

## CHAPTER 2

### REVIEW OF LITERATURE

This chapter presents a literature review related to the following issues.

Middle aged women and menopause

The changes during the menopause period and related symptoms

Assessment of menopausal symptoms

Health practices in menopausal middle age women

The relationship between menopausal symptoms and health practices

Middle aged Thai Muslim women

#### **Middle Aged Women and Menopause**

Middle aged women have been defined in a variety of ways. Fogel & Wood (1994) defined midlife by using age boundaries, such as 35 to 65 years, to differentiate midlife from young adulthood and old age. Others based their definitions on women's reproductive capacity, using menopause, or hormonal changes consistent with menopause as markers. Some based their definitions on women's role patterns, using indicators such as a child leaving home, or a woman's return to the workplace, to designate the beginning of midlife. Midlife is a complex time for women (Fogel & Wood, 1994). There are many changes in middle age: personal changes such as changes in physical proportion, loss of skin elasticity, loss of muscle endurance, and gray hair, or family changes such as marital tension, difficulty with children, large family size, economic strain, or difficulties regarding sexual desire. All of these changes are causing a high level of stress in their lives and

can affect health, however, the most important changes in midlife that pose a threat physically and psychologically are those associated with menopause.

Menopause transition may cause a midlife crisis for a women because it is a period of physical and psychological turmoil. These changes are related to physical and emotional discomforts and have short and long term consequences. Adequate preparation for health practices during this transition is important for every woman in order to maintain a healthy body and mind. The term "menopause" comes from two Greek words that mean "month" and "cessation" It translates as "the cessation of the monthlies."(Speroff, Glass, & Kase, 1999). The meaning of menopause is the permanent cessation of menstruation due to the loss of ovarian follicular function. Clinically, menopause is diagnosed after 12 months of amenorrhoea (Schiff, 1986). Rodin & Chapman (1994) defined the menopause as the ending of menstruation and it marks the end of a woman's reproductive potential.

The endocrinology of the menopause has been described by Rodin & Chapman (1994). In pre-menopausal women, the main estrogen is  $17\beta$ -estradiol, which is synthesized by the granulosa cells of the developing ovarian follicles. In the normal non-pregnant female estradiol is produced at an average rate of 100-300  $\mu\text{g}$  per day; however this varies widely during the ovarian cycle. In addition, estrogen is also produced by the peripheral conversion of androstenedione to estrone. Androstenedione is secreted by the ovaries and the adrenal glands and is converted to estrone in adipose tissue by aromatisation. The rate of extra glandular estrone formation does not vary significantly during the cycle.

The climacteric is the transition phase that precedes the menopause and it may last 10-15 years. It is characterized by reduced sensitivity of the remaining

ovarian follicles to stimulation by gonadotrophins. As a result, ovulation becomes less frequent, total monthly estrogen production declines and peak gonadotrophin levels may be elevated. Menstruation may remain regular; however, erratic cycles and menorrhagia are characteristic features of the climacteric and are due to anovulation and failure of corpus luteum formation. At menopause, the ovaries fail to respond to the gonadotrophins and estrogen production is insufficient to cause the endometrium to proliferate, resulting in the cessation of menstruation. There is a 10-20 fold increase in the follicle stimulating hormone (FSH) and a three fold increase in the luteinising hormone (LH), reaching a peak 2 years after the menopause and then gradually declining. After the menopause estrogen production by the ovaries ceases and estrone is the main circulating estrogen. This is a weaker estrogen than  $17\beta$ -estradiol and is produced from androstenedione in adipose tissue and a variety of other sites, including skin, hair follicles, brain, bone and muscle. Androstenedione is derived mainly from the adrenal gland, with a small amount secreted by the ovarian stroma. The average production rate of estrogen in post menopausal women is approximately 45  $\mu\text{g}$  per day. Conversion of androstenedione correlates positively with circulating levels of estrone, and this explains the well recognized association between obesity and endometrial carcinoma. Testosterone secretion by the post menopausal ovary continues under the influence of elevated gonadotrophin levels which stimulates the ovarian stroma. Estrogen derived from extraglandular sources may be sufficient to sustain estrogen sensitive tissues initially but with increasing age this proves inadequate and atrophy occurs (Rodin & Chapman, 1994).

## **The Changes during Menopause Period and Related Symptoms**

Women moving through the menopausal transition may be confronted with various changes. The experience of menopausal symptoms is unique from woman to woman and will be influenced by many factors. The decline of ovarian function, the expectations of the menopause, culture and circumstances will all influence the perception and experience of the symptoms. From the first international congress in 1976 (Utian & Serr, 1976 cited in Perz, 1997), a consensual classification according to aetiology of three symptoms classes was offered. The first group of symptoms are those related to the decreasing ovarian activity, the second are a result of sociocultural factors, and the final group result from the individual women's character, and as such are the result of psychological factors. The changes associated with menopause can be conveniently classified into 3 major categories, general-somatic changes, vaso-somatic changes and psychological changes (Perz, 1997)

### **1. General-Somatic Changes of Menopause and Related Symptoms.**

The major physical sign of approaching menopause is menstrual irregularity. This can begin several years before complete cessation of menstruation and may be characterized by lengthening or shortening of cycles, decrease or increase of menstrual flow, or a combination of these characteristics. Because estrogen plays such a significant role in a woman's reproductive system, the decline in estrogen that accompanies menopause brings significant changes in all the reproductive organs. The general-somatic changes in menopause transition and related symptoms can be classified into 6 categories (Rungrattrakul, 1998)

#### **1.1 Genital Symptoms**

The decreasing estrogen supply causes the glycogen in the epithelial

cells of the vagina to diminish, and an increased pH results. The changed constitution leads to an inhibition in the growth of lactobacilli, and, consequently other contaminating organisms may flourish. The latter flora includes a mixture of streptococci, staphylococci, and diphtheroid and coliform organisms, which may be responsible for the bouts of vaginal discharge and infection that can afflict women at this time (Schiff, 1986). Other menopausal changes in the vagina include the general coloring, which turns from red to pale pink. If the vagina becomes irritated due to atrophy, inflammation may turn it deep red again and in extreme cases the vagina may actually stenose. With the drop in estrogen the vaginal lining becomes thinner, drier and less elastic, and over time, the vagina shrinks, and become stenosed. Burning and itching sensations may signal vaginal dryness, which is aggravated by reduced secretion of cervical mucus. As well, lubrication of the vagina in response to sexual arousal, occurs more slowly. All of these factors can cause pain or bleeding during intercourse, known medically as dyspareunia.

Vulva changes that occur at around 50 years are usually more related to the general aging process than to estrogen loss (Schiff, 1986). There is a decrease in subcutaneous fat and elastic tissue, increased wrinkling, and sparser and coarser pubic hair; the labia major shrink and the relative proportions of the prepubertal female are thus reestablished. The Bartholin glands are found to be less efficient for purposes of lubrication. Clinically, the vulva may be found to become pruritic and a source of irritation. Menopausal women have reported many changes related to sexual function. Sarrel (1987) describes the changes in sexual function associated with menopause; diminished sexual responsiveness, dyspareunia, decrease in sexual activity, decline in sexual desire, and a dysfunctional male partner. Most of these functions are affected by decreases of estrogen and androgens during and after

menopause. The most common and least disputed complaint is vaginal dryness, which can cause dyspareunia (Sarrel, 1987). Changes in sexual functioning during the menopause are common and related to the ovarian hormone level. Wiklund, Karlberg & Mattsson (1993) studied quality of life of postmenopausal women on a regimen of transdermal estradiol therapy. A double-blind placebo-controlled study found that whereas placebo had no effect on sexual dysfunction, transdermal estradiol therapy decreased sexual problems and improved sexual satisfaction. Hunter, et al (1986) cited in Montgomery & Studd (1991) surveyed 682 women with a menopausal questionnaire consisting of 36 items including one which covered sexuality and found that sexuality decreased with increasing menopausal status and age, but menopausal status was more significant than age. Genital symptoms reported by Thai middle aged women are widely differ, for example; 5.6-30 percent had dyspareunia (Chompootaweep, et al, 1994; Mongkoldee, 2000 & Precharat, 1996) while 15-26.5 percent had vaginal dryness (Iemsawasdikul, 1998 ; Mongkoldee, 2000).

## 1.2 Urinary Tract Symptoms

Urinary tract symptoms can occur at anytime in a women's life, but the incidence of these symptoms increases with age. The uterine body has the same biological origin as the vagina; essentially the embryonic urogenital sinus. The distal one third of the urethra is the most estrogen dependent portion of the urinary tract. With prolonged estrogen deficiency, the distal urethra can thicken and become nondistensible. The atrophy of urethral epithelium can cause urethral caruncle, diverticuli, urethroceles and cystoceles. With age and estrogen deficiency, there is also loss of periurethral collagen, which supports the urethra. The atrophy of the urethra epithelium decreases the ability of the urethra to seal itself and therefore may

aggravate all forms of incontinence by lowering functional urethral pressure (London & Chaihal, 1995). Approximately 40 percent of women between 45 to 64 years complain of urinary tract related symptoms. Urinary incontinence is the most common symptom that has been reported (London & Chaihal, 1995). The urinary tract symptoms experienced by Thai middle aged women are widely different; for example, 21-30 percent had frequency of urination (Iemsawasdikul, 1998 ; Mongkoldee, 2000) while 27-42 percent had urinary stress incontinence (Iemsawasdikul, 1998).

### **1.3 Musculoskeletal Symptoms**

Age-related bone loss is a universal phenomenon, but one that accelerates in women after menopause. Bone is lost at an annual rate of 0.5 percent after age 40, and at an annual rate of 1.0 percent or more for at least 5 to 10 years after menopause (Ettinger, 1986; Parfitt, 1983; Riggs; Melton, 1986 cited in Harper, 1990). With long term estrogen deficiency, the skeletal system is the most readily identified as changing after the menopause. Osteoporosis is the most common skeletal disorder occurring in postmenopausal women. Osteoporosis is defined as a condition in which the structure of bone (or "bone mass") weakens to such an extent that the risk of fracture is greatly increased (Abernethy, 1997). These fractures occur not as a result of major trauma, but following trivial accidents or even during everyday activities (Abernethy, 1997). Following the menopause, estrogen deficiency results in a period of accelerated bone loss which continues for approximately 5 years. The majority of this loss is from the trabecular component of bone. The mechanism by which estrogen protects the skeleton remains obscure. It's primary action is the inhibition of bone resorption, and in the past it was thought to act indirectly via the calcitrophic hormones, vitamin D, parathyroid hormone and calcitonin. In the presence of

osteoporosis, fracture of any bone can occur, but the most common fractures are of the hip, vertebral bodies and distal radius (colles' fracture). Hip fractures are more common in women than men (2:1) and their incidence increases exponentially with age. Hip fracture is associated with significant loss of mobility and mortality. Up to twenty percent of affected individuals die as a result of the fracture or complications that follow (Rodin & Chapman, 1994). Musculoskeletal symptoms reported by Thai women were; back pain (48-62%) (Iemsawasdikul 1998; Mongkoldee, 2000; Preecharat, 1996), joint pain (50-56%) and muscle pain (43-64%) (Iemsawasdikul, 1998; Mongkoldee, 2000; Preecharat, 1996).

#### **1.4 Skin Symptoms**

Skin changes relate to shifts in estradiol production during the perimenopause. Hyperpigmentation, known as senile lentigo or aging spots, occurs because of benign proliferation of melanocytes. Sebaceous and sweat gland activity decreases, and the epidermal skin layer begins to atrophy and thin. The skin consequently becomes less tolerant of temperature and humidity changes. Likewise, the dermal skin layer thins, reducing the integrity of the underlying collagen and, ultimately, the skin's resilience and pliability (Harper,1990). Skin aging is characterized by atrophy, loss of elasticity and slowed metabolic activity. Additionally, there is deposition of abnormal elastic fibres, collagen degeneration, and the microvasculature becomes twisted and dilated. (Gilcrest, 1996). Avoiding sun damage is very important to prevent further signs of aging skin. An appropriate strength of sunscreen allows for repair and protection from ultraviolet damage, which exacerbates the wrinkling and hyperpigmentation. 23.7-41 percent of Thai women reported dry and itching skin (Iemsawasdikul 1998; Preecharat, 1996).



### **1.5 Cardiovascular and Circulatory Symptoms**

Cardiovascular disease (coronary artery disease, stroke and other vascular consequences of atherosclerosis) remains the commonest cause of death in women in most Western societies. Heart disease is the major cause of death in women over the age of 50 years in the UK (DOH, 1994 cited in Abernethy, 1997). Falling estrogen levels may play a role in relation to heart disease in women. The risk factors for heart disease include obesity, high blood pressure, diabetes, cigarette smoking, high level of cholesterol and a low level of activity. The use of estrogen replacement therapy has been shown to dramatically reduce the risk for heart disease. Estrogen can lower high levels of "bad" cholesterol and help maintain healthy veins. It may also help lower blood pressure and play a role in keeping blood sugar close to the normal level (Abernethy, 1997). In Thai women, the common cardiovascular symptoms were; feelings of chest pressure (17-30%) (Iemsawasdikul, 1998) and palpitations (30-38%) (Iemsawasdikul, 1998).

### **1.6 Other Symptoms**

There can be a progressive increase in weight through menopause as well as a change in fat distribution. Menopause is associated with the loss of lean body mass (muscle) and an increase in total and abdominal fat mass (Panotopoulos, Raison, Ruiz, Guy & Basdevant, 1997). The aging process and life style changes such as increased appetite and diet calorie intake, decreased metabolic activity and decreased physical activity also have an effect.

Insomnia is defined as a disturbance in one's usual sleep pattern. It may have a number of troublesome consequences; most frequently daytime fatigue, drowsiness, irritability, anxiety, depression, and somatic complaints. Insomnia and disrupted sleep are frequent complaints in most studies of women's experiences of menopause,

with difficulty falling asleep and disrupted sleep because of hot flushes being the most commonly cited problems (Balinger, 1990; Rousseau, 1998). In Thai women, 34.2- 50 percent reported sleep disturbances (Chompootawee, 1993; Preecharat, 1996) and 10-13 percent reported dry eyes (Iemsawasdikul, 1998).

## **2. Vaso-Somatic Changes and Related Symptoms**

Vasomotor instability is a descriptive term for hot flushes that reflect the vasodilatation and "flushing" of the skin, which are the objective signs of cutaneous vasodilatation that occur following the subjective sensation of intense heat. Increased digital blood perfusion precedes the patient's sensation of flushing by at least 1.5 minutes and persists after it. The increase in blood flow occurs only in the skin and not in deeper tissues. This increase leads to a visible flushing of the skin of the chest, arms, and face. The increase in skin temperature occurs an average of 3 minutes after the increase in digital perfusion. The flush is followed by a drop in core body temperature, which may be associated with chills (Ginsburg, 1994). Studies report that 60 to 95 percent of women will experience hot flushes sometime during the menopause (London & Chaihal (1995) Hot flashes may vary; they can be occasional or frequent, last from seconds to an hour, and characterized by mild warmth to profuse sweating. Hot flushes and the associated disruption of sleep can cause a diminished overall sense of well being due to fatigue, irritability, poor concentration, and impaired memory (Bachman, 1999). Some women perceive hot flushes as a minor nuisance, whereas in other women this symptom disrupts work, sleep, and daily activities (Greendale & Arrior, 1999). 22-81.7 percent of middle aged Thai women reported hot flushes (Chompootawee, 1993; Iemsawasdikul 1998;

Preecharat, 1996; Mongkoldee, 2000) while 17.5-64.5 percent had night sweats (Chompootaweep, 1993; Iemsawasdikul 1998; Mongkoldee, 2000; Preecharat, 1996).

### **3. Psychological Changes of Menopause and Related Symptoms.**

Many symptoms have been attributed to menopause related mood changes. These include depression, decreased self confidence, difficulty making decisions, anxiety, forgetfulness, poor concentration, feelings of unworthiness, and fatigue (Stone, & Pearlstein, 1994). Both gynecological and psychiatric researchers have conducted investigations in order to confirm or deny the existence of a menopause related mood syndrome. This research has polarized along the lines that either menopause is a natural phenomenon and any difficulties that women experience during this stage of their life cycle are caused by influences other than cessation of menses (e.g., health, aging, social changes) or menopause is an estrogen deficiency disease that requires intervention. Women face either positive or negative feelings at menopause. If they feel positive, in general, they see menopause as a natural process and they feel satisfied with their lives. They are free from the menstrual cycle and child bearing and they can undertake activities such as travel without worrying about their menstrual cycle. Negative thoughts at menopause can include fear of aging, decline in physical strength, financial fears, and fears regarding death or illness in the family. Depression is experienced in ways that range from feeling "blue" to feeling despair, helpless, hopeless, guilt and hating oneself (Formanek & Gurain, 1987 cited in Wood, 1996). Depression may present as negative thought patterns, loss of energy, loss of appetite, difficulty concentrating, changes in sleep patterns, negative comparisons of self to others, and perceptions that people are unfriendly (Mirowsky & Ross, 1984 cite in Wood, 1996). Depressed moods may affect the ability to function in interpersonal relationships and in other activities of daily living. As a

physical agent, lack of estrogen may cause depression, either directly as a biochemical effect, or indirectly by causing physical symptoms, such as hot flushes or sweats, that can induce depression. A direct biochemical effect has not been prove, but several possible mechanisms have been suggested. For example, lack of estrogen might cause a depressed mood by reducing plasma tryptophan concentrations, and thereby 5- hydroxytryptamine functions, or by influencing the action of monoamine oxidase, or by changing the sensitivity of monoamine receptors (Gath, Hes, & Rebar, 1990). The psychological symptoms found in Thai women differ widely; 8.2-53 percent reported depression (Chompootweep, et al., 1993; Iemsawasdikul 1998), 44-54.8 percent became moody (Chompootweep, et al., 1993; Iemsawasdikul 1998 ; Mongkoldee, 2000), 35-51 percent experienced loss of energy, 61 percent had feelings of disruption, 58 percent felt tense, (Chaikitisilk, 1995 cited in Iemsawasdikul 1998) 22-26 percent had excitable feelings (Iemsawasdikul 1998) and 34-54.8 percent experienced irritability (Chompootweep, et al., 1993; Iemsawasdikul 1998; Mongkoldee, 2000).

### **Menopausal Symptoms Assessment**

The instrument developed by Iemsawasdikul (1998) to assess menopausal symptoms is composed of 4 categories; physical symptoms, psychological symptoms, vasomotor symptoms and other symptoms. Physical symptoms are subdivided into urinary tract symptoms, genital symptoms, musculoskeletal symptoms, cardiovascular and circulatory symptoms and skin symptoms. There are 53 items in this instrument. They are divided into 2 main categories, disturbed routine life and undisturbed routine life. Disturbed routine life is further subdivided into 3 levels, slightly, moderate and severe. A score of 0 is given for undisturbed, 1

for slightly disturbed, 2 for moderately disturbed and 3 for severely disturbed. The total items in this instrument yield the score from 0 –106. Reliability of this instrument is 0.91.

Ngaongarm (1997) developed an instrument from the Chulalongkorn menopausal clinic assessment form. The questionnaire included 27 items and each item yield a score from 0- 3. The total score possible is 0-81 which can be divided into 4 levels, score 0 means the symptoms are not severe, score 1-27 means slightly severe, score 28-54 means moderately severe and score 55- 81 means severe.

The Kaufert and Syratuik Symptom index was developed by Kaufert, Gilbert, & Hassard (1998). This instrument is composed of 15 physical symptoms (dizziness, diarrhea/ constipation, cough, backaches, aches/ stiffness in joints, upset stomach, headache, rapid heart rate, shortness of breath, sore throat/ cold, pin/needles in hands/feet, loss of urine when laughing/coughing, fluid retention, bladder infection, menstrual problems), 8 nervous symptoms (lack of energy, irritability, feeling blue or depressed, nervous tension, trouble sleeping, loss of appetite, forgetfulness and difficulty concentrating), 2 vasomotor symptoms (hot flushes and cold sweats), and 3 sexual/ genito urinary symptoms (vaginal dryness, decrease in sexual desire and painful intercourse).

Perz (1997) developed an instrument to measure menopausal symptoms called The Menopause Symptom List. The symptoms were based upon a literature review of menopausal checklists. He divided the categories into 3 groups; psychological symptoms, vasomotor-somatic symptoms and general somatic symptoms. Symptoms are measured by both, frequency of occurrence and severity of the symptoms in the preceding 3 months. Frequency of occurrence is measured on a 6 point scale, for example, “never” means not at all in the last 3 months and “almost

always” means almost daily in the last 3 months. Total score for frequency of occurrence is 0- 195. Severity symptoms are measured on a 6 point scale, “not applicable” mean symptoms not experienced and “extreme” means a change or sensation that could not have been worse. Total score for severity of symptoms is 0- 195. Reliability of this instrument is 0.72-0.92.

In this study the researcher has chosen the instrument developed by Perz (1997) to measure menopausal symptoms because it covers most of the symptoms that are related to menopausal women. Also the instrument is designed to measure both frequency and severity of the symptoms. Each symptom is followed by a brief definition to reduce any confusion or misunderstanding about the intended meaning.

### **Recommended Health Practices for Middle Aged Women**

Health practices have been defined as the activities which women perform to maintain their health as well as to reduce menopause symptoms. The appropriate practices for menopausal women were categorized into 6 categories; nutrition, exercise, sleep and rest, stress management, elimination and general responsibility for health (Rungrattrakul, 1998).

#### **1. Nutrition**

Nutrition is a vital component of health and well being for women as they age. The most critical nutrition needs during the growth phases of life are proteins and the energy providing macronutrients, carbohydrates and fats (Anderson, 1992). Calcium plays an important role in the menopausal period. Heaney's (1989) study of menopausal changes in calcium balance performance, found that calcium supplementation of early postmenopausal women would improve not only calcium balance, but also bone mass (Heaney's, 1989 cited in Anderson, 1992). Generally,

caloric requirements decrease with advancing age, and dietary intake should be adjusted appropriately to maintain optimal weight. Saturated fats, nitrates, sodium, caffeine, excess sugar, alcohol, and fat aggravate menopausal symptoms. Vitamin and mineral supplementation may be helpful, however, food is still considered the best source of nutrients. Consumption of foods containing high calories cause increased body weight, obesity, and risk of vascular disease. Too much coffee, tea, high protein foods, and a high phosphate diet may cause bone mass reduction and the risk of osteoporosis. Studies investigating the effects of dietary isoflavone are extremely limited, however, there have been studies that have been shown that isoflavone can reduce the rate of bone loss in postmenopausal women (Gennari, Agnusdei, & Crepaldi, 1998; Agnusdei, Crepaldi, & Isaia, 1997; Adami, Bufalino, & Cervetti, 1997). Suggestions for nutritional practices in menopause women should include (Rungrattrakul, 1999; Abernethy, 1997; Limpapayom, 1999).

1.1 Keep cholesterol intake at not more than 300 mg / day by decreasing the intake of fatty or fried foods, animal skin, entrails of animals and egg yolk. Consume food that contains unsaturated oil from soy, corn, sunflower etc. Vitamin E also comes from this kind of food and functions as an antioxidant in the cell.

1.2 Take limited amounts of food like starch, sugar, and soft drinks.

1.3 Consume protein from fish and soy instead of red meat, because fish have saturated fatty acids and Arginine that stimulates the release of growth hormones.

1.4 Increase the consumption of high fiber food, because it helps to absorb the fat and bile in the intestines and decreases the absorption of fat in the body. Bacteria cannot digest bile in the body, so cholesterol has to break it down to increase the bile that is used to digest the fatty food in the intestine and this reduces cholesterol. High fiber foods are milled but unpolished rice, vegetables, fruit, and

cereals (corn and soy bean).

1.5 Increase the intake of high calcium food, because loss of estrogen is related to the loss of bone mass and increased risk of fractures. Increased calcium intake may reduce the risk of progressive osteoporosis, especially in women. The National Institutes of Health (1994) sets optimal calcium requirements for adult at between 1000 and 1500 mg/day (Mitchell, 1997). They usually need consume more calcium rich food such as small fish, shrimp, shrimp paste, beans, bean curd, water mimosa, papaya, banana and oranges. Soybeans are especially good as they contain Isoflavones and Genestein. These two substances can reduce hot flushes, reduce cholesterol in blood, prevent osteoporosis, breast cancer, and uterine cancer (Shallam, 1998 cited in Dangpium1998).

1.6 Avoid salty and pickled foods, as they contain high sodium.

1.7 Avoid tea, coffee, alcohol and cola, as excessive intake inhibits calcium absorption.

1.8 Consume foods that contain adequate ingredients from 5 categories; protein, carbohydrate, fat, fruits and vegetable.

1.9 Drink 11 glass of water or 2-2.5 liters per day.

1.10 Vitamin and mineral supplementation may be helpful in case of malabsorption. Vitamin E has been recommended for hot flushes. Excellent food sources of vitamin E are peanuts, soybeans, spinach, wheat germ, and vegetable oils. Vitamin B complex is frequently recommended during the menopause. Vitamin B<sub>12</sub> is absorbed less effectively. Therefore, women need to include good food sources of B<sub>12</sub> in their diet. Vitamin C found in citrus fruits, peppers, tomatoes, melons, green, raw vegetable, strawberries, pineapple, potatoes, and broccoli, is required for the synthesis of serotonin, epinephrine, collagen and bone tissue and for hydroxylation of



adrenal hormone (Rolig, 1986 cited in Harper, 1990).

## **2. Exercise**

Exercise is very important for women in midlife as it affects all body systems including the cardiovascular system. Exercise helps to change LDL into HDL, reduce the fat in blood vessel walls, increase blood circulation, increase the effective movement of joints, give positive feelings after exercise and aid relaxation. Endorphin are released during exercise. An exercise program for midlife women should include both aerobic conditioning and muscle training. Regular aerobic exercise may improve cardiorespiratory endurance, reduce the risk of cardiovascular disease, and prevent some age related increases in body fat. Resistance training can improve muscle strength and bone density (Shangold, 1990). Increases in lumbar vertebral and distal radial bone mineral content have been reported in women who participated in a regular exercise program (Simkin, Ayalon, & Leitcher, 1987, cited in Fogel, 1995). Lack of exercise can lead to increased bone loss and a deterioration in the cardiovascular system. Weight bearing exercise, such as walking or dancing is helpful to maintain bone density. The benefits of brisk walking are often underestimated. Swimming is an excellent exercise for improving stamina and maintaining benefits from anaerobic exercise such as body conditioning or stretching exercises, which are aimed at keeping the muscles toned and looking the good figure. Menopausal women should exercise every day or at least 3-4 times per week and 30-60 minutes per time (Sirijukkawal, 1995 ; Watabandit, 1996 cited in Rungrattrakul, 1998). Exercise should be done outside in natural light because it helps the skin to synthesize vitamin D and increasescalcium absorption. Kegel exercises help to strengthen the pelvic floor, and are usually effective for those who do them diligently. This easy exercise which can be done anywhere helps to control mild

urinary stress incontinence.

As well as the physical benefits of regular exercise, some women describe that they felt an increased sense of well being, greater degree of self confidence, increased sense of achievement and satisfaction, improved sleep pattern and reduction in anxiety levels (Albernethy, 1997). The following considerations for women undertaking an exercise program as recommended by Visassin, 1997 cited in Rungrattrakul, 1998)

2.1 To prevent injuries during exercise, check the body to assess any physical abnormalities or disease.

2.2 Learn the right technique for each kind of exercise.

2.3 Begin slowly, step by step, don't overtax oneself, depend on physical endurance and experience.

2.4 Warm up and muscle stretch before exercise and use the right technique.

2.5 Concentrate during exercise to prevent accidents.

2.6 Observe the body reaction before, during, and after exercise in regard to pain or injuries.

2.7 Avoid competitive exercise, because it requires heavy training and also can cause psychological stress.

2.8 After exercise, warm down or cool down before finishing the session

### **3. Sleep and Rest**

Sleep, a basic physiological need of all people, appears to be both integrative and restorative (Mendleson, Gillin, & Wyatt, 1977 cited in Clark, 1995). During sleep, there are biochemical changes that occur due to the release of hormones. Cellular nourishment assists the body to become ready for another day's activity. Also, repair, reorganization, and the formation of new connections, occur within the neuronal

system to support memory and learning. In addition, sleep mediates stress, anxiety and tension, and assists the person to regain energy for concentration, coping, and interest in daily activities (Clark, 1995). Brugge, Kripke, Ancoli-Israel & Garfinkel (1989) who studied the association of menopausal status and sleep disorders, found that women show a dramatic increase in sleep disturbance in the midlife years as they enter menopause. Erlik, Tataryn & Meldrum (1981) studied the association of waking episodes with menopausal hot flushes and found that hot flushes or night sweats attributed to sleeping difficulties. Thomson & Oswald (1977) in a study of the effect of estrogen on sleep in menopausal women, found that estrogen did reduce the number of waking episodes, but did not change a women's perception of poor sleep. Ballinger (1976) studied the psychiatric aspects of the menopause and concluded that difficulties in getting to sleep and staying asleep were more common among postmenopausal women. The appropriate amount of sleep for menopausal women is eight hours. The guidelines for improved sleep are as follows.

3.1 Keep a regular sleep schedule : Go to bed and get up at the same time everyday. This helps to develop a regular sleep wake rhythm.

3.2 Reduce unwanted noise and light in the bedroom as much as possible.

3.3 Minimize use of caffeinated beverages : Avoiding caffeine is particularly important after the evening meal or for several hours before going to bed. This includes coffee, tea, cola beverages, and chocolate.

3.4 Do not try to get to sleep: trying too hard to get to sleep creates a vicious circle of increasing anxiety, which only perpetuates wakefulness. Get out of bed for 15-30 minutes, then return to bed when feeling sleepy.

3.5 Do not go to bed hungry : Although overeating before bedtime should be avoided, women who are dieting or watching their weight for health reasons will be

prone to hunger pangs then. They should have a light snack of low calorie food such as carrots, pretzels, or skim milk.

3.6 Avoid drinking alcohol : Alcohol disrupts the normal sleep wake cycle. Although it may help some people fall asleep because of its depressive action, alcohol disrupts normal sleep architecture and can lead to early awakenings.

3.7 Use the bedroom only for sleep : Avoid reading, watching TV, eating or working there. This practice develops the mental association between restful time and the bedroom.

3.8 Exercise regularly in the late afternoon or early evening : Avoid exercising too close to bedtime. Leading an active life generally produces better and deeper sleep.

3.9 Keep the bedroom at a comfortable temperature : A room that is too warm or too cold interrupts good sleep.

3.10 Avoid smoking in the evening : Nicotine is a central nervous system stimulant best discontinued 4 to 6 hours before bedtime.

3.11 Avoid worrying : When you are trying to go to sleep, make a conscious effort to relax. Imagine yourself resting in a peaceful place.

3.12 Let go of emotional pain : Many women try to swallow their emotional pain and relationship conflicts by keeping everything to themselves, only to find that they can never " let go", especially at night. To promote overall well being, talk about these issues with a trusted friend, in individual counseling, or in group therapy.

#### **4. Stress Management**

Stress is the nonspecific response of the body to any demand made upon it (Selye, 1983). The body's response to stress involves the nervous, endocrine, and immunological systems, which in turn affect all organ systems. Stress is an all too

common human experience that over time can produce health-damaging effects. The stresses during midlife have been linked to both psychological and somatic symptoms. At any point in time, an individual or family may face many sources of potential stress. The primary points for intervention in stress management consist of minimizing the frequency of stress inducing situations, psychological preparation to increase resistance to stress, and counterconditioning to avoid physiological arousal resulting from stress (Pender, 1987). Somkane (1999) studied the mental health status and coping devices of middle aged woman in Khon Kaen municipality and found that the majority (88.8%) of the women studied judged themselves as having sound mental health. Only a small proportion (22.2%) saw themselves as having poor or rather poor mental health. The conditions of poor or rather poor health were closely related to having a menstrual period, physical health and important events in life. These middle aged women opted to select either a strategy to solve the mental health problem they were facing or a strategy to adjust their emotions. The five most frequently used methods of coping with mental health problems among the studied women included giving themselves psychic power, telling themselves they were not the only ones who had this kind of problem, accepting the problems, and consulting with and requesting some assistance from others (Somkane, 1998). The ways to manage stress that have been suggested by Abernethy, 1997; Archanupap, 1995; Bunsinsuk, 1994; Somkane, 1998 & Srisangnam, 1991 include;

- 4.1 Use leisure time to do useful jobs such as growing plants, listening to music, singing, watching TV, reading and other hobbies.
- 4.2 Get enough sleep each day.
- 4.3 Practice being an open minded person. Listen to other's comments, accept individual differences. Look at everything in a positive way.

4.4 Be interested in religion, study prayer and practice meditation.

4.5 Join a social group and/ do some group activities.

4.6 Exercise or play your favorite sport.

4.7 Consult a close relation/friend when you have problems.

4.8 Learn and practice a relaxation technique.

## **5. Elimination Practice**

Women during the menopause period are at risk of getting urinary tract infections because the thin walls of the ureteroendothelial can cause urinary incontinence and frequency of urination. Women in this period should practice Kegel exercises everyday, as it can help to make the pelvic floor stronger. Regular urinate is encouraged because holding too much urine in the bladder can cause more bacteria. Washing of the external genitalia after elimination can help to prevent infection.

As the decrease of estrogen slows the movement of the digestive system, it can cause bloating of the stomach, poor digestion, and constipation. These symptoms can be prevented if menopausal women eat foods that have more fiber such as vegetables and fruit. Drinking at least 8 glasses or 2000 cc of water per day, is advised (Rungrattrakul, 1998).

## **6. General Responsibility for Health**

Women at the age of menopause are at risk of illnesses such as hypertension, diabetes mellitus, cardiovascular disease, asthma, and osteoporosis. So menopausal women need to look after their own health and have a check up by a physician or the public health authorities at least once a year. The health assessment issues that are very important at this age are the assessment of cholesterol and glucose in the blood, blood pressure, Pap smear and breast examination. Breast self examination should be

done every month. Observe for any abnormal signs and symptoms such as any nodules in the breast. As dysmenorrhea can be common through this period, observe for any abnormal signs and symptoms such as bleeding for more than 7 days or any nodules in the breast. If the problems are detected women should consult with a health care professional. Menopausal women should be interested in public health news from media such as television, radio, books, or from the public health care team in order to learn more ways to look after themselves and to prevent illness.

### **Hormone replacement therapy and menopause**

There are issues that need to be considered in deciding whether or not to take hormone replacement therapy, whether it be for relief of menopause symptoms, or for long term benefits to the skeletal and cardiovascular systems. Earlier data on HRT and the primary prevention of cardiovascular disease showing benefit to users are not supported by newer studies (Humphrey, Can, & Sox, 2002). The major points from review and meta-analysis are as follows. First, no significant association was identified between past, ever, or any use of HRT and CVD or CAD death. Second, HRT use did not reduce CVD incidence and, in fact, suggests a small increase in risk. Third, HRT showed no benefit in preventing CAD among the studies that adjusted for major CAD risk factors and socioeconomic status or education and showed reduced risk among studies that did not adjust for these factors (Humphrey, Can, & Sox, 2002). Epidemiological studies have shown a 40%-50% reduction in cardiovascular events among women receiving hormone replacement therapy. However these observational data must be interpreted with caution. Patients who take estrogen may be more likely than other women to exercise, eat a low fat diet, and live a healthy style (Wood & Cox, 2000). Hormone replacement therapy (HRT) usually

consists of two hormones, estrogen and progesterone. The benefit of estrogen therapy helps in primary prevention of coronary heart disease (Mosca, et al, 2001), slows the loss of skin collagen, develops thicker skin, slow the development of slackness, and improves of dry skin. Estrogen is the only therapy that clearly has been shown to decrease the risk of fracture (Rarnivar, 1992). It is not only cardiovascular disease and osteoporosis that hormone replacement therapy effect, but is also associated with significantly more sexual enjoyment and desire. It increased orgasmic frequency (Dennerstein & Burrows, 1977), increased vaginal blood flow with a proportional increase in vaginal lubrication and decrease the frequency and severity of dyspareunia (Klutke & Bergman, 1995). Estrogen therapy is the most effective agent for prevention of bone loss and reduction in fracture risk (Lindsay, & Kelly, 1996). The use of HRT in menopausal patients has been demonstrated to help improve symptoms such as nervousness, depression, anxiety, and insomnia (Sherwin, 1996). Many double-blind, placebo-controlled studies have demonstrate that estrogen effectively diminish the frequency and severity of hot flushes (Ginberg, 1994). The frequency of hot flushes diminishes rapidly during the first month of therapy (Sherwin & Gelfand, 1989). Although it is acknowledge that hormone replacement therapy is of great benefit to women in the postmenopausal years, there is still some doubt regarding its long term safety. One of the major concerns relates to the effect that hormones may have on the induction of cancer, particularly breast, uterine and ovarian cancers. A number of studies have suggested that HRT increases the development of breast cancer (Bergkvist, Adami, Hoover, & Scharer, 1989 ; Ewertz, 1988), whereas other have suggested that there is no increased risk (Hulka, 1987; Rogers & Parl, 1989). Estrogen therapy is recommended for the primary prevention of cardiovascular disease but for secondary prevention, the initiation of HRT should



be based on established noncoronary benefits and risks, possible coronary benefits and risks, and patient preference. HRT can be given in various ways such as tablet, patch, gel, implant or vaginal treatments. There is no ideal way of giving HRT and for many women, the final choice should be an individual one, made in consultation with the supervising doctor.

### **The comparison of menopausal symptoms and health practices**

Brown, Mishra, & Dobson (2002) studied the changes in physical symptoms during the menopausal transition and found that perimenopausal women more likely than postmenopausal women to reported the symptoms of headaches, back pain, stiff joints, tiredness, and difficulty sleeping. Hunter (1990) conducted a prospective follow up of 36 of the premenopausal women from the initial survey who were perimenopausal or postmenopausal 3 years later and found that depressed mood was mostly strongly in premenopausal women. Cheewarongroj (2000) studied factors associated with menopausal symptoms and found that peri-postmenopausal women more likely to have urogenital symptoms than premenopausal women. This study is consistent with the previous study in term of the frequency of symptom. From the review literatures, it could not really identify the different of menopausal symptoms between different menopausal status because they divided the menopausal status and compare in the different aspects, some compare the symptoms between premenopausal, perimenopausal, and postmenopausal subjects (Brown, Mishra, & Dobson 2002), compared premenopause to peri-postmenopause (Cheewarongroj, 2000).

There was not any previous study about the comparison of health practices between pre-perimenopausal subjects and postmenopausal subjects, however there

were the studies about factors associated with health promotions behavior, and the one of factors that study were age. Hounthasarn (1996) who studied factors affecting health promotions behavior among menopausal women in rural Nonthaburi province that found education had significantly associated with health promotion behavior ( $p < 0.001$ ).

### **The relationship between menopausal symptoms and health practices**

Panthong (1997), in a study of factors affecting health promotion behaviors in menopausal women, found that menopausal symptoms had a negative relationship to health promotion behavior with a statistical significance of  $p < .001$  ( $r = -.2259$ ,  $P < .001$ ). This means that the women that reported none or mild symptoms had good health practices while the women that suffered from moderate to severe symptoms had poor health practices. This study was congruent with the study of Kirdsuwan (1997), that looked at factors associated with self care during the female climacteric and found that there was an association between self care and symptoms of hormonal deficiency ( $p < 0.0001$ ). The subjects in Panthong's (1997) study perceived menopausal symptoms as factors indicating the health status of the woman. If they experienced menopause at mild level, the attitude toward menopause as positive. They felt that life became easier after menopause. The women with severe menopausal symptoms had a negative attitude and perceived themselves as being ill. They may not have the strength to perform any activities to promote health.

Hounthasarn (1996), studied factors affecting health promoting behavior among 380 menopausal women in Royal Nonthaburi province, using the symptoms of estrogen deficiency assessment to measure the perception of health status. The results showed that there was not a statistically significant relationship between

estrogen deficiency symptoms and health promoting behavior ( $p > 0.05$ ). This study is consistent with the study of Kongton (2000) who studied factors affecting the health-promoting behavior among 400 climacteric teachers at lower secondary schools of the Bangkok metropolitan administration. It was found that more than half of the subjects did not experience any changes, so their perceptions of health were good. Their health promotion behavior of these subjects are at a high level (Kongton, 2000).

### **Middle aged Thai Muslim women**

In Thailand, there have been a number of studies done on menopause in the general population, but rarely specifically among Muslim women. Muslim people are make up more than 70% of the population in the southern most provinces of Narathiwat, Pattani, Yala and Satoon. (Development Thailand : Muslim unrest Flare up in the south :<http://www.oneworld.org/ips2/jan98/thailand..html>)

Muslims believe that Islam is the ultimate religion revealed by Allah to mankind through the Holy Prophet Muhammad. Islam is one of the most widely professed religions of the world, does not segregate the secular from the religious aspect, and thus is also a culture and a way of life. There are no clergy institutions in Islam and every Muslim has to observe certain principles of faith and practice laid down to guide every moment of their life. Islamic culture embodies the do's and don'ts. It's regulations are based on the belief that " there is no God besides Allah and Muhammad is Allah's apostle". Islamic culture or norms can not be altered in favor of a geographical condition or a human value in vogue at a particular time. Hence Islamic culture is typified as a strong culture, quite unyielding to acculturation and assimilation (Jitmaud, 1988).

Muslim people strongly believe in their religion. The word 'Islam' simply means 'submission' and derives from a word meaning 'peace'. The worldview of Muslim patients towards health and illness incorporates the notion of receiving illness and death with patience, meditation and prayer. Muslim people understand that illness, suffering and dying are part of life and a test from Allah. The Holy Qur'an achieves its healing and health promoting effect by utilizing three different approaches, the legal, the guiding approach, and the direct healing approach (El-Kadi, 1993 cited in Rasool, 2000). The legal approach through legislation, prohibits lifestyles and behaviors which are hazardous to health and by prescribing behaviors that promote health. The example of legislation includes: moderate eating, abstinence from alcohol and tobacco consumption and other psychoactive substances, regular exercise, prayers, fasting, ablution and bathing, breast feeding and many other injunctions. The guiding approach is achieved through the provision of general roles and regulations which guide the individual in conducting his or her daily life. The third approach is through the direct healing effect of the Holy Qur'an on the various systems of human body (El-Kadi, 1993 cited in Rasool, 2000). A very high standard of personal hygiene must be attained by Muslims following the injunctions of the Holy Qur'an and the examples of Prophet Muhammad. The significance of cleanliness has both a physical and spiritual dimension. Holy Qur'an also prohibits the eating of pork or pork products, meat of dead animals, blood of any kind and alcoholic drinks. Thus the consumption of wholesome food and the leading of a healthy lifestyle are seen as religious obligations.

Muslims in the lower part of the southern provinces of Thailand have a unique sociocultural background. In addition to the difference in religion from the majority of Thai, many of them speak "Yawee", a local Malay dialect. They have a

special religious educational system. Chongsuvivatwong, Mahaming, & Mo-Suwan (1990) studied transitional society, health status and international migration of Muslim villagers in the lower part of southern Thailand and found that the main jobs for these people are on rubber plantations. The health status of the population is below average for the nation, they had a high birth rate and low income. Almost all houses have access to electricity but less than a quarter had a latrine, and although drinking water was not safe only a small proportion of the people drank boiled water. Utilization of health services varied according to the type of illness. For some matters considered by modern medicine to be important, such as treatment of bone fracture and child delivery, traditional practices were preferred. Supernatural methods were also used. Southern Muslim healers are very different from traditional healers in other parts of Thailand. They are generally mystics or spirit-mediums whose supposed direct channels of communication with the supernatural not only convey remedies for afflictions, but also provide guidelines for maintaining sociocultural separatism.

Custom and culture determine the role of women in Thai society. It is acceptable in the traditional Thai family for women to work in the home, while men work outside the home, earning an income and communicating with outside society. The husband assumes the role of leader and the wife that of follower (Punyahotra, 1996). Muslim women are taught to be loyal and respectful towards their husbands. The ways of dressing are also strict, Muslim women should entirely cover their bodies before going outside. Traditionally, women in Arab society are the primary care givers in families and are expected to be more concerned about nurturing others, that is taking care of children, the sick, and elderly members of their extended families. Thus, Jordanian women necessarily prioritize the comfort, wellness and

health of others over their own needs (Ma' aifah, Haddad, & Umlauf, 1999). Muslim women view menopause as a natural life event and have a positive attitude towards it. Without menstruation, Muslim women know that they can no longer have children and have more free time to do religious practices (Limchairunreang et al, 2000).

Muslim women's life style is different from Buddhists as they have to pray 5 times a day and have to do ablutions before the five daily prayers. In addition, they have to wash their hands many times in connection with other occasions, including waking from sleep, when coming out of the toilet, before and after eating any food, after touching the genital or anal area, after touching a dead body, after touching any dirty or suspicious thing and when a dog is touched they have to wash their hands seven times (once in the sand) (Samaun, 1998).

The food consumption of Muslim women is quite similar to Buddhist women except for the eating of pork (Rassool, 2000). They believe that prayer 5 times a day is both physical exercise and a psychological support and some women feel that the way they work is also physical exercise, so there is no need to do more exercise.

The menopausal symptoms and the health practices among Middle aged Thai Muslim women may be different from other women because of their different culture and beliefs regarding health.