CHAPTER - I

INTRODUCTION

'To be born as a woman, great penance will have to be done'. (கடவுள் விளம்பிக்கும் காய்களுடன் கூட பெண்ணே வந்து வந்து குற்றியில் வந்து வந்து ) says Kavimani Desika Vinayakam Pillai, a famous Tamil Poet, thus clearly bringing out the superiority of women who have many dimensions built in their personality. Right from the younger days invariably almost all women sacrifice for the well-being of their family members besides contributing to the welfare of humanity at later years. Biological contribution in the form of child-bearing and psychological service by way of child-rearing; providing unique support to one's family etc. definitely keep them on higher pedestal than men. Or late on the occupational front also, they are fast emerging as superpower and thus they contribute to human society in so many ways.

With the word 'Woman' lie's dearest hopes, happiness and memories come as she performs with virtue, modesty and truth, the multiple roles as wife, mother, organiser, administrator, director, recreator, economist, disciplinarian, teacher, health officer, artist and queen in the family.(Devadas and Java, 1984). Family life would be happy if woman is in perfect physical and mental health. Health is a strong foundation to develop and achieve family well-being (Last, 1987).

Well-being is a synthesis of physical, social and mental health. Psychologists strongly believe that the building of a perfect body crowned by a perfect brain determine well-being (Craig, 1986). By the time women reach middle age, almost all dimensions of their personality will be in full bloom and unfortunately in some women, the process of
withering would have started by then. For many women, middle age is the prime of life and for few others, it is the most dreaded period.

Physiologists report that health, foundation of well-being progresses steadily as the metabolic activities and production of active cells are geared towards growth and maturation until early adulthood (Ganong, 1995). Middle aged people governed by the physiological changes face more health problems. Besides cardiovascular diseases and diabetes which attack both the sexes, reproductive disorders, malignancies of breast, ovary and cervix are unique afflictions of middle aged women (Shalya, 1994). On the other hand, hormonal imbalance especially estrogen decline may have a disruptive effect on health and threatens the menopausal woman to the predisposition of heart disease and bone loss. Empty nest syndrome and menopausal syndrome may also prompt psychological problems which impede effective work performance both at home and work place (Gatchel et al., 1989).

Among those who have reached middle age, some women continue to be well on all three basic dimensions namely bio, psycho and social while some have problems on any one or two spheres. Suitable health care measures such as diet, relaxation, exercise etc. that are conducive to longevity, strength and purity of body and cognition help to achieve a brighter dusk of life and family well-being.

This chapter deals with the concept, dimensions and indicators of well-being, physiological changes and health problems, psychological features and social characteristics of women during middle age and enhancement of bio-psycho-social well-being among middle aged women.
1.1 CONCEPT OF WELL-BEING

1.1.1 Definition of Well-being

Well-being is a multifaceted phenomenon which means welfare in general and health prosperity in particular (Kulkarni, 1990). The concept of well-being is put forth by Baldwin (1988) as "a rational argumentation oriented towards intersubjective understanding and consensus". In the health perspective, Greenberg and Pragman (1989) define the term well-being as "a state of physical, social, mental, emotional and spiritual health which are balanced, integrated and co-ordinated". From the psychological viewpoint, Brodsky (1988) defines well-being as "a subjective emotional state of positive affect (affect means emotions or feelings), relatively low negative affect and general life satisfaction". Thus well-being is often referred to as not only an absence of maladjustment, but also the holding of self in an equilibrium between discomfort and comfort.

1.1.2 Dimensions of Well-being

The broad aspect of well-being according to Kulkarni (1990) has five dimensions. They are:

* Physical well-being: Physical and mental health
* Material well-being: Household assets
* Social well-being: Social relationship
* Economic well-being: Employment status, family income and assets
* Spiritual well-being: Religious beliefs and practice.
Among these five dimensions of well-being only three would be considered in the present investigation and those three would be (i) physical (bio or somatic), (ii) psychological (mental) and (iii) social. Psychology being an empirical science, terms such as "spirit", "soul", etc., are not at all used while discussing the behavioural aspect of individuals. So spiritual well-being would not be given main importance and similarly economic and material aspects of well-being would not be given prime importance while dealing with the concept of well-being. Instead all these dimensions in a subtle way would be regarded as factors contributing to psychological well-being. Thus the present study would be restricted just only to bio, psycho and social aspects of well-being.

Jackson et al., (1984) carved the basic dimensions of physical well-being. A body finely tuned in good working order from top to toe reflects the state of physical well-being. The dimensions of mental well-being which is determined by life style assessment include positive and negative affect and life satisfaction. Positive affect is related to one's feeling of happiness and joy and negative affect refers to unhappiness, depression, anger, frustration and anxiety. Life satisfaction, the third component of mental well-being is a cognitive judgement (Brodsky, 1988). Kulkarni (1990) conceptualizes social well-being as being jointly determined by social security, environment, economic status and social relationship.

1.1.3 Indicators of Well-being

The indicators of general well-being are nutrition, shelter, clothing, household assets, income and savings. Well-being can be measured by using the direct and indirect parameters. The direct parameters are dietary intake, anthropometry, clinical and
bio-chemical assessments. Socio-economic status, housing and environmental hygiene are the indirect parameters of well-being (Hegarty, 1988).

The indicators of physical well-being, mental well-being and social well-being are described as follows:

**Physical well-being**

Anthropometric measurements such as height and weight are valuable indicators of health status (Pressman and Adams, 1990). The body mass index (BMI) is widely used indicator of nutritional status. Body mass index is defined as the ratio between weight (in kg) and squared value of height (in metres).

\[
\text{BMI} = \frac{\text{Weight (Kg)}}{\text{Height}^2 (\text{m})}
\]

The following table indicates various grades of chronic energy deficiency in adults.

<table>
<thead>
<tr>
<th>BMI</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 16</td>
<td>Chronic energy deficiency Grade-III-Severe</td>
</tr>
<tr>
<td>16 - 17</td>
<td>Chronic energy deficiency Grade-II-Moderate</td>
</tr>
<tr>
<td>17 - 18.5</td>
<td>Chronic energy deficiency Grade-I-Mild</td>
</tr>
<tr>
<td>18.5 - 20</td>
<td>Low weight normal</td>
</tr>
<tr>
<td>20 - 25</td>
<td>Normal</td>
</tr>
<tr>
<td>25 - 30</td>
<td>Obese Grade-I</td>
</tr>
<tr>
<td>&gt; 30</td>
<td>Obese Grade-II</td>
</tr>
</tbody>
</table>

Assessment of dietary intake is a good parameter of health. The raw ingredients used daily by the adult should contain nutrients as recommended by Indian Council of Medical Research (1996).
The physiological parameters most frequently used in testing the cardiovascular-respiratory nature include blood pressure and pulse rate. As the level of blood pressure is related to age, in middle age 140/90 mm is considered normal. The normal pulse rate 72 indicates the individual’s normal fitness (Ratan, 1994).

Blood analysis is probably the most important battery of special tests for diseases such as anaemia and hypocalcemia and also for a wide range of possible changes concerned with hormones, lipids, glucose and so on. The reference values are given below.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Diseases</th>
<th>Reference Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemoglobin</td>
<td>Anaemia</td>
<td>12.0 - 15.5 gm/dl</td>
</tr>
<tr>
<td>Calcium</td>
<td>Bone loss</td>
<td>9.0 - 11.0 mg/dl</td>
</tr>
<tr>
<td>T$_3$-Triodothyronine</td>
<td>Thyroid problems</td>
<td>1.40 - 4.00 pq/dl</td>
</tr>
<tr>
<td>T$_4$-Tetraiodothyronine</td>
<td></td>
<td>0.80 - 2.0 ng/dl</td>
</tr>
<tr>
<td>Glucose Fasting</td>
<td>Diabetes mellitus</td>
<td>60-120 mg/dl</td>
</tr>
<tr>
<td>Glucose PP 1½ hrs.</td>
<td></td>
<td>upto 180 mg/dl</td>
</tr>
</tbody>
</table>

Source: (Roddie and Wallace, 1975).

Jaffe (1991) has given the concentration of estradiol and progesterone in the blood plasma during the menstrual cycle and post-menopausal period as follows:

<table>
<thead>
<tr>
<th>Estradiol</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follicular phase</td>
<td></td>
</tr>
<tr>
<td>- 14 Days</td>
<td>10 - 50 pq/m</td>
</tr>
<tr>
<td>- 4 Days</td>
<td>60 - 200 pq/m</td>
</tr>
<tr>
<td>Mid cycle</td>
<td></td>
</tr>
<tr>
<td>- 1 Day</td>
<td>120 - 375 pq/m</td>
</tr>
<tr>
<td>Luteal phase</td>
<td></td>
</tr>
<tr>
<td>+ 2 days</td>
<td>50 - 155 pq/m</td>
</tr>
<tr>
<td>+ 6 days</td>
<td>60 - 200 pq/m</td>
</tr>
<tr>
<td>Post-menopausal phase</td>
<td>0 - 14 pq/m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Progesterone</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Follicular phase</td>
<td>0.1 - 1.5 ng/m</td>
</tr>
<tr>
<td>Luteal phase</td>
<td>2.5 - 20 ng/m</td>
</tr>
<tr>
<td>Mid uteral phase</td>
<td>3.8 - 28 ng/m</td>
</tr>
<tr>
<td>Post-menopausal phase</td>
<td>0 - 0.7 ng/m</td>
</tr>
</tbody>
</table>
Palasa (1995) suggests the desirable cholesterol levels as an indicator for heart disease. The cholesterol levels are given below.

<table>
<thead>
<tr>
<th></th>
<th>Total Cholesterol mg/dl</th>
<th>HDL Cholesterol mg/dl</th>
<th>LDL Cholesterol mg/dl</th>
<th>Triglyceride mg/dl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desirable</td>
<td>&lt; 200</td>
<td>&gt; 55</td>
<td>&lt; 130</td>
<td>&lt; 200</td>
</tr>
<tr>
<td>Normal risk</td>
<td>200 - 240</td>
<td>35 - 55</td>
<td>130 - 160</td>
<td>200 - 400</td>
</tr>
<tr>
<td>High risk</td>
<td>&gt; 240</td>
<td>&lt; 35</td>
<td>&gt; 160</td>
<td>&gt; 400</td>
</tr>
</tbody>
</table>

Gynaecological examination during middle age is very much essential as breast cancer is still the biggest single killer. Breast self-examination of mammography may give early indications of breast cancer. A cervical smear (also called a pap or cyto test) helps to detect cervical cancer (Jackson et al. 1984).

**Psychological well-being**

Following are the characteristics of a mentally healthy person (Park and Park, 1995).

(i) Free from internal conflicts
(ii) Well adjusted
(iii) Searches for identity
(iv) Has a strong sense of self-esteem
(v) Knows one's self
(vi) Has good self-control
(vii) Face problems and tries to solve the problems intelligently.

**Social well-being**

Social well-being implies harmony and integration within the individual, between each individual and other members of society and between individuals and the world in which they live (Park and Park, 1995).
"At twenty, the will reigns; at thirty, the wit; at forty, the judgement; afterward, proportion of character".

- Grattan

"Everyday brings forth some new things that add to the joy of life after forty. Work becomes easy and brief. Play grow richer and longer. Leisure lengthens. Life’s afternoon is brighter, warmer, fuller of song and long before the shadows stretch, every fruit grows ripe”.

- Walter Pitkin
1.2 MIDDLE AGE

1.2.1 Definition and Description of Middle Age

Chronologically the period between 40 and 60 years of age is commonly referred to as middle age (Freeman and Jones, 1973). Psychologists regard the period of middle age nearer to the onset of old age which creates changes in the life pattern of both males and females (Dhillon, 1992).

Kaplan et al. (1994) agree that for many women, middle age is a time for culmination of a successful occupational career. Power, leadership, wisdom and understanding are most generally possessed by the middle aged, so it is truly the prime of life.

On the other hand, Craig (1986) viewed middle age as the most dreaded period in the total life span because of disappearance of physical attraction. New wrinkles, midriff bulge and receding hairline or grey hair at the temples are some of the physical features that bring down physical attraction during middle age.

While all periods in the lifespan have its own characteristics, as Duvall (1977) quotes, middle age is the time of empty nest as the children no longer live under the parental roof. For some middle agers, it is a stressful period due to decline in marital satisfaction, sex relations, biological changes as a result of menopause and death of spouse (James and Wilson, 1986). Middle age becomes a time of serious intergenerational conflict for few others. The emotional upset of menopause in mother coincides with the adolescents quest for independence and his search for personal identity (Stott, 1974).
1.2.2 Physiological Changes and Health Problems

Middle Age is characterized by a general decline in physical fitness. The rate and extent of decline, however, follow no set timetable and vary from person to person. The physiological changes in the various systems of the body are the prime factors determining the well-being of middle-aged men and women (Jackson et al., 1984).

1.2.2.1 Nervous system

The period of middle age is marked with demonstrable changes in the nerve cells and tissues which diminish the effective functioning of the body. Physiologists have observed the shrinkage of brain with respect to age. The ultimate main threat to the brain is shortage of oxygen due to impaired blood supply (Shryock and Swartout, 1980).

The reaction time of the nerves also increases making responses slower with heightened age (Guyton, 1982). Studies have indicated that as long as people are alert, intellectual powers are usually not affected but short-term memory fails (Chatterjee, 1994). It is rightly regarded as "fluid versus crystallized intelligence". As Knox (1977) puts it, middle-aged people substitute wisdom for brilliance.

1.2.2.2 Sensory organs

Degeneration of nerves in middle age bring some expected sensory loss, but not a total shut down. The common effects are decrease in pupil size, acuity, glare resistance and a tendency towards glaucoma, cataract and tumors. Glaucoma is a sight threatening disease among middle agers in which the pressure of the fluid in the eye becomes so increased that unless promptly and properly treated, the internal eye structure are
permanently damaged (Ganong, 1995). Parallel changes in physiological aging and eyes getting older affect the focussing power resulting in two common refractive errors such as presbyopia and astigmatism (Shalya, 1994).

General loss in taste, smell and touch are also noticed in middle age. The mechanism of balance becomes less accurate. Partial loss in the sense of thirst brings some important signs of dehydration, increased body temperature, dizziness, decreased blood pressure, constipation, decreased urine output and nausea (Ratan, 1994).

Wear and tear changes in cochlea together with nerve fibre degeneration damages another sensory ability that is hearing ability in middle age. Periodontal is another disease which affects the gums and causes loss of bones in the teeth (Lefton and Valvatne, 1992). To add to this problem, many middle aged men and women wear dentures which increase the difficulty of chewing. In addition, few individuals revise their eating habits in accordance with the slowing down of their activities and this likewise adds a burden to the functioning of the digestive system (Jones and Mason, 1980).

1.2.2.3 Skin

A gradual loss of elastic tissue and of fat beneath the skin causes the skin to sag and wrinkle in middle age. Ultimately the pores and skin glands rid the skin of waste materials more slowly with the result that there is an increase in body odours (Gatchel and Baum, 1983).
1.2.2.4 Digestive system

After forty years of age, the capacity of the abdominal organs reduce and they are less ready to process vast quantities of food. The main intestinal problem affecting middle aged people is constipation. Increasingly physiologists have realised that the liver functions and the digestive function of the pancreas work less efficiently. As a result, middle aged people suffer from belching, flatulence, acid stomach and gallstones (Woodruff and Birren, 1975).

1.2.2.5 Circulatory system

Thickening and hardening of arteries ultimately result in reduction in the capacity of heart to pump 8% less blood to the body for each decade after forty years. Poor blood supply in turn weakens the heart, lungs, kidneys, bones, eyes, brain and skin (Williams, 1989).

1.2.2.6 Endocrine and Reproductive systems

Diabetes mellitus is a hormonal disorder occurring commonly in middle age. Diabetics are predisposed to complications related to atherosclerosis due to the deposition of fatty substances and lesions that affect the small blood vessels of the eyes (retinopathy), kidney (nephropathy) and nervous system (neuropathy) (Desai and Krishnaraj, 1987; Williams, 1990; Raghuram et al., 1993 and Shils et al., 1994).

Hormone imbalance in middle age result in fat accumulation around the abdomen and hip. It is disheartening to find that fat accumulation increases from 26.4% at 20 years to 42% at 50 years of age. Disorders attributed to excess weight and fat accumulation include heart disease, hypertension, diabetes mellitus, gallstones, osteoporosis, disorders of menstruation and infertility (Gala, 1988; Begum, 1991 and Rewari, 1991).
Ovarian secretions of estrogen and progesterone during menstruation and menopause and its associated risk factors are reviewed by physiologists. During the menstrual phase, the ovarian follicles called primary follicles under the influence of estrogen begin to develop and subsequently the endometrium increases rapidly in thickness from the 5th to 14th days of the menstrual cycle. These endometrial changes are called the proliferative phase or preovulatory or follicular phase. After ovulation, the endometrium becomes highly vascularized under the influence of estrogen and progesterone. This phase of the cycle is called the luteal phase (Figure 1.01) (Sherman, 1971).

Figure 1.01

Hormonal Rise During Menstrual Cycle
Schneider et al., (1977) state that estrogen occurs in three forms namely estradiol, estrone and estriol. Among the three forms, estradiol is the major secreted estrogen. Estrogen is primarily responsible for the development of female accessory sex organs, female secondary sex characteristics, menstrual cycle, pregnancy and calcium deposition in bones (Gold, 1985).

After menopause, estrogen secretion tends to decline to low levels which bring drastic changes in women. Estrogen decline which affects carbohydrate metabolism may lead to diabetes and cholesterol formation (Padubidri and Daftary, 1989; Wardlaw and Insel, 1993 and Vinayakam, 1995).

During menopause, women's bones may become brittle through loss of calcium. Osteoporosis is a disorder characterized by a decrease in total bone mass. Osteoporosis occurs when the rate of bone resorption exceeds the rate of bone formation. It is distressing to note that middle aged post-menopausal women suffer from osteoporosis six or seven times more frequently than men. The causes of osteoporosis are age related changes such as decreased estrogen production associated with menopause, decreased intestinal absorption of calcium, reduced physical activity and increased parathyroid hormone secretion. Due to compression of spinal column, people with osteoporosis become progressively shorter (Figure 1.03) (Marcus et al., 1985; Kumar, 1990; Patwardhan, 1991 and Srilakshmi, 1993).
Figure 1.03

Height Loss in Post-menopausal Woman with Osteoporosis

Some middle aged women face complications related to reproductive organs. Uterine prolapse occurs due to the weakened pelvic floor. Hysterectomy - surgical removal of the uterus is advisable to women having pre or post-menopausal bleeding, fibroids of uterus, cancer, tumors and uterine prolapse (Kumar, 1990 and Park and Park, 1995). In India, after breast cancer, cervical cancer is the second most common in females (Surtakanthi, 1991).
1.2.2.7 Cardiovascular system

Cardiovascular diseases are the most potent killers during middle age. It accounts for 50% of all deaths in developing countries like India (Park and Park, 1995). By middle age, the opening of coronary arteries is nearly one third less than it was in twenties. A triangular relationship between high calorie diet, blood cholesterol levels and atherosclerosis strongly determine the length and quality of life right from middle age.

Cholesterol is a fatty substance which is an essential component of the walls of body cells. Cholesterol, triglycerides and phospholipids are the different forms of fat carried about bound to proteins in the bloodstream. The cholesterol bound with little protein is thus described as low density lipoprotein cholesterol or LDL cholesterol or bad cholesterol. LDL cholesterol forms 70% of all blood cholesterol. LDL cholesterol and VLDL cholesterol (very low density lipoprotein cholesterol) are bad cholesterols which promote deposition of fat in the blood vessels. Triglyceride is ugly cholesterol (Sherman, 1971).

Total cholesterol remains a good predictor of heart disease (Chatterjee, 1994). Studies conducted in many other countries revealed that raised blood cholesterol levels are associated with a higher risk of having a heart attack in later years. In 1976, a group of British researchers pointed out that while total cholesterol levels in heart attack surveys predicted the risk of disease, there seemed to be a proportion of cholesterol which actually had the opposite effect and appeared to protect against the risk of heart attacks. The cholesterol with this protective effect is known as HDL cholesterol or high density lipoprotein cholesterol (Figure 1.04) (Wardlaw and Insel, 1993).
Figure 1.04

The Structure of the VLDL, LDL and HDL Cholesterol
If the ratio of total cholesterol to HDL cholesterol is above 4.5:1, an individual is at risk of heart ailments. The aim should be to increase the level of HDL cholesterol (Jackson et al., 1984).

1.2.2.8 Respiratory system

The deterioration of lung efficiency occurs somewhat in middle age. As a result, breathing becomes shallow, fast and more difficult as the number of alveoli decreases. Decreased lung efficiency brings a steady fall in the vital capacity accompanying downward spiral in body function (Roddie and Wallace, 1975).

1.2.2.9 Muscular and Skeletal systems

The bone density decreases gradually after 35 years. Bone loss develops problems in their joints and limbs that cause them to walk with difficulty. Backpain, arthritis and slipped disc are the common problems of menopausal women (Macleod, 1974).

1.2.2.10 Excretory system

Renal function deteriorates with age. Frequent urination, uncontrolled urination and urinary tract infections are the common problems attacking middle aged men and women (Williams, 1989).

1.2.2.11 Immune system

Women are more likely to contract autoimmune diseases and multiple sclerosis. The female hormone estrogen tends to boost the function of immune system but it is
somewhat lowered at the onset of menopause. Aging impairs the function of lymphocytes, the white blood cells that help to fight disease (Chatterjee, 1994).

Degenerative structural and functional changes in middle age cause health problems and ultimately reduce life expectancy. It is distressing to note that the life expectancy of Indians being 58.6 years. India lags behind by almost 12 to 15 years compared to other developed countries (Park and Park, 1995).

1.2.3 Psychological Features

Women are twice prone to psychological problems as compared to men. This may be related to family and social factors, stress due to dual role of women as breadwinner and homemaker and more importantly to her overall health status (Hurlock, 1980).

Depression, the most common mental disorder develops in women between 30 and 50 years of age. Feeling of sadness, lack of interest in all the activities, feeling of hopelessness and helplessness, decreased appetite and disturbed sleep are the unpleasant situations likely to develop depression (Green, 1978 and Chandrasekar, 1991).

Depression often associated with maternal role loss among women who are over involved with their children has been designated as empty nest syndrome (Faver, 1984). Menopausal syndrome refers to the climacteric associated with the development of physical and psychological symptoms (Dennerstein and Burrows, 1983). Women with both empty nest and menopausal syndromes are affected by emotional breakdowns such as anxiety, fatigue, tension, emotional liability, irritability, depression, dizziness and insomnia (Hall and Lindzey, 1985). Estrogen loss may also be directly responsible for
depression and negativism (Sherman, 1971). During menopause, women especially who have not had children may experience regret, loss or even depression (Craig, 1986).

Women compared to men are very much subjected to depressive disorder if (i) they are of low socio economic status, (ii) they have several children at home, (iii) they do not have a job outside the home and (iv) they do not have a close relationship with others (Mathews and Steptoe, 1988). Life events such as physical disabilities, handicap or bereavement strongly induce depressive disorders (Birch and Malim, 1988).


Grief is common in middle age. The causes of grief might be death of a relative or friend, altered personal and working circumstances or personal disability such as heart attack (Green, 1978). Fatigue is the first stage in the breakdown of health. Clements (1973) defines fatigue as being weakness after exertion. Fatigue is due largely to the accumulation of lacto-lactic acids within the tissues and so the feeling of tiredness is experienced until the normal tissue balance is restored. The degree of fatigue associated with anxiety and depression relied on increasing age, impending retirement, loss of social status, loss of social contacts including children moving away and separation or divorce (Feldman, 1989).

Stress occurs in middle age as a result of severe interpersonal problems between husband and wife or mother-in-law and daughter-in-law, financial upsets and more female
children in the family (Totman, 1990). Occupational stress is in existence in late adulthood as a consequence of poor physical conditions of work, time pressure, information overload, poor relationship with higher authorities and subordinates, difficulty in delegating responsibility, lack of trust, lack of job security, promotion guidelines and high ambition (Vasantraj, 1991).

The situations provoking stress among widows are entirely different. It is closely associated with loss of social identity, loneliness, loss of self-esteem, fear of rejection, sense of confusion, fear about financial security, extreme dependency on others, feeling of guilt and self-blame (Hafer, 1981 and Ghosh, 1989).

Some middle aged people experience psychosomatic illnesses that are characterized by physical symptoms and ultimately linked with psychological factors (Gatchel and Baum, 1983). In a genetically predisposed compulsive personality who has repressed and suppressed rage, hypertension may result. A sudden onset of diabetes melitus is often associated with emotional stress which disturbs the homeostatic balance (Adams and Gullotta, 1983).

Research with neuroendocrine and psychophysiological techniques has demonstrated that depression and anxiety can affect the total body state by altering the endocrine, gastrointestinal and autonomous nervous system and central nervous system regulation of sleep, appetite, attention and libido (Burrows, 1977).

The basic issues facing adult according to Erikson is generativity versus self-absorption. As Erikson suggests, middle aged people should act within three domains, a procreative one by giving and responding to the needs of the next generation, a productive
one by integrating work with family life and creative one by increasing cultural potential on a greater scale. If the adults have no impulse to guide the new generation as being "within a cocoon of self-concern and isolation". (Sroufe and Cooper, 1988).

1.2.4 Social Characteristics

Middle age often brings with it a renewed interest in social life. As Havighurst (1973) explained in his developmental task, the tasks related to social life during middle age are to achieve social responsibility, to develop leisure time activities and to adjust to aging parents (Bee, 1975 and Garg, 1991).

Between the energetic young generation and the less energetic older generation, middle aged people act as a kind of bridge. As their parents age, a kind of role reversal takes place between middle aged people and the older generation. Unless both parents realize that the role reversal is an inevitable part of the life cycle, the new social relationship can cause resentment on both sides (Firebaugh and Deacon, 1975).

The new role as father-in-law or mother-in-law in middle age brings sudden confrontation with a new family member in the form of son-in-law or daughter-in-law. This abrupt demand for intimacy with a total stranger is another social adjustment expected in middle age (Craig, 1986).

For many of them, grandparenting is a highly satisfactory activity. In the additional role of grandparents, they are involved in developing a new generation without having the responsibilities of a parent or without being involved in the intense relationships and conflicts between parent and child (Graham, 1984; Faver, 1984 and Chaube, 1986).
Women in middle age find an active social life, when their children are grown and have homes of their own. To alleviate the loneliness, they spend increasingly more time in watching sports, reading newspapers and magazines, listening to radio while doing housework and visiting friends and relatives. The hobbies of middle aged people are of a constructive nature. They do gardening, sewing and preparing snacks, jams etc. (Hurlock, 1980).

The richest and most complex friendship occurs among people in late middle age. This may be a result of certain personality shifts during middle age. Jung’s description of the period from 40 to 60 as a time of inner awareness when people turn away from the activities of the conscious mind and confront the unconscious may be recalled here (Barnes, 1987).

Leisure for people of business and business for people of leisure would cure many complaints.

1.3 ENHANCEMENT OF WELL-BEING

1.3.1 Psychological Methods

A sound mind in a sound body, if the former be the glory of the latter, the latter is indispensable to the former which speaks about the need for successful psychological adjustment to physical changes in middle age.

Relaxation and behaviour modification are the two important strategies to alleviate stress for graceful living. Graceful living is born of a relaxed body and sharpened concentration of the mind. Progressive relaxation is a coping technique in which various muscle groups are alternately tensed and then relaxed allowing people to experience and
learn what relaxation feels like. It is used to combat stress headache, high blood pressure, ulcer and many psychosomatic problems (Jackson et al., 1984; Hegarty, 1988; Feldman, 1989 and Vasantraj, 1991).

Behaviour therapy is an effective psychological method that uses conditioning procedures such as reinforcement, reward and shaping to enhance behaviour. Behaviour therapy focusses directly on external behaviour instead of subtle internal feelings and asserts that all behaviour good or bad is learned through our interaction with other people. Positive feedback produces feelings of pleasure either physical or psychological so that an individual is motivated to repeat the approved behaviour. Similarly negative reinforcement supplied in the form of punishment directs a person away from certain types of behaviour. Men and women with specific psychosomatic problems like overeating and drinking are best treated with behaviour therapy (Jackson et al., 1984).

Biofeedback, one of the few medically accepted techniques helps people to control their own physiological responses. Increasingly psychologists have realised that the debilitating effects of stress in the form of headaches, indigestion, tension, insomnia and so on can be remarkably modified (Robinson, 1977).

Cognitive behavioural approach has also strong and subtle influence on enhancement of psychological well-being. It involves a personal reassessment of fixed, often self-defeating attitudes. Cognitive therapeutic methods help people of all ages to maintain psychological health (Hegarty, 1988).
1.3.2 Nutrition and Diet

Life can not be sustained without adequate nourishment. Undernutrition without malnutrition may actually lengthen life (Williams, 1990).

Food is the mixture of nutrients that the body needs, not just for fitness and well-being but for life itself. The body’s energy supply and the basic building blocks needed for its growth and maintenance come from the three main classes of foods - proteins, fats and carbohydrates (Turner and Helms, 1983 and Jackson et al., 1984). Diminished secretions of digestive juice and motility of gastrointestinal tract elicit decreased absorption of nutrients in individuals after 40 years. Also reduced basal metabolism and less physical activity create less energy demand. Hence carbohydrate rich foods like rice, wheat, ragi etc. are better to be restricted during middle age to meet the less energy demand (Swaminathan, 1974 and Sreelakshmi, 1993).

From the healthful viewpoint, the fat intake is best limited. The most important aspect of fat is their degree of saturation. While animal fats are generally highly saturated, vegetable fats tend to contain unsaturated fatty acids and seem less likely to lead to a potentially life threatening rise in the level of harmful cholesterol (Padubidri and Daftary, 1989) and Joshi (1992).

Essentially the working parts of all body cells are protein based, so there can be no doubt that proteins are vital to the diet. In middle age, the protein rich foods - all pulses need to be consumed as per the recommended dietary allowance given by ICMR to replace the wear and tear in tissues (Rao, 1988).
There is nothing new about the idea of dietary fibre. In the past, it was called "roughage" and accepted as helpful in preventing constipation. Certainly a high fibre diet for instance bran, whole grains, fibre containing leafy and other vegetables and fruits leads to a fall in blood cholesterol and glucose levels (Antia, 1975).

Calcium is also essential to prevent middle age osteoporosis. Recent evidence indicates that the negative calcium balance can be prevented by increasing the level of calcium from 800 mg to 1200 mg/day in women over age 40. Adequate calcium is supplied by a large variety of foods such as leafy vegetables, legumes, nuts, milk and cheese (Pressman and Adams, 1990 and Nagendra, 1994).

Wardlaw and Insel (1993) have identified a cluster of factors responsible to modify diet during stress. During stress, energy demands increase and gastrointestinal function and normal biochemical pathways are interrupted. A diet of whole grain breads and cereals, vegetables, fruits, nuts, dried beans and peas and low fat dairy products are needed to restore regular body function after stress (Jain, 1994).

Eating a healthful diet as per age should become a way of life to enhance well-being.

1.3.3 Other Forms

Naturopathy is a recognised system by Indian medicine to increase the resistance power of the human body by changing the life style of the person through natural means which include diet, yoga, meditation, massage, mud bath and hydrotherapy. Some of the chronic conditions treated in naturopathy are peptic ulcer, irritable bowel syndrome, intestinal amoebiasis, piles, hypertension, ischaemic heart disease, hypothyroidism,
sinusitis, bronchial asthma, cervical and lumbar spondylosis, rheumatoid arthritis, obesity, non-insulin dependent diabetes mellitus and eczema (Sharma, 1990 and Rawat, 1991).

Traditional yoga offers people of all ages and conditions improved physical flexibility, freedom from stress and a profound sense of well-being. Recent studies in physiology revealed that yoga practised by the middle aged and elderly can turn back the clock 10 to 25 years (Patwardhan, 1991 and Ganong, 1995).

Meditation is another form of enhancement of health. The aim of meditation is to relax the body and mind. Research into the physiological effects of meditation has shown a marked decrease in the 'fight or flight' responses. Pulse rate, skin conductivity and muscle tension all show marked decrease during meditation. This has obvious value in the treatment of a wide variety of psychosomatic and stress related disorders such as blood pressure, migraine, some digestive disorders and insomnia (Hittleman, 1971).

Meditation with prayer give a vital sense of transcendence. On a practical level, both can be enormously useful to cope with the crisis of life (Craig, 1986).

1.4 SCOPE OF THE PRESENT STUDY

The main aim of the present study was to investigate the biochemical, clinical, demographic and psychological factors that determine the bio-psycho-social well-being of women during middle age. Not only by carrying out an ex-post-facto research, but also through experimental research by manipulating the independent variable namely enhancement of well-being through two intervention strategies such as naturopathy and deep muscle relaxation training, factors operating on bio-psycho-social well-being would be studied. Such an attempt would elucidate the determinants of bio-psycho-social well-being of middle aged women. Keeping this in view, studies conducted in the past pertaining to the key concepts of the present study are reviewed in the next chapter.
Regularity in the hours of rising and retiring, perseverance in exercise, adaptation of dress to the variations of climate, simple and nutritious aliment and temperance in all things are necessary branches of the regimen of health.

- Lydia H. Sigourney