were the changes of breast cancer with P-values of 7% and greater the fats consuming higher the chances of newer breast cancer development. However, diet modification, family history (genetic make up) food habits and healthy lifestyle may reduce the cancer risk from observational studies.

The study also revealed that diabetes leads to blindness, heart disease, strokes, kidney failure, and even death according to a American medical survey - (2002) (Your Medical Source.com.).

Also numerous epidemiological studies have identified dietary patterns and food categories associated with reduced risk of CVD.

Appropriate nutritional practices are of central importance in managing risk for atherosclerotic CVD. Indeed, many of the current dietary guidelines for the health of the general population aim to prevent cardiovascular disease, for which certain dietary modifications are helpful to reduce the risk of diabetes and heart ailments.
The involvement of dictation and other members of a health care team can greatly aid this goal. The dietary guidelines prepared by ‘American Heart Association’ (ANA) National Heart, Lung, and Blood Institute (NHLBI) (2006) and other health evaluation committees recommended the importance of intake about fresh fruits and vegetables, whole grains, nuts and legumes, fish, poultry, low fat milk products, lean meat and other micro nutrients and fibre along with moderate amounts of unsaturated fats, including omega fatty acids, and lower content of saturated and trans fatty acids, sugars and starches as all these with a high glycolic value show a significant effect on overall health and also surprisingly reduces 30% risk of CVD.

The study shows 27% reduction in CVD when fruits and vegetables are taken as 3-4 serving’s a day. DASH (Dietary Approaches to Stop Hypertension) and data suggest that food based on leafy veg is helpful in maintaining cardiovascular health.

Number of studies associate the consumption of wholegrains and fibre with reduced risk of CVD, especially vitamins, phytoestrogen, phenols, omega-3 fatty acids, starch and minerals from plant foods help in reducing CVD evidences.

Increased intake of certain legumes (peas, beans, soybeans and lentils) has been associated with reduced CVD risk. Soy proteins and soyisoflavones food to be lowering cholesterol levels in blood.

Nuts were good sources of monounsaturated fatty acids, fiber, minerals and flavonoids. Several large studies have indicated an association of nut consumption (meal nut and almond) with CVD risk.
Women who conserved 502 gm of nuts per—had a 35% lower risk of non-fatal MI compared with those eating less than 102 gm of dry fruits.

Clinical traits have supported evidence from epidemiological studies that high intakes of fish may particularly benefit patients with CHD due to presence of omega – 3- fatty acids.

Eicosapentnoic acid (EPA) and docosahenanoic acid (DHA)

A dietary regimen planned and evaluated under “Life-style heart Trial” showed significant CVD risks effects of low fat diets followed by vegetarian diet, aerobic exercise, stress ---, smoking cessation, and psychosocial support as played an important role in safe guarding health.

A recent study published in “The European Journal of Epidemiologist” reveals that studies carried in different countries showed high risk of heart attack in 15% women or men due to stress load for the forth coming week and stress of overbearing bosses, heavy workloads which increased Blood Pressures as well.

It also stressed to consume food which contain wholegrain, brown rice, soya, coloured fruits and vegetables, skimmed milk (200 mls/day), handful of nuts, beans, mustard or olive oil but avoiding white bread, sugar, refined rice and food which can keep a woman away from menopausal trauma and other ailments.

The premise behind low-carbohydrate diets is that carbohydrate foods stimulate production of insulin, the hormone that is responsible for transporting glucose into the cells, where it is used for energy, with excess amounts being stored as fat. Since protein-rich foods do not
cause the same rise in insulin levels, substituting them for carbohydrate foods promotes the use of stored fat for energy, resulting in weight loss.

Low-carb diets range from extreme to more moderate. Some of the more extreme approaches, like Dr. Atkins or the South Beach diet, recommend a carbohydrate level of 20 or 30 g per day during their initial stages. The current Recommended Dietary Allowance (RDA) for carbohydrate is a minimum of 130 g per day, with most people eating well over 200g per day. Moderate diets, like The Zone, suggest carbohydrates represent 40 percent of calories (the current recommendation ranges form 45 to 65 percent), balanced with protein and fat at every meal.

Many low-carb diets allow unlimited amounts of meat, poultry, fish, and eggs, some non-starchy vegetables, nuts, seeds, oils and other fats. Some allow small amounts of fruits, dairy and whole grains. Processed carbohydrates, like breads, pastas, cereals, and sugary foods, are restricted.

**Pros:**

There’s good evidence that during the first 6 months, low-carb diets can result in more rapid weight loss than conventional low-calorie, low-fat diets. Studies show that during this time, subjects on low-carb programs lose up to twice the weight as those on conventional diets.

Low-carb diets can initially be easier to follow because the higher levels of protein and fat suppress appetite and keep dieters feeling full longer.
When compared to conventional diets, low-carb diets, in the short term, may have a more beneficial effect on both HDL cholesterol (the “good” cholesterol) and triglyceride levels. Both these factors are important for cardiovascular health. In one 6-month study, participants on a low-carb diet saw their “bad” LDL cholesterol drop by 10 points and their HDL increase by 10 points. Those on a low-fat diet showed a similar reduction in total cholesterol, but some of the loss came from a drop in HDL cholesterol.

**Cons:**

The early weight-loss effect of low-carb diets decreases over time. But about 12 months, there is no significant difference in weight loss using a low-carb diet versus a conventional approach with restricted calories and fat.

Many of the stricter low-carb diets put the body into ketosis. Ketosis is the accumulation in the blood of ketones, which are by-products of fat metabolism. Ketosis is not a normal body state and can result in nausea, dehydration, dizziness, fatigue, and bad breath. The longer-term effects of chronic ketosis on health are unknown.

Because of the low-fiber, high-fat profile of many low-carb diets, constipation is often an unwanted side effect.

The lack of variety of food choices, particularly in the beginning, can make the diet difficult to stick with in the longer term. The lack of variety also means that there is a potential for inadequate intakes of important vitamins and minerals.

There are no studies on the long-term effects of low-carb diets on health. The effects of high protein and high fat intakes on kidney
function, bone health, cardiovascular function, and cancer rates are unknown.

The low-carb diets allow far less than the 5 to 10 servings of fruits and vegetables a day associated with good health. In addition, scientific research has linked excessive meat consumption to colon and prostate cancer, and high protein intake with calcium loss from bones.

Thus, there is convincing evidence of the short-term effectiveness of low-carb diets. But over longer periods of time, these diets lose their advantage over low-calorie, low-fat diet approaches. In addition, significant concerns over long-term health effects remain.

Whatever weight-loss goals one should remember that good health is an important goal too. Hundreds of studies show that a diet that includes plenty of fruits and vegetables, whole grains, and lean protein sources, which is low in saturated fat, is strongly linked to a decreased incidence of diseases.

To control obesity researchers are working round the clock for the remedies other than medicine, surgery (Bariatric abdomen surgery which has been disapproved very recently due to its own drawbacks) or alternate therapy.

Joe Schwarcz, (2007), Highlights the importance and pros and cons of low carb diets which can be regarded among modified diets as Research (2007) reveal that there are small (four important nutrients for menopause)

a. Vitamin E. Considered useful in alleviating hot flashes and thought to offer some heart protection although a recent study showed that 400 IU of vitamin E taken twice daily reduced hot
flashes just slightly more than the placebo. Although some foods, such as nuts and seeds, egg yolk, and wheat germ contain vitamin E, you’ll need to take a supplement to get a therapeutic dose.

b. Calcium. To help prevent the development of osteoporosis. Good sources are milk products, sardines, almonds, broccoli, and spinach. To absorb calcium, the body needs vitamin D, which can be made by the skin after exposure to the sun; dietary sources of this vitamin include fortified milk and margarine, eggs and fish oils.

c. Magnesium. Work with calcium to maintain bone density. Found in whole grains, milk and milk products, tofu, nuts and seeds, and legumes.

d. Phytoestrogens. Can help alleviate hot flashes. May also protect against heart disease and osteoporosis. Foods rich in phytoestrogens include soy foods, flaxseed, chickpeas, and other legumes.

As illustrated by kris (2004) Historically, epidemiologic observations of diet and CVD in Japan have linked soy-product consumption with a decreased risk to CVD (10). More recently, the Shanghai Women’s Health Study reported that soy-food consumption was associated with a reduced risk of coronary heart disease, especially nonfatal myocardial infarction, in women. However, large-scale randomized controlled trails have not consistently shown a beneficial effect of antioxidant supplements on CVD morbidity and mortality endpoints.

Therefore it requires further investigation to determine the mechanisms responsible for these effects. Until then, it remains prudent
to recommend soy products in a heart healthy diet because of their nutritional value and as a healthy substitute for protein sources that are higher in saturated fat and cholesterol.

Issues raised by Farshchi et al (2005) are whether the effects on metabolism of eating regularity are independent of or mediated by energy intake, and, if there are independent effects, what mechanisms contribute to these effects. With respect to insulin resistance, endocrinologists have long known that, when diabetics are hospitalized for observation, they have significant improvements in blood glucose and insulin concentrations-an effect partially caused by the consumption of regular balanced meals. Yet the exact mechanism supporting improved insulin response is unknown.

Gannon (2003) declares that the increase in obesity over the past decade requires a better understanding of meal timing and eating frequency. The study by Farshchi et al raises key issues of body weight and food consumption and, once again, highlights the urgent need to improve the methods of obtaining valid energy intake records. Whether some persons may be more susceptible than others to increasing their energy intake amid the hustle and bustle of today’s lifestyle is key. Future studies directed towards ascertaining the importance of the timing of eating, as compared with other dietary factors, to energy intake and metabolism will aid immensely in the formulation of innovative therapeutic and preventive strategies for weight control and chronic disease as such.

Marie – Pierre & etal (2005) in their review ascertain that functional foods are similar to conventional foods in appearance, but they have benefits that extend beyond their basic nutritional properties.
For example, functional foods have been studied for the prevention of osteoporosis, cancer, and cardiovascular disease. They have yet to be related to the prevention of obesity, although obesity is one of the major health problems today. The inclusion of foods or the replacement of habitual foods with others that may enhance energy expenditure (EE) or improve satiety may be a practical way to maintain a stable body weight or assist in achieving weight loss; such foods may act as functional foods in body weight control. Some foods that might be classified as functional foods for weight control because of their effects on EE and appetite-including medium-fats (triacylglycerols, diacylglycerols), tea, milk, and nuts – are reviewed here. Only human studies reporting EE, appetite, or body weight are discussed. When studies of whole food items are unavailable, studies of nutraceuticals, the capsular equivalents of functional foods, are reviewed. To date, dietary fats seem to be most promising and have been the most extensively studied for their effects on body weight control. However, the weight loss observed is small and should be considered mostly as a measure to prevent weight gain. Carefully conducted clinical studies are needed to firmly ascertain the effect of tea, milk, and nuts on body weight maintenance, to assess their potential to assist in weight-loss efforts, and to ascertain dose-response relations and mechanisms of action for the 4 food types examined.

The most compelling evidence in support of diet modification as a means of controlling blood pressure comes from two trials sponsored by the National Institutes of Health. Together the studies are known as the DASH diet. Researchers agree that diet plays a critical role in both the development and treatment of atherosclerosis. Cholesterol is
the major component of atherosclerotic plaque, and numerous studies correlate high levels of blood cholesterol with atherosclerosis. Research indicates that atherosclerosis can be slowed and even reversed by lowering cholesterol in the blood—particularly the levels of low-density lipoproteins (LDLs), the bad type of cholesterol.

Elevated triglycerides, another type of lipid that circulates in the blood, also may contribute to atherosclerosis. People with diabetes tend to have high triglyceride and cholesterol levels, which may explain why diabetics are so vulnerable to heart disease.

Dietary treatment for atherosclerosis entails limiting total fat intake to 20 to 30 percent of calories, with saturated fats (found mostly in animal products and palm, coconut, and palm kernel oils) comprising no more than 10 percent of calories. In addition to limiting saturated fats, experts suggest reducing intake of trans fatty acids and hydrogenated fats. These trans fats are the result of hydrogenation and are known to raise your LDL cholesterol. Trans fats come in packaged foods such as cookies and crackers and snack foods such as chips. Some experts advocate even more stringent fat reduction; these include Dr. Dean Ornish, the cardiologist who had developed a comprehensive lifestyle approach to treating heart disease, which combines a healthy low-fat diet with exercise and methods for dealing with stress. His atherosclerosis-reversal regimen limits fat calories to 10 percent of the diet and virtually eliminates saturated fats.

Studies indicate that beta carotene and vitamins C and E may protect against atherosclerosis by preventing LDL cholesterol from collecting in atherosclerotic plaque. Regular intake of say protein may
raise HDL cholesterol (the “good” cholesterol) as well as provide antioxidant protection.

Diet is not the only factor that contributes. Maintaining an ideal weight, abstaining from smoking, increasing exercise, developing effective methods of coping with stress, and keeping blood pressure and blood sugar levels within normal limits are also important.

2.13.2 Lifestyle changes:

There has been a surge in scientific and medical studies on yoga and meditation science 1960’s (2004).

Investigation on Hatha Yogic technologies have made the physiologists to question the nomenclature of involuntary remarks system.

The Asanas, Mudras, Panoramas have improved cardiovascular fitness, physical activity and parasympathetic activity. Thus making it a Lifestyle changes which leave a positive impact on the body.

Whereas Meditation also showed positive effects on EEG synchronizing study. It revealed that meditation and relaxation reduced blood pressure in hypertensive subjects and provided peace and concentration.

As stated by Dr. v. Mohan & R. Pradeepa (2002) Exercise and physical activity can prevent non-communicable-diseases [NCD]. The review shows that Exercise increases the flow of lymphatic fluid and increases the number of white blood cells which fight cancer.

Further more exercise helps in losing weight, thus maintaining the body BMI which decreases the risk of cardiovascular diseases and delays the prevalence of high blood pressure as well.
Researchers also found that regular exercise can lower blood sugar, it helps to improve the consumption of glucose by the body and thus controlling Type-two-diabetes without the need for other medication.

As highlighted through a Research article (2007) presently diet and exercise are considered best to preserve and promote health. Let us now review some effects of these concepts with established facts. In early 60’s heart attack rate in USA became major public health problem. Exercise was advocated as a preventive measures. People took to exercises like jogging, running, weight lifting. However death rate continued to rise amongst those who suddenly began strenuous exercises. The American Heart Association (2007) intervened and recommended slow and sustained exercise, gradual warming up than running to sweat and pant. It is now established that a slow sustained long walk for 30-60 minutes for 4-5 days a week is good for all. Further medical scientists have now demonstrated fast blood flow in arteries keep the inner lining of blood vessels (endothelium) healthy. Endothelial cells release a natural chemical, that relaxes arteries and help to prevent heart attack and hypertension. Heavy unaccustomed exercises strain heart muscles and beyond a point may strain heart and even cause heart failure. Walking has magical effects on body and mind.

“It is an exercise that requires no gymnasium. It is a medicine without prescription, weight control without diet, a tranquilizer without pill, psychotherapy without psychoanalyst”. It is now established that it is not the speed and distance covered in a given time but duration of comfortable walking which is important for maintenance of well being.
According to JAMA (2006) Type 2 diabetes, also known as “adult-onset” diabetes, usually develops in adulthood but can also occur in overweight children. Family history of diabetes and excess weight, especially weight carried around the middle, are strong risk factors for developing type 2 diabetes. Losing weight greatly reduces the chances for type 2 diabetes and can help bring the blood sugar under control if one already has type 2 diabetes. Type 2 diabetes can be treated with Lifestyle modification and medications.

As highlighted by People’s daily online (2007) Asia’s biggest killers are cancer, diabetes, respiratory and heart disease.

“There has been a preoccupation with AIDS more recently but diabetes has been escalating. It’s a timebomb,” said Professor Paul Zimmet, director of the International Diabetes Institute based in Australia.

As the UN marks World Health Day today, countries such as India are bracing for a worsening health crisis from chronic diseases that already claim more lives than infectious diseases such as malaria, AIDS and tuberculosis.

With rising prosperity in many parts of Asia, people are adopting unhealthy lifestyles that their bodies cannot cope with. Sedentary jobs, poor diet, smoking and alcohol are all blamed for the dramatic health shift.

India leads the world in diabetes cases. A government study estimated the number of diabetics to be about 38 million in 2004, and projected to rise to 57 million in 2005.
By 2020, the number of deaths each year due to chronic diseases in the country of 1.1 billion people may stand at 7.63 million.

“Lifestyle diseases…have already become the number one killer in India,” said D. Prabhakaran, a professor at the department of cardiology at the All-India Institute of Medical Sciences.

“The most important factors for lifestyles diseases are increasing consumption of tobacco, dietary consumption of fats, particularly saturated fat, lack of physical activity and inadequacy of stress-coping mechanisms,” he said.

According to the World Health Organization (WHO), 270 million people in Asia will die from chronic disease between 2005 and 2015, mostly poor people in developing countries such as China, India, Pakistan and Indonesia.

Chronic diseases are not just seen as a problem of the newly emerging wealthier classes as – “Seven hundred million people in the region are living on a dollar a day … but at the same time because of economic growth the same people have access to an unhealthy diet,” said Choi Daewon (2006), head of the health and development section of the UN’s Economic and Social Commission for Asia and the Pacific (ESCAP).

The economic cost of chronic diseases will run into trillions of dollars, experts say. Many Asian governments, however, spend relatively little on public healthcare and a small percentage of that goes towards prevention of lifestyle diseases.

India at present spends 0.65 per cent of GDP on health, though it aims to increase it to 2 per cent of GDP by 2010.
Choi said many governments in Asia devoted far less than 5 per cent of GDP to health, but said simply spending more was not the only solution but there is need for self awareness and concern.

The researchers of FNRI too evaluate nutrition-related lifestyle disease which are related to unhealthy lifestyles and unbalanced diet that are becoming common effect of urbanization and popularity of convenience foods, there is a less physical activity, while levels of smoking and stress tend to be the etiology.

The diets tend to be richer in energy and fats carbohydrates, more alcohol and salt. All these factors may lead cardiocasual diseases, diabetes, osteoporosis, and cancer or the so-called other diseases.

The food and Nutrition Research Institute of the Department (FNRI-DOST) conducts national nutrition surveys every five years to detect nutritional aspects of the community.

Like everything else in life what goes up-in this case calories, weight and cholesterol levels must come down. The good life has its allure but growing awareness and a reality check led to, well, regular health checks and much else by way of modifying their lifestyles to ensure that they lived long enough to enjoy the fruits of their improved financial status.

Therefore, key to Lifestyle changes may be to invariably know about- which lifestyle is best, which diet is best and which exercise is best suited for particular individuals.

There are plenty of variables in the formula of good health and well being, but there are also some constants in the new concept of wellness as opposed to merely being fit. Being happy is one, job
satisfaction another, a close family life with lots of bonding and laughter, a solid support system, regular exercise, regular sex, nothing in excess and most things in moderation, good genes (a family history of longevity) helps, lots of fruits and vegetables in your meals, activity that brings pleasure, avoidance of stressful situations, no bringing work home, emotional stability and the ability to enjoy life.

New research suggests that spirituality and deep-rooted faith are the secrets of wellness.

The country is going through what experts call a “health transition”, (2006) a term used to describe discernible shifts in demographics, changing lifestyles, behaviour and disease patterns. A decade ago, we worried about communicable diseases traditional ailments. Today, India is more concerned with degenerative and man-made diseases like HIV, or lifestyles diseases like stress, diabetes, cancer and cardiovascular problems stemming form unhealthy diets, smoking and lack of regular exercise. In all countries, economic changes have a major impact on the way we live, and die. In the Indian context, economic progress and better healthcare, or access to healthcare, has produced some remarkable shifts.

The sedentary lifestyle, consumption of extra calories through fast foods like pizza, burger, cakes, coke, wines and other luxurious intakes lead to over indulgence and life-toll ailments. According to WHO 2.4 million Indians die due to coronary artery diseases. Besides, obesity ranks 10th among globally obese people and about 70% diabetes is found to be obesity related.

As elicited in the health wise study (2007), hypertension and prehypertension can be prevented by lifestyle changes. These may
include losing extra weight, exercising, cutting back on salt, and eating a low-fat diet that includes more fruits, vegetables, whole grains, and low-fat dairy foods.

If one has high blood pressure and has some organ damage or other risk factors for heart disease, he may need to try various combinations of medicines in addition to making big lifestyle changes.

There are five lifestyle changes one can make to help prevent high blood pressure:
  - Lose extra weight.
  - Eat less salt.
  - Exercise.
  - Get 3,500 mg of potassium in your diet every day. Fresh, unprocessed whole foods have the most potassium. These foods include meat, fish, nonfat and low-fat dairy products, and many fruits and vegetables.
  - Follow the DASH eating plan (Dietary Approaches to Stop Hypertension). This diet is rich in fruits, vegetables, and low-fat dairy products.

Eating fruit provides health benefits as illustrated in USDA website (2007) people who eat more fruits and vegetables as part of an overall healthy diet are likely to have a reduced risk of some chronic diseases. Fruits provide nutrients vital for health and maintenance of body and because eating a diet rich in fruits and vegetables as part of an overall healthy diet may reduce risk for stroke, other cardiovascular diseases, type 2 diabetes may protect against certain cancers, fiber content of fruits and vegetables may reduce the risk of coronary heart disease.
Potassium present in food may reduce the risk of developing kidney stones and may help to decrease bone loss and eating foods such as fruits that are low in calories per cup instead of some other higher-calorie food may be useful in helping to lower calorie intake thus making modified diet healthy.

The research further revealed that:

- Most fruits are naturally low in fat, sodium, and calories. None have cholesterol.
- Fruits are important sources of many nutrients, including potassium, dietary fiber, vitamin C, and folate (folic acid).
- Diets rich in potassium may help to maintain healthy blood pressure. Fruit sources of potassium include bananas, prunes and prune juice, dried peaches and apricots, cantaloupe, honeydew melon, and orange juice.
- Dietary fiber from fruits, as part of an overall healthy diet, helps reduce blood cholesterol levels and may lower risk of heart disease. Fiber is important for proper bowel function. It helps reduce constipation and diverticulosis. Fiber-containing foods such as fruits help provide a feeling of fullness with fewer calories. Whole or cut-up fruits are sources of dietary fiber; fruit juices contain little or no fiber.

A diet can be referred as the food intake considering the nutritional requirement of an individual's need, age, sex and well-being, so as to attain good health, to overcome any deficiency or prevent any disease condition. The diet provided should be nutrient dense, visually appealing, tasty with appropriate consistency complying the dietary guidelines or food guide pyramids recommended by the patent dietitians should be adopted to get a nutritionally balanced diet.
METHODOLOGY

Necessity is the mother of inventions. Search is the prime reason or root cause for any research based on survey method helps to know the prevailing condition and provides first hand knowledge and interview based questionnaire serves the information which is received in person and is considered to be among the most reliable sources for research and authentic findings keeping in view the health problems, need was felt to know the facts and figures related to health, diet and lifestyle of the people. In present study research based survey method has been followed to know the prevalence of diseases among middle age women and also analyze the health condition and the impact of health education on the subjects has been evaluated for which approximately 355 (145 rural and 210 urban) fully completed forms were collected and subjected for computation.

The details are such as:

3.1. Locale of the Study: The present research study titled “To Study Prevalence of Diseases and Impact of Health Education in Middle-age Women” was conducted in Maharashtra state covering the area of Aurangabad district its urban, sub-urban and rural areas of Khultabad and Vaijapur talukah respectively, which covered many aspects to fulfill the objectives set and hypothesis assumed.

3.1.1. Pilot Study: A primary questionnaire was set based on general information and queries related to health. Surprisingly most of the people were found unaware and ignorant with regard to their own
health, middle age complications, menopause period, diet and diseases prevailing between the age group 38-55 years.

3.2. Survey based Research: Understanding the health problems faced by middle age women, a research study was carried out by reformulating the questionnaire and additional questions were included and added to the final format of Interview based research survey forms. The questionnaire was formulated according to the norms set by research experts, which are based on the data’s revealing Demographic information, sample size, Socio-economic status, Literacy level; Personal records, Anthropometry and other important aspects of the study and research method (survey forms displayed in the appendices).

3.2.1. The demographical aspect include the population of both urban and rural areas so as to know the prevalence of diseases and effects of education, family, lifestyle, food and some other co-factors.

3.2.2. Selection of Sample Size:- The samples were chosen by random sampling technique. Approximately, seven hundred sample size forms were distributed among the Urban and Rural female dwellers. Many school teachers, office clerks, housewives, working and non-working of the age group lying between 38 to 55 years or more or less with exception to menopause period and its complications were interviewed.

3.2.3. Socio-Economic Status: The randomly selected samples belong to different socio-economic status broadly ranging in the higher-income group, middle income group and lower income group. The analysis was carried out among all economical groups of urban and rural population.

3.2.4. Family Type: No specific family type was chosen hence few samples fall under the category of nuclear family while others belong to
joint or extended families. Only few believed to stay alone or were single. The aim was to see the impact of family type on health conditions.

3.2.5. Education: The literacy level of urban and rural samples selected belong to different categories i.e. Primary education, Secondary & Higher Secondary, Graduation and Post-graduation, Doctorate or any other diploma as well. The objective behind collecting the literacy record was to know whether education helps to create awareness about the health and disease conditions.

3.2.6. Anthropometry: The data of height, weight was taken and Body Mass Index was calculated by using the standard formula i.e. \( \text{wt (kg)/ Ht}^2(\text{mt}) \). Tabulation has been done according to the range and specific results which were statistically analyzed to know the significance of BMI in relation to diseases.

3.3. Menstrual History: The details of age of menarche (onset of menstruation) and previous menstrual condition, etc. was collected. These factors were studied to evaluate the significance and correlation of these symptoms to the disease conditions.

3.3.1. Menopause Conditions: The present study is related with middle age women who come across the natural phenomenon called as menopause period, which is medically divided in stages as perimenopause (which falls between 39-42 age group) menopause which falls somewhere between 42-48 age group) and post menopause which comes after one year of actual menopause, (may be after before or around 50 years of age). In some cases, menopause was surgically adopted due to adverse health conditions. These stages were analyzed to evaluate significance and correlation to the prevalent diseases.
3.3.2. Menopause Symptoms:- the known symptoms of menopause include hot flushes, frequent urination, loss of libido, general weakness, postmenopausal bleeding, irregular menses, depression, weakness, insomnia, loneliness etc. These factors were studied for its prevalence and its effects on health and diseases conditions among middle age women.

3.4. Prevalence of Disease:- Previous studies and references described middle age as most vulnerable period for some chronic and acute diseases i.e. Blood pressure, Diabetes Mellitus, Coronary heart diseases, Anaemia, Obesity, Osteoporosis, Arthritis, Breast cancer and some other like T.B., Spondilytis, Depression, Insomnia etc. The present study was carried out to know prevalence of these ailments in the randomly selected samples and also about the awareness of the symptoms. The study was also intended to know how the diseased women in menopause manage to control the conditions through diet and medicine.

3.5. Clinical and Pathological Test:- Any disease cannot be ruled out unless some basic, clinical and pathological tests are conducted. During the research survey the case study of the subjects (patient) were taken as a primary source of information, and a few patients were advised for certain tests to check the prevalence of said diseases. Commonly recorded tests include – BP – Checkup, Pulse rate, ECG, Hb-level R.A.- Test, Routine urine test, Sugar test, Lipid profile, Pap test, Mammography, Angiography’s, USC, T₃T₄TSH-Test MRI X-Ray etc. The results of the tests were analyzed and suitable medical tips were suggested by experts and computed.
3.6. Awareness and Responses:- Any survey-based research cannot be completed unless the responses by the subject and awareness to the knowledge based topic is drawn. The attitude of the subject towards the study was noted as – always responded, sometimes responded positively and at times negatively. The mention is also done whether the subjects were aware or unaware about the health/ medical based knowledge. The study also included guidelines, health tips and counselling to improve the health conditions and well being of the subjects.

3.7. Psychological Factors:- “A sound mind in a sound body.” No medicine or diet can cure a patient until his/her psychology be healthy and sound. In present study psychological aspects related to stress factors and its impact on relationships, job, children and diseases were analyzed and correlated.

3.8. Food habits and Food pattern:- Food habits reflect the health and culture of a family. Food habits and food patterns change according to region, religion, individual choice, taste and need.

In present study food habits were broadly divided into vegetarian and non-vegetarian and the food patterns were categorized according to the systemic patterns set by expert dietitians and nutritionists. One day recall method was used to know whether the subjects follow the given pattern or consume food according to their convenience and available time. It also included meal plan stating morning/ midmorning/ lunch/ tea time/ dinner/ bed time. A list of food items consumed was recorded and whether the subject consumed it daily/ weekly/ monthly was analyzed.
Food items included Cereal, Pulses, Vegetables, Fruits, Snacks, Non-vegetarian, Fast food and Bakery products. All these aspects are computed to know the significance and correlation factors.

3.9. Health Education Camp:- One seminar-based-health education camp was conducted on 10\textsuperscript{th} December 2005. Expert Doctors were invited to deliver a lecture on different diseases and women’s health. Questionnaires holding knowledge based questions were distributed among the subjects prior to the camp and after the health education camp.

Health education camp included knowledge and information regarding health, menopause, diseases, diet and importance of exercise, yoga and healthy lifestyle etc. delivered by doctors, yoga, experts & dieticians. Computation of both pre and post surveys was carried out and data was analysed statistically.

3.10. Doctor’s Survey:- To support the present research and to analyze the disease condition among middle age women survey of Doctor was also done. The questionnaire was implemented on the Gynecologist where in questions were asked related to middle age and the diseases which are prevalent in middle age women with reference to menopause and its complications.

The Doctors were asked to give their rational opinion on whether health education, literacy level, diet and socio economic status affect the disease condition. Their suggestions regarding the type of test/diagnosis to be made for particular disease and line of treatment suitable for the said diseases were discussed. They were also suggested
to opine and advise suitable remedies to control vulnerable conditions of the diseases in menopause period.

**3.11. Objectives:** The present research work has been carried out keeping in view the health conditions and challenges being faced by the working and non-working women.

Physiologically, a woman’s body bears the load of pregnancy, childbirth, lactation, and household work, but around 40’s her body undergoes hormonal changes which affect the body as a whole and further leads to deficiency and may give room to diseases associated with (heart), bone and muscle, and mind. During Menopause a woman passes through critical trauma which makes her physically, mentally and emotionally disturbed, therefore, need was felt to study this neglected phase of life and understand the problems scientifically and try to solve them by making the woman aware about it and help her face and cope up the situation, with the help of recommended diet, exercise medicines and alternatives for which the objectives are set:

**3.11.1.** First objective was to know the menopausal disorders which may be or are due to hormonal imbalances, a natural phenomenon which affect the body and its various functions; it includes reduced fertility, cessation of menstruation, weakness, stiffness of joints, reduced bone mass density, lack of libido, insomnia, depression, feeling of insecurity, lack of appetite, frequency of urine or incontinence etc.

**3.11.2.** Second objective was to study the awareness about menopause syndromes and complications therein, because menopause till date is taken just as a natural behaviour, its knowledge and syndromes are under clouds for a common person. Therefore, awareness was created
through health education and counselling with the objective to make them aware about its complications and to overcome it through certain scientific methods by bringing positive changes in life style and well-being.

3.11.3. Third objective is to study the prevalence of different disease among middle age women. Middle age being a climacteric period where a person undergoes through physical changes, mental, emotional and social changes. These changes may be environmental, hormonal or psychological. These facts may give rise to certain chronic or acute ailments like diabetes, coronary heart diseases, obesity, hypertension, anaemia, menopause based complications etc.

3.11.4. Fourth objective was to assess the nutritional status of middle age women. Healthy food leads to strong body and increases longevity of ones life. Assessment was carried out to study food habits, food patterns and type of food consumed. A menu recall was also recorded which was being followed by the subjects of urban and rural areas.

3.11.5. The fifth objective was to study the impact of health education, for which a health education camp was organized by the researcher. The dwellers of urban and rural population were gathered to receive information regarding health, diseases, diet, modified lifestyle which included exercise, yoga, therapeutic diet etc. The lectures on these aspects were delivered by well-known and expert doctors. [Appex-10]

3.12. Hypothesis:- The hypothesis set is whether the prevalent diseases are associated with the factors related to age, diet, hormonal changes and menopausal disorders, education and food patterns. Secondly, how
these factors are correlated to each other. Thirdly, does the health education, awareness and counselling make the subject health conscious.

3.13. Statistics:- The survey has been carried out based on random sampling. The questionnaires were filled by interview method and collected together. Tabulation of each variable from total sample has been done. The total survey has been distributed in four different sections.

A – General Information Survey.
B-I – Pre Health Education Camp Survey
B-II – Post Health Education Camp Survey
C – Doctor’s Opinion Survey.

All these questionnaires were tabulated by using SSPS – computer system along with MS-Word and the Chi-Square Test. Also the correlation test was applied to know the significance and correlation of factors.

Calculation of Body Mass Index was carried out by using the internationally used formula. Disease wise tabulation was done and percentages were drawn by means or p-value analysis.

3.14. Result and discussion, summary, conclusions with suggestive measures, bibliography and appendices were written systematically with sound references and graphical presentation up to the mark.