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# Differences in Body Image and Depression Scores in Postmenopausal Women Who Do and Do Not Take Hormone Replacement Therapy

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# DIFFERENCES IN BODY IMAGE AND DEPRESSION SCORES IN POSTMENOPAUSAL WOMEN WHO DO AND DO NOT TAKE HORMONE REPLACEMENT THERAPY

BY

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This thesis is approved as a creditable and independent investigation by a candidate for the Master of Science degree and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Abstract

DIFFERENCES IN BODY IMAGE AND DEPRESSION SCORES IN POSTMENOPAUSAL WOMEN WHO DO AND DO NOT TAKE HORMONE REPLACEMENT THERAPY

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The purpose of this descriptive study was to examine differences in depressive symptomology and perceived body image in postmenopausal women who currently used HRT with women who never used HRT and women who had previously used HRT but were currently not. Few medical treatments presently available for postmenopausal and menopausal women have such substantial benefits, and risks, as hormone replacement therapy (HRT). The study is based on findings that document the use of HRT in preventing chronic illnesses that afflict elderly women. Chronic illness and disability has been shown to increase the incidence of depression in the general population. Chronic illness also impacts individuals' perceptions of body image. One hundred forty-two postmenopausal women who either currently used HRT, previously used HRT, or never used HRT completed the Center for Epidemiological Studies Depression Scale (CES-D), Body Image Scale (BIS), and the Body Image Visual Analog Scale (BIVAS) to assess their depressive symptomology and perceived body image. A questionnaire designed by the writer was also used to assess demographic, income, social, and health-related variables. Analysis of variance (ANOVA) found no significant difference in body image or depression scores among the three groups of women. There was also no significant difference found in body image and depression scores by HRT regimen utilizing ANOVA. A Pearson product-moment correlation was computed between each scale and

demographic, income, social support, and health variables. Significant relationships were found between social satisfaction ($r = .42$, $p = .00$), weight ($r = .27$, $p = .00$), number of health problems ($p = .26$, $r = .00$), and income ($r = -.23$, $p = .01$) with depression scores. There was no significant correlation between identified variables and body image with the exception of arthritis ($r = .26$, $p = .002$) and weight ($r = .36$, $p = .00$). Correlation between the body image scales and CES-D scores were BIVAS ($r = .23$, $p = .00$) and BIS ($r = .43$, $p = .00$).

Although not statistically significant, women who had never used HRT had lower BIVAS and BIS scores than women who were currently taking HRT with lower scores implying a more positive body image. The mean CES-D score for the entire sample was 10.04, with scores greater than 15 indicative of depression. Although not statistically significant, women who currently used HRT had slightly lower mean CES-D scores than women who had never used HRT. The findings suggest that there is no difference in body image and depression among postmenopausal women who do and do not use HRT.

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# CHAPTER 1

## Statement of the Problem

### Introduction

Currently, there are an estimated 40 million women living in the United States who are going through or are past menopause, with an additional 3.5 million expected to reach menopause in the next 10 years (Scharbo-DeHaan, 1996). Few medical treatments presently available for postmenopausal and menopausal women have such substantial benefits, and risks, as hormone replacement therapy. Hormone replacement therapy (HRT) has been shown to prevent morbidity and mortality from major chronic diseases of aging, most notably, cardiovascular disease and osteoporosis (Bilezikian, 1994; Ettinger, Friedman, Bush, & Quesenberry, 1996; Grady et al., 1992; Henderson, Pananini-Hill, & Ross, 1991; Langer & Barrett-Connor, 1994; Speroff, 1996). Further benefits of hormone replacement therapy include the alleviation of hot flashes and urogenital atrophy while increasing libido (Belchetz, 1994; Hofland & Powers, 1996; Lichtman, 1996; Sharbo-DeHaan, 1996). Although there is currently inconclusive evidence, the use of HRT has been implicated as a therapeutic agent for affective symptoms of irritability, depression, and emotional lability (Ballinger, 1990; Hay, Bancroft, & Johnstone, 1994; Pearlstein, 1995; Sands & Studd, 1995). Some questionable benefits of HRT include preventing the skin changes of aging, preventing colon cancer, improving memory and cognitive function, and slowing the progression of Alzheimer's disease (Brincat et al., 1987; Calle, Miracle-McMahill, Thun, & Heath, 1995; Ditkoff, Crary, Cristo, & Lobo, 1991; Henderson et al., 1994: Lichtman, 1996; Robinson, Friedman, Marcus, Tinklenberg, & Yesavage, 1994; Sands & Studd; Sharbo-DeHaan; Speroff).

Poor health, regardless of age, is associated with more depression and anxiety and lower levels of positive relationships and autonomy (Heidrich, 1993). Depression is a

major problem of the geriatric population (Kanacki, Jones, & Galbraith, 1996; Kennedy, 1996). The consequences of dependency, disability, and social isolation resulting from chronic illnesses can contribute to the increased incidence of depression in postmenopausal women (Bruce, Seeman, Merrill, & Blazer, 1994). With menopause comes many physical changes that can potentially alter the aging woman's perception of body image. The purpose of this study is to explore if there is a difference in body image and depression scores between postmenopausal women who are on hormone replacement therapy and postmenopausal women who are not on hormone replacement therapy.

Research Question

The problem under investigation in this study is: Are there differences in body image and depression scores between postmenopausal women who are on hormone replacement therapy (HRT), postmenopausal women who currently are not on HRT but have previously been on HRT, and postmenopausal women who have never been on HRT?

Importance of the Study

This study is important for several reasons. With health advances in developing countries, the average woman can expect to spend about one-third of her life postmenopausal (Davidson, 1995). Women attract a good deal of attention from health care providers, and with good reason: Women make more than two thirds of health care decisions, fill between 60% and 80% of hospital beds in the United States, undergo 63% of adult surgical procedures, and make up 52% of the population (Legato, 1995). Women constitute the majority of the geriatric population and approximately one-quarter of the elderly population over the age of 65 are said to have medical and psychological problems severe enough to warrant professional attention (Fry, 1986). Additionally, elderly women experience more acute illnesses and injuries than elderly men and are more likely to suffer from depression (Heidrich, 1993).

Osteoporosis and heart disease are major contributors to chronic disease in elderly women. The lifetime probability that a woman will suffer a hip fracture is 15% and develop coronary heart disease is 46% (Bilezikian, 1994). Hormone replacement therapy has been associated with a reduction in mortality from cardiovascular disease and prevention of osteoporosis in older women. Osteoporotic fractures are epidemic in the United States, affecting 25% of all women over the age of 70 years (Speroff, 1996). By age 60, 25% of women have vertebral fractures, with 80% of women at 75 years demonstrating evidence of spinal fractures from osteoporosis. Although vertebral column osteoporosis is often painless, it tends to cause dowager's hump and loss of height in elderly women (Langer & Barrett-Connor, 1994). The deformities and loss of mobility associated with osteoporosis can potentially impact the elderly woman's perception of body image. Moreover, the loss of autonomy and independence associated with chronic illness is correlated with an increased incidence of depression in the elderly population. With the significant benefits associated with HRT, there are, however, only an estimated 20% of women who use HRT at any time during their menopausal and postmenopausal years (Andrews, 1994; Pearlstein, 1995).

Assumptions of the Study

Burns and Grove (1997) stated that "assumptions are statements that are taken for granted or are considered even though these statements have not been scientifically tested" (p. 54). Some of the assumptions identified for this study included:

1. The use of hormone replacement therapy will minimize the occurrence of osteoporosis and cardiovascular disease, therefore, decreasing the incidence of depression associated with chronic diseases.

2. The use of hormone replacement therapy will minimize the complications of urogenital atrophy, therefore, increasing the perception of positive body image in postmenopausal women.

3. The use of hormone replacement therapy will alleviate the deformity associated with osteoporosis, therefore, increasing the perception of positive body image in postmenopausal women.

4. The use of hormone replacement therapy will minimize the disability associated with osteoporosis and cardiovascular disease, therefore, decreasing the incidence of depression associated with decreased autonomy.

Objectives of the Study

In investigating the impact of hormone replacement therapy on the postmenopausal women's perceptions of body image and depressive symptoms, the following objectives will be addressed:

1. Describe income level, social support, presence of co-morbid conditions, and educational levels of the respondents.

2. Compare and contrast differences in depression scores and body image among the (1) respondents who currently use HRT; (2) respondents who currently do not use HRT, but have used HRT previously; and (3) respondents who have never used HRT.

3. Correlate age, income level, social satisfaction, educational level, and presence of certain illnesses with depression scores and body image among the various HRT groups.

4. Compare and contrast depression scores and perceptions of body image in postmenopausal women who are on various regimens of hormone replacement therapy.

Definition of Terms

The following terms will be used in this study and are defined as the following:

Body image is a mental picture of the physical self and includes beliefs, attitudes, and perceptions regarding an individual's physical appearance, state of health, skills, and sexuality (Mock, 1993). In this study, only one dimension of the complex model of body image (the intensity of the subject's satisfaction or dissatisfaction with her body) will be measured by the Body Image Scale (BIS) and The Body Image Visual Analog Scale (BIVAS).

Depression, according to Formanek and Gurian (1987), encompassed the many degrees of mood on a continuum from feeling blue at one extreme, to suffering from feelings of guilt, self-recrimination, helplessness, hopelessness, and low self-esteem at the other end. Diagnostic criteria for major depressive episode according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) includes the presence of depressed mood or loss of interest or pleasure in almost all activities most of the day nearly every day for at least 2 weeks. Additional inclusion criteria for the diagnosis of depression by the DSM-IV include significant weight loss or gain, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue, feelings of worthlessness, impaired concentration, and recurrent thoughts of death or suicide. At least five of the aforementioned symptoms must be present during the same period of time with depressed mood or loss of interest or pleasure being a requirement in the diagnosis of depression (American Psychiatric Association, 1994). As with other abstract concepts, such as pain and disability, depression is a term whose familiar use in everyday speech complicates the recognition of an exact, clinical definition (McDowell & Newell, 1996).

> " Depression as an affect or feeling tone is a ubiquitous and universal condition which as a human experience extends on a continuum from normal mood swings to a pathological state. Thus, depression as a word can be used to describe: (1) an affect which is a subjective feeling tone of short duration; or (2) a mood, which is a state sustained over a longer period of time; or (3) an emotion, which is

comprised of the feeling tones along with objective indications; or (4) a disorder which has characteristic symptom clusters, complexes, or configurations" (Zung, 1973, p. 330).

In this study, depression will be measured by the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977).

Educational level refers to the amount of formal education the subject has attained.

Hormone replacement therapy. Women on hormone replacement therapy are defined as those women who are on oral or transdermal, continuous or cyclic estrogen replacement therapy of either conjugated estrogen, esterified estrogen, estropipate, or estradiol with or without testosterone and/or continuous or cyclic progesterone for greater than one year.

Income level refers to the combined annual income of the respondent and spouse.

Postmenopausal women are defined as community-dwelling women between the ages of 55 and 75 who have not had menses for over one year whether naturally or surgically induced. The minimum age of 55 will be used in this study in an attempt to control for the transitional menopausal symptoms of depression and vasomotor symptoms caused by fluctuating hormones experienced by many women throughout the perimenopause and early menopause.

Social support is a complex network of human interaction with the environment and others in the environment. Human relationships consist of several dimensions which include attachment, social integration, opportunity for nurturance, reassurance of worth, and a sense of dependable alliance, in addition to the acquiring of guidance (Kanacki, Jones, & Galbraith, 1996). For this study, social support will focus on the social integration of the individual which includes time spent with family, friends, and in the work environment. The individual's satisfaction with their social life will also be addressed.

Organization of the Thesis

This first chapter has introduced the problem to be investigated and its significance. Important terms have been defined, while assumptions and objectives of the study were listed. The remainder of the study will be organized as follows:

1. Chapter 2 will consist of a review of relevant literature.
2. Chapter 3 will consist of the conceptual framework and hypothesis.
3. Chapter 4 will consist of the research approach, the sample, variables identified in the study, the research instruments, the method of data collection, and the statistical methods of data analysis procedures that will be used for this study.
4. Chapter 5 will consist of the data analysis.
5. Chapter 6 will consist of the summary, discussion of major findings, limitations of the study, implications for practice, and areas for future research.

# CHAPTER 2

## Review of the Literature

This chapter includes the review of the literature pertinent to this study. This chapter is organized into the following sections: (a) consequences of estrogen depletion; (b) benefits of hormone replacement therapy; (c) risks of hormone replacement therapy; (d) depression in postmenopausal women; and (e) body image in postmenopausal women.

### Consequences of Estrogen Depletion.

Menopause is a normal physiological developmental occurrence that is experienced by all middle-aged women. Menopause occurs as the result of declining ovarian function with a decrease in ovarian hormone secretion, most notably estrogen (McCance & Huether, 1994; Sarrel, 1995). The average age at which menopause occurs has remained constant at $51 \pm 4$ years since menopause was first medically described in the sixth century. However, the life expectancy of postmenopausal women has increased significantly in the past century (Sarrel). Whereas, the life expectancy of a woman in the United States was only 12 to 14 years after menopause at the turn of the century, a woman today can expect to live an additional 32 years after menopause (U. S. Department of the Census, 1983).

During a woman's reproductive years, the most significant estrogen, 17*B*-estradiol, ranges from 50 to 400 pg/ml, with a mean level of 200 pg/ml. During menopause, the 17*B*-estradiol level decreases to less than 30 pg/ml, which is a level lower than found in men. With over 400 intracellular actions of estrogen identified, the deficiency of estrogen can have a profound effect on the postmenopausal woman's health and well being (Sarrel, 1995).

Increase in incidence of cardiovascular disease. Coronary artery disease is the most common cause of death for adults in developed countries and contributes to a great deal of morbidity. The incidence of coronary artery disease in women increases

significantly at menopause, which makes it a major issue for those caring for postmenopausal women (Sarrel, 1995; Shewman, 1994). More than two decades ago, the Framingham Study found that mortality from heart attacks was virtually nonexistent among perimenopausal women, however, mortality from heart attacks was similar to that of men among postmenopausal women (Kannel et al., 1976).

The cardiovascular system is abundant with estrogen receptors on endothelium and vascular smooth muscle. The effects of estrogen have been established throughout the arterial system, and particularly, the release of catecholamines in the arterial wall. By reducing vascular resistance and relaxing smooth muscle, estrogen decreases mean arterial pressure and increases cardiac output (Sarrel, 1995). Estrogens also play a role in lipoprotein metabolism in the liver, affecting the production of high-density lipoproteins (HDL) and low-density lipoproteins (LDL). Sarrel stated that, "estrogen deficiency after menopause results in decreased catabolism of LDL-cholesterol and reduced production of HDL-cholesterol, both of which can contribute to the development of atherosclerosis and heart disease (p. 9).

Increase in incidence of osteoporosis. Osteoporosis is the most common medical problem for older women, occurring six to eight times more frequently in women than men (Liscum, 1992). Osteoporosis refers to a loss of bone mass leading to fractures in fragile, but metabolically normal bone (McCance & Huether, 1994). The primary events that lead to osteoporotic fractures are reduced bone mass, damage to the microarchitecture of the bone, and falls (Notelovitz, 1995). As a result of reduced bone mass, minor events, such as falling from a standing position or rolling over in bed, can cause fractures in the postmenopausal woman (Sagraves & Letassy, 1995).

Bone is structurally either cortical (compact) or spongy (trabecular or cancellous), with 80% of the adult skeleton being cortical bone and 20% being trabecular bone (McCance & Huether, 1994; Sagraves & Letassy, 1995). The compressed cortical bone

forms the hard outer shell of the skeleton, whereas, the porous trabecular bone constitutes the inner structures of the skeleton in a honeycombed manner. The skeleton has varying proportions of cortical and trabecular bone at different sites throughout the body, with trabecular bone being predominately in the vertebrae and distal forearms. Cortical bone constitutes 90% of the long bones except at their ends which are predominantly trabecular (Segraves & Letassy).

Bone integrity is normally maintained through a remodeling process that involves an intricate balance of osteoclasts that function in the resorption of bone and osteoblasts which lay down new bone (McCance & Huether, 1994). Osteoporosis develops when the remodeling cycle is disrupted, causing an imbalance in bone resorption and bone formation.

Estrogen deficiency plays a major role in the pathogenesis of osteoporosis in postmenopausal women (DeCherney, 1993). The loss of bone mass begins at approximately age 30. Ettinger and Grady (1993) stated that, "About 10 to 15 percent of skeletal mass is estrogen-dependent. This amount of bone is rapidly lost soon after menopause when estrogen is not taken..." (p. 1192). "It is estimated that women have lost 10% of their bone mass by the time they go through menopause and that 35% of cortical bone and 50% of trabecular bone are lost over a lifetime" (DeCherney, p. 1007). Women between the ages of 50 to 54 years have an incidence of 5 per 1000 person-years of first vertebral fracture compared to 296 per 1000 person-years in women over the age of 85 (Melton et al., 1989).

There are several other risk factors besides estrogen deficiency that are associated with osteoporosis. These risk factors include advanced age, white race, female sex, sedentary lifestyle, alcohol and/or tobacco use, and a diet low in calcium (McCance & Huether, 1994; Notelovitz, 1995). Several studies have confirmed the efficacy of calcium supplementation in slowing bone loss in normal postmenopausal women

(Dawson-Hughes, et al., 1990; Prince et al., 1991; Reid, Ames, Evans, Gamble, & Sharpe, 1993). However, postmenopausal women who exercised and took estrogen had a higher increase in bone density than the control group and exercise plus calcium supplementation group.

The resulting fractures that are associated with osteoporosis can be self-limiting or crippling, resulting in considerable pain and disability in the postmenopausal woman (Cook et al., 1993). Even with painless, vertebral column osteoporosis, the resultant loss of height and dowager's hump can cause a significant alteration in the postmenopausal woman's perception of body image.

Increase in urogenital atrophy. Most symptoms (i.e. hot flashes, night sweats) associated with menopause decrease in severity with time. However, urogenital symptoms resulting from estrogen depletion become worse with time (Scharbo-DeHaan, 1996). The common embryologic origin shared by the vagina and urethra explains the atrophy of both caused by estrogen deficiency. The loss of lubrication and dyspareunia is a result of the thinning vaginal wall and vaginal gland atrophy (Belchetz, 1994). Many post-menopausal women who do not use HRT will experience signs of urogenital atrophy within 4 to 5 years after the cessation of menses. For unknown reasons, sexually active postmenopausal women who have intercourse once or twice a week have less vaginal atrophy, continued rapid lubrication when sexually aroused, higher estrogen levels, and milder vasomotor symptoms (McCance & Huether, 1994).

Some of the urogenital effects of estrogen depletion include: 1) changes in vaginal appearance; 2) vaginitis; 3) decreased labial sensation; 4) urinary and urethral problems; 5) pelvic relaxation; 6) dyspareunia; and 7) a decline in libido (Hofland & Powers, 1996). These changes in postmenopausal women can potentially have an enormous effect on their perceptions of body image and level of depression.

Decrease in skin collagen. The decline in skin collagen that is associated with aging and estrogen deficiency brings inevitable skin changes (Scharbo-DeHaan, 1996). Collagen constitutes about one-third of the total mass of the body. Brincat et al. (1987) demonstrated that skin collagen and skin thickness decreased proportionally with time after menopause, and this decrease was prevented with estrogen therapy. This finding supported the hypothesis that the decrease in skin collagen seen in postmenopausal women is related to estrogen deficiency.

Vasomotor symptoms. Hot flashes and night sweats are the most frequently reported symptoms in perimenopausal women with an estimated 68% to 92% of women experiencing these symptoms (Scharbo-DeHaan, 1996). Approximately 75% to 85% of menopausal women experience hot flashes that vary in intensity and duration, lasting from 1 to 4 minutes (McCance & Huether, 1994). Estrogen deficiency results in a lack of control of catecholamine release and uptake in the arterial wall. This loss of control causes the vascular smooth muscle to suddenly relax, resulting in vasodilatation and increased blood flow to the skin. Along with the sensation of heat experienced during vasomotor instability, many women also experience head and chest pressure, dizziness, headaches, nausea, changes in respiratory and heart rate, and depression (McCance & Huether; Sarrel, 1995). Vasomotor instability with flushing, perspiration, and occasionally palpitations, can be physically and emotionally disturbing to the menopausal woman (Sharbo-DeHaan).

Benefits of Hormone Replacement.

Initially, HRT was used to decrease and alleviate the vasomotor symptoms of menopause. The emphasis now is on decreasing morbidity and mortality related to cardiovascular disease and osteoporosis (Davidson, 1995). According to Langer and Barrett-Connor (1994) the extended use of HRT and the use of HRT in late life alluded

to two clinical considerations; "a focus on prevention of chronic diseases rather than the relief of symptoms... [and] an intent to maintain therapy for an extended period of time, perhaps for the remainder of a woman's life" (p.20).

Decrease in incidence of cardiovascular disease. Numerous studies have documented the reduced all-cause mortality with long-term estrogen use, with the reduction in premature deaths being primarily connected to a reduction in cardiovascular-related deaths (Ettinger, Friedman, Bush, & Quesenberry, 1996; Grady et al., 1992; Henderson, Paganini-Hill, & Ross 1991). Unfortunately, this literature associating estrogen deficiency with coronary heart disease is flawed by being primarily epidemiological (an approach that can never prove causality) and short term (Bilezikian, 1994).

Nabulsi et al. (1993) explored the association between estrogen use and plasma lipid concentrations. Although the research design lacked randomization with a potential for bias, they observed that hormone users had a reduction of 16 mg per deciliter in their LDL cholesterol levels, an increase of 9 mg per deciliter in their HDL levels and a reduction of 0.16 g per liter in the fibrinogen level. If those associations were independent, additive, and causal, that would represent a significant reduction of 42% in the risk of coronary heart disease in women who use estrogen compared to those women who do not use HRT. Bilezikian (1994) also noted that the relative risk among women who have ever taken estrogen replacement versus those women who have never taken estrogen is about 0.65. This translates into meaning that a woman who is on estrogen replacement therapy has an approximately 35% lower risk of developing a cardiovascular event than someone who has never taken estrogen.

The majority of earlier research focused primarily on the correlation between the use of estrogen alone and coronary artery disease. With the increased use of estrogen/progestin therapy to prevent endometrial cancer in postmenopausal women with

a uterus, the effectiveness of that regimen in preventing heart disease has become controversial. Psaty et al. (1993) cited several studies that showed a significant increase in serum LDL levels and a decrease in serum HDL levels with the combined use of progesterone and estrogen. Soma et al. (1993) demonstrated that the use of estrogen plus progesterone, Premarin 1.25 mg/d continuously with medroxyprogesterone acetate 10mg/d for 10 days of the month, significantly lowered total cholesterol levels by 15% and LDL levels by 30%; it also increased HDL levels by 19%. The experimental group in this study further demonstrated a return to baseline of the plasma lipid levels one year after cessation of the HRT.

The Postmenopausal Estrogen/Progestin Interventions (PEPI) trial, which is a controlled clinical experiment, focused on four regimens of estrogen and/or progestin and a placebo and their effect on cardiovascular risk factors. The four regimens studied included unopposed Premarin at a dose of 0.625 mg and in combination with various progesterone regimens. The results were substantial. All experimental groups showed benefit with regard to lipid profile, insulin, fibrinogen, and blood pressure compared to placebo. Unopposed estrogen produced the greatest increase in HDL cholesterol levels, however, combination therapy with estrogen and progesterone also increased HDL cholesterol levels substantially compared to the placebo group (The Writing Group for the PEPI Trial, 1995). Triglyceride levels did, however, increase substantially in all treatment groups.

The role of triglycerides in the development of coronary heart disease is unclear. McKenney (1995) recommended that the clinician should consider a secondary cause of the patient's lipid disorder, a familial lipid disorder, and any accompanying risk factors that should be modified to reduce CHD risk when evaluating patients with lipid disorders. Common secondary causes of hypertriglyceridemia include chronic renal failure, diabetes, alcohol abuse, sedentary lifestyle, obesity, and drugs. Drugs implicated in the

development of hypertriglyceridemia include beta blockers, estrogens, and glucocorticoids (McKenney).

The most important question noted by the PEPI Trial was whether differences in the markers would translate to a decrease in cardiovascular disease. Observational studies have suggested that they would, with as much as a 50% reduction in coronary heart disease (Scharbo-DeHaan, 1996).

Decrease in osteoporosis. Estrogen, with and without progestin, has been documented in the literature as protecting against the development of osteoporosis (Scharbo-DeHaan, 1996; Munk-Jensen, Pors-Nielson, Obel, & Bonne-Erickson, 1988). However, the mechanisms by which estrogens exert their effect on bone are not well understood (DeCherney, 1993; McCance & Huether, 1994). Some mechanisms involved include: (a) indirect actions, where estrogen may preserve bone mass through systemic hormones; or (b) direct, estrogen receptor-mediated actions. Indirectly, estrogen may affect the hormone calcitonin that regulates calcium balance by suppressing bone turnover, increasing the absorption of calcium from the intestine and reducing renal excretion of calcium. (DeCherney). The speculation of the direct effect of estrogen on bone evolves from the identification of estrogen receptors in normal human osteoblastlike cells. However, these estrogen receptors are present in low concentrations and their significance needs to be demonstrated (DeCherney). Further evidence for the direct effect of estrogen on bone mass is the finding that the calcium antiresorptive effect is mediated through regulation of cytokine production in the local bone microenvironment (DeCherney).

A limitation of many of the studies of progestins and estrogen as a means to prevent osteoporosis is that no one dosage of progestin has been studied consistently (DeCherney, 1993). However, data from the PEPI Trial (The Writing Group for the PEPI Trial, 1995) indicated that combined estrogen-progestin regimens were as effective

as unopposed estrogen in maintaining bone mineral density. The efficacy of HRT in preventing osteoporosis varies according to risk factors, with obese nonsmokers showing the least benefit and thin smokers showing the greatest benefit (Scharbo-DeHaan, 1994).

Alleviation of urogenital atrophy. The efficacy of estrogen in preventing and reversing tissue atrophy and preserving genitourinary function is well documented. The symptoms of urogenital atrophy respond to either local or systemic estrogen therapy. Estrogen decreases the vaginal pH and reverses the vaginal epithelial thinning. Sagraves and Letassy (1995) reported that only 0.3 mg of conjugated estrogens administered vaginally results in a 70% increase in the superficial vaginal epithelial cell count. Speroff (1996) stated that, "Recurrent urinary tract infections frequently resolve with hormone therapy" (p. 78). Although urinary incontinence in postmenopausal women is multifactorial, improvement of urge incontinence, urinary frequency, and dysuria associated with mucosal thinning is seen with HRT (Speroff). The relief of urogenital symptoms associated with estrogen deficiency should theoretically have a considerable influence on the postmenopausal woman's perception of body image and level of depression.

Increase in skin collagen. In a study that explored the effect of different parenteral treatment regimens of estrogen and testosterone on skin collagen levels in postmenopausal women, Brincat et al. (1987) demonstrated that all regimens showed an increase in skin collagen levels. The decrease in skin collagen associated with aging was not only arrested but reversed with estrogen therapy. Although the results are not definitive, the potential benefits of HRT in alleviating and/or preventing the skin changes associated with maturation could theoretically affect the postmenopausal woman's perception of body image.

Alleviation of vasomotor symptoms. The use of estrogen as a therapeutic agent for hot flashes is well documented in the literature. The most effective dose of estrogen

for the relief of vasomotor symptoms varies with a woman's level of estrogen deficiency (Sagraves & Letassy, 1995). By alleviating the symptoms of vasomotor instability, HRT should improve the postmenopausal woman's sense of well-being with an ultimate decrease in levels of depression.

Other questionable benefits. Some preliminary evidence indicates a slowing in the rate of progression and prevention of colon cancer and Alzheimer's disease (Henderson, Paganini-Hill, Emanuel, et al., 1994; Lichtman, 1996; Scharbo-DeHaan, 1996).

A study conducted by Ditkoff et al. (1991) found that estrogen improved psychological function in asymptomatic postmenopausal women. Barrett-Connor and Kritz-Silverstein (1993) failed to support the hypothesis that estrogen replacement delays or prevents loss of cognitive function in elderly women.

In a case-controlled study of estrogen replacement of elderly women with Alzheimer's disease (AD), Henderson et al. (1994) found that HRT is associated with a decreased risk of AD and contended that estrogen replacement may improve cognitive performance of women with AD.

Risks of Hormone Replacement Therapy

Although the benefits of HRT are supported throughout the literature (DeCherney, 1993; Ettinger et al., 1996; Falkeborn et al, 1993; Grady et al., 1992; Henderson et al., 1991; Nabulsi et al., 1993; Soma et al., 1993; The Writing Group for the PEPI Trial, 1995), there is an increased incidence of uterine cancer with the use of unopposed estrogen therapy (Bilezikian, 1994; Langer & Barrett-Connor, 1994; Sharbo-DeHaan, 1996). The more controversial issue in the use of estrogens is the risk of breast cancer (Colditz, et al., 1995; Davidson, 1995; Persson et al., 1989). These possible detrimental consequences of HRT, as well as unsubstantiated fears, are among the major reasons why estrogens are not used more in the United States (Bilezikian, 1994).

Breast cancer. Several major meta-analyses examining the association between estrogen use and breast cancer have shown little or no overall increase in the relative risk of breast cancer among women using unopposed estrogen (Dupont & Page, 1991; Grady et al., 1992; Steinberg et al., 1991). However, Colditz et al. (1995) implicated estrogen and progesterone in the development of breast cancer. They concluded that there was little risk with past estrogen use of short term duration, however, the risk of breast cancer increased 15% to 30% after 10 years use of estrogen replacement therapy. Davidson (1995) reported that the relative risk of breast cancer is 1.32 for estrogen use and 1.41 for estrogen and progesterone use. The risk of past or current hormone users of less than 5 years is similar to post-menopausal women who were never on HRT. The relative risk for breast cancer increases to 1.71 in those women aged 60 to 64 years who have been on HRT for at least 5 years. There has been further evidence that combination HRT, which is recommended to protect against endometrial cancer, could be associated with an increased risk of breast cancer (Persson et al., 1992). Colditz et al. (1995) reported an increased risk of breast cancer for current users over non-users, and a correlation with length of use and dose. Stanford et al. (1995) studied 537 middle-aged women with a history of breast cancer and 492 randomly selected women without breast cancer. They concluded that the use of estrogen with progestin did not appear to be associated with an increased risk of breast cancer in postmenopausal women. They caution, however, that since the use of combined estrogen-progestin HRT has only recently come into use, breast cancer incidence may increase many years after combined HRT has been initiated.

Langer & Barrett-Connor (1994) stated that, "compared with breast cancer, CVD [cardiovascular disease] kills 12 times as many women, but most women fear breast cancer more" (p. 23). This fear is well justified, as there was a significant increase of 27% in breast cancer incidence in Caucasian women in the United States between 1975 and 1988 (U. S. Dept. Health, 1990).

The literature is inconsistent in establishing a relationship between hormone replacement therapy and breast cancer. The majority of literature, however, recommended evaluation of the potential benefits and risks on an individual basis.

Endometrial cancer. Endometrial cancer occurs more commonly among women who take estrogen alone (Grady et al., 1992). The increased relative risk of endometrial cancer can be as high as eightfold, but the average relative risk is estimated to be twofold to threefold. In a summary of over 35 studies devoted to this subject, Bilezikian (1994) found that the relative risk is 2.31 on average. However, among women with a uterus who have taken unopposed estrogen for greater than 5 years, the relative risk for developing endometrial cancer jumps to 4-5 (Bilezikian). This increased risk of endometrial cancer is completely negated when a progestin agent is used along with the estrogen (Persson et al., 1989).

The pros and cons of using estrogen must be weighed according to risk-benefit assessments. For women who use estrogen, according to Lobo (1995), 366 lives are saved per year per 100,000 women due to reductions in ischemic heart disease, stroke, and osteoporotic hip fractures. In contrast, the two major risk factors of breast and endometrial cancer result in 38 and 26 lives lost per year respectively per 100,000 women who use estrogen. Less quantifiable issues of cost, fear of cancer, and quality of life must also be considered in the risk-benefit assessment of using estrogen replacement therapy. Recent studies indicate that a woman's overall quality of life, mood, and psychological well-being are improved by estrogen (Ditkoff et al., 1991; Limouzin-Lamothe, Mairon, Joyce, & Le Gal, M., 1994).

Depression

Depression is a major problem among the aged population (Cohen, 1996). Clinical and epidemiological studies of affective disorders have found that the rates of depression are higher in women than men (Weissman & Klerman, 1987). Meagher and

Murray (1997) claimed that depression is twice as common in women as in men. Some explanations for the increased rates of depression in women include: (a) psychosocial factors that take into account the disadvantage of women's social status and learned helplessness; and (b) endocrine physiology which evolves from the clinical observations that clinical depression often occurs in association with events in the female reproductive cycle (Weissman & Klerman). In a study conducted by Kanacki et al. (1996), higher levels of perceived social support were related to a decrease in depression scores. Butler et al. (1995) indicated that the depression and decreased cognitive function commonly seen at menopause were merely attributable to insomnia from hot flashes and not necessarily the lack of hormones. Poor health regardless of age is associated with an increase in depression, anxiety, and decreased levels of positive relationships and autonomy (Heidrich, 1993). Additionally, Belchetz (1994) stated that "there is little consensus regarding the psychological symptoms that may occur at the time of menopause" (p. 1064).

Any psychological symptoms at menopause are considered by some clinicians to be only the consequences of vasomotor symptoms, insomnia, and atrophic vaginitis. Others attribute the psychological symptoms present at menopause to be related only to coincident life events (Belchetz). "The effect of estrogen on psychological symptoms can be assessed only with data from studies that take into account the powerful placebo effect on such symptoms" (Belchetz, p. 1064).

Depression has been documented to be highest in women who are in the perimenopausal and menopausal transition due to the rapidly fluctuating hormone levels. Those women who have documented a history of depressive episodes prior to this transition are much more likely to experience depressive symptoms and malaise during the menopause (Sheehy, 1995). A study by Ballinger (1990) confirmed that it was

women between the ages of forty-five and forty-nine years and still menstruating who had the highest levels of negative mental effects. In a follow-up study, Ballinger found that postmenopausal women showed less evidence of psychiatric disturbances than younger women. Research attempts to determine depression among menopausal and postmenopausal women have generally been inconclusive due to the lack of distinguishing between depressed mood and depressive disorder. Depressed mood is the feeling of sadness that is familiar to all, whereas, depressive disorder is a far more serious and less common syndrome (Gath & Iles, 1990).

Major depressive disorder or significant depressive symptoms are present in approximately 30 percent of the elderly with chronic conditions (Badger, 1993). The development of chronic conditions resulting from estrogen depletion places the elderly woman at risk for depression. Furthermore, depression contributes to decreased self-esteem, diminished quality of life and poor social functioning in the elderly (Reed, 1991).

Body Image

Body image is defined by Schilder (1950) as " the picture of our own body which we form in our mind, that is to say, the way in which the body appears to ourselves" (p. 11). Body image is an integral component of self-concept, which is the entire perception a person holds of self (Mock, 1993). The meaning of the term body image differs from the meaning of the term self concept. Body image refers to a person's perception of his or her body. Self-concept indicates how one feels about oneself. Sometimes these terms are used interchangeably, even though they refer to distinctly different concepts (Frank-Stromborg, 1992).

Several body image problems occur as a result of chronic illness, most notably physical disfigurement and functional limitations (Bramble, 1995). The more visible the physical disfigurement, the greater the perceived threat to one's body image. Physical

disfigurement requires the individual to cope not only with their personal feelings about the disfigurement, but also the responses of others. Additionally, the period over which an alteration in body image occurs affects the perception of body image (Pruzinsky & Cash, 1990). Functional limitations occur when there is damage to a body part with a change in the functional capability of the body (Bramble). Loss of function can ultimately lead to decreased mobility, which can foster feelings of dependency and loss of control over self and environment, disrupting the perception of body image. Baird (1985) concluded that either permanent or temporary immobility contributes to negative changes in body image.

Some of the effects of estrogen depletion include changes in vaginal appearance, vaginal dryness, vaginitis, decrease in labial sensation, urinary and uretheral problems, pelvic relaxation, dysparenuia, and a decline in libido (Hofland & Powers, 1996). All of the aforementioned effects of estrogen depletion have the potential to cause a decrease in body image and self concept.

Summary of the Literature Review

The review of literature summarization is as follows:

1. The consequences of estrogen depletion are numerous. The most frequent symptoms experienced by the menopausal woman is hot flashes and night sweats caused by vasomotor instability. Other consequences of estrogen deficiency include urogenital atrophy and a decrease in skin collagen. Later, and more serious, consequences include an increase in the incidence of cardiovascular disease and osteoporosis that contribute to chronic illnesses and disability in the elderly woman.

2. There are numerous benefits to hormone replacement therapy. HRT in postmenopausal women can potentially decrease the incidence of cardiovascular events by 40 to 50%. The reduction in mortality from cardiovascular disease with the use of HRT has been supported by the majority of the literature. The literature further

supported the efficacy of HRT in preventing osteoporosis in postmenopausal women. Urogenital atrophy, vaginitis, and urinary incontinence is relieved or minimized with HRT. The use of subcutaneous and topical estrogen/progestins increases skin collagen associated with aging. Vasomotor symptoms are relieved in the menopausal woman with estrogens. Other unsubstantiated benefits of HRT include: improved cognitive function, preventing and/or arresting Alzheimer's disease and colon cancer.

3. There are, nevertheless, significant disadvantages and risks associated with HRT. Some of these risks include: a) an increased incidence of breast cancer is associated with the extended use of HRT; and b) an increased incidence of endometrial cancer is associated with unopposed estrogen use. However, the majority of studies agree that the risk of endometrial cancer is comparable to not using estrogen when a progestin is used with estrogen.

4. Depression is a major problem of the elderly female population. Poor health, socioeconomic status, social support influence the degree of depression experienced by the postmenopausal woman.

5. Body image is an individual's perception of his or her body. Body image can be affected by many of the physical changes associated with menopause.

# CHAPTER 3

## Conceptual Framework and Hypotheses

This chapter consists of the conceptual framework based on the literature review. The research and null hypothesis for this study are also included in this chapter.

### Conceptual Framework

The conceptual framework for this study is derived from the assumption that hormone replacement can decrease the incidence of morbidity from osteoporosis, heart disease, incontinence, sexual dysfunction, and vasomotor symptoms that are associated with menopause. An additional assumption is that an individual's educational level, income level, social support systems, perception of health, and presence of co-morbid conditions will influence their perceptions of self-concept and body image, along with the presence or absence of depression in varying degrees. Theoretically, the addition of hormone replacement therapy should increase a woman's perception of positive self-concept and body image along with decreasing the incidence of depression by alleviating factors that contribute to depression and a low body image.

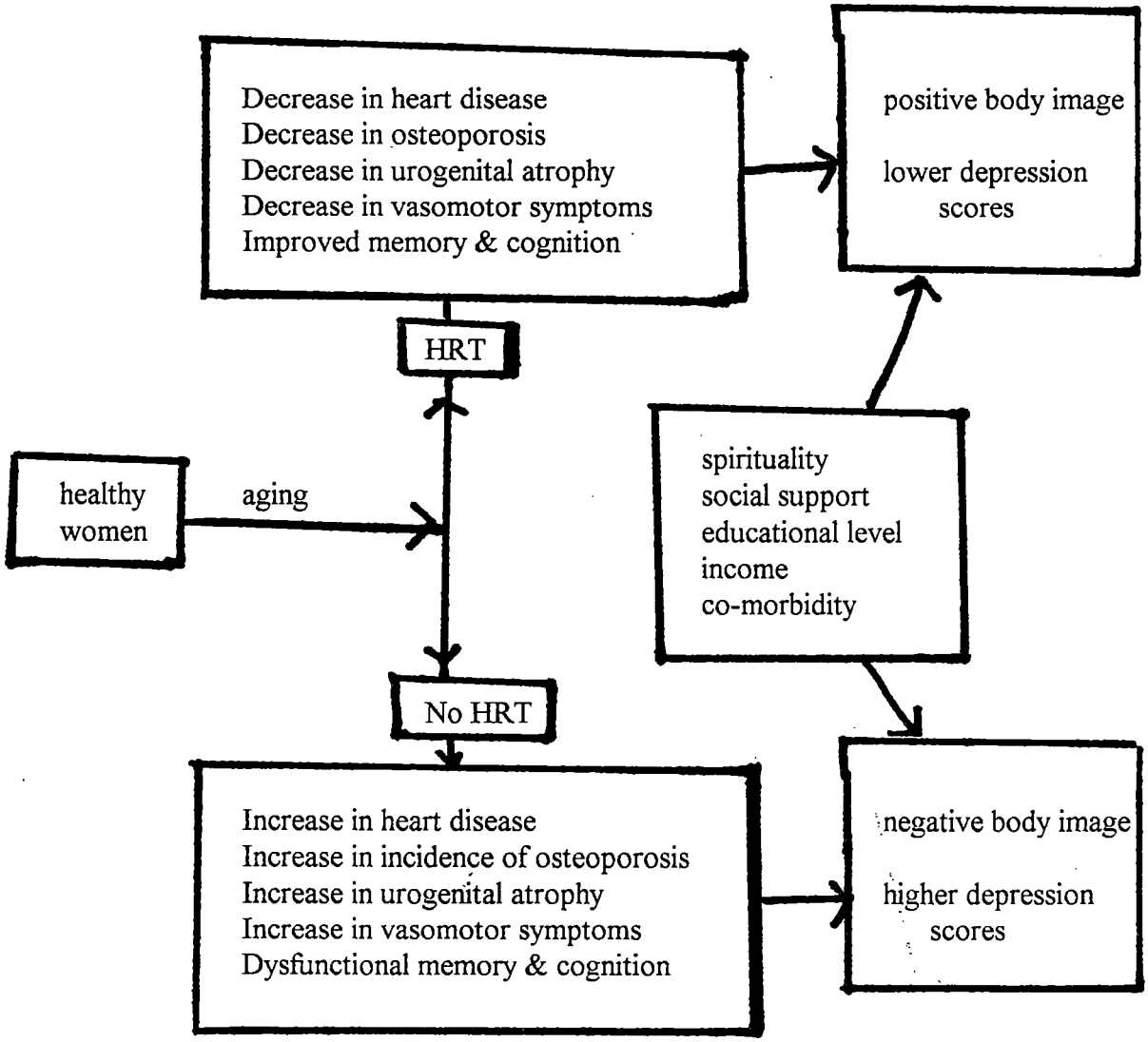
### Hypothesis

Research Hypothesis: Postmenopausal women currently on hormone replacement therapy will have a more positive body image and lower depression scores than postmenopausal women who have never taken hormone replacement therapy and postmenopausal women who have previously taken hormone replacement therapy but are currently not.

Null Hypothesis: There will be no difference in perception of body image and depression scores among post-menopausal women who are currently on hormone replacement therapy compared to post-menopausal women who have never taken hormone replacement therapy and postmenopausal women who have previously taken hormone replacement therapy but are currently not.

MODEL 1

Conceptual Framework




NOTE: An increase or decrease indicates an increase or decrease in incidence.

# CHAPTER 4

## Methodology

The research methodology is presented in this chapter. The research design, sample, instruments, methods of collecting data, and data analysis methods are also discussed.

### Design and Approach

A descriptive design was used in this study utilizing tested instruments. Although descriptive studies lack the ability to imply cause and effect, the results are likely to be useful in realistic situations (Polit and Hungler,1995).

### Sample

The target population included postmenopausal women in the midwestern United States. The accessible population consisted of all the women who were currently between the ages of 55 and 75 who had been seen and treated at a local clinic that specializes primarily in internal and family medicine in the rural midwest between October 1, 1989 and August 7, 1997. A list of the accessible population was obtained from the clinic business office after receiving permission from the business manager and physicians to conduct the survey. A random sample using a table of random numbers was drawn from the accessible population. Initially, 500 cover letters with the selected instruments were sent out to the randomly selected sample from the accessible population. A minimum of 50 subjects for each group was desired for this study. One hundred and forty-two subjects completed and returned the questionnaires by the deadline. Sixty-five of the subjects returned the cover letter indicating that they were not interested in participating in the study.

Criteria for inclusion in the study was:

1. Age 55 through and including age 75.
2. Ability to speak, read, and write in English.

3. No known terminal illness with a life expectancy of less than 6 months.

4. No death of a spouse within the past 6 months.

In order to obtain as large a sample of postmenopausal women as feasible, no other attempts were made to limit the sample in any way other than as described.

Variables

The research variables are the use, nonuse, or previous use of hormone replacement therapy, and depression scores and perception of body image. Some of the extraneous variables identified include: 1) social support; 2) educational level; 3) socioeconomic status; and 4) presence of co-morbid conditions.

Instruments

Established research instruments for this study included: 1) The Center for Epidemiological Studies Depression Scale (Appendix B); 2) Body Image Scale (Appendix C); and 3) Body Image Visual Analog Scale (Appendix D). A Health and History tool that was developed by the researcher supplemented the aforementioned instruments in meeting the objectives and inclusion criteria of this study.

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20-item, self-report depression scale developed to identify depression in the general population. This tool was designed to cover the major components of depression identified in the literature, with an emphasis on the affective components of depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disorders (McDowell & Newell, 1996). Items on the CES-D refer to the frequency of symptoms during the past week. Each question uses a 0-to-3 response scale except for four positive questions, a higher score indicates greater depression. For the four questions that were worded positively, the scores were reversed. Question scores were summed to provide an overall score ranging from 0 to 60. If more than five items on the scale were missing, a score was not be calculated. If one to five

items were missing, scores on the completed items were summed (after reversal of the positive items); this total was divided by the number of items answered and multiplied by 20. Scores greater than 15 are commonly indicative of depression (McDowell & Newell). Those subjects who scored greater than 15 on the CES-D were informed of the results of their score per letter (Appendix H) and advised to inform their primary care provider of the results of this screening. For this study, internal consistency was measured at .87 using Cronbach's Alpha. The CES-D Scale is in the public domain, therefore, it may be used without copyright permission (Appendix G). A copy of the research results was sent to the Department of Health & Human Services.

Body Image Scale. "The measurement of body image is a complicated problem since each individual's body image is unique, personal, and not directly observable" (Mock, 1993, p. 154). The Body Image Scale (BIS) was originally developed by Berscheid, Walster, and Bohrnstedt in 1972. The BIS assesses a subject's satisfaction with various parts of the body by means of 6-point Likert-like scale from extremely satisfied to extremely dissatisfied. Lower scores indicate greater satisfaction with the body. In previous testing, the BIS has demonstrated internal consistency reliability as measured by Cronbach's alpha of .86 and .87 (Mock). The BIS was modified by deleting questions 19, 20, 34, 35, 36, 38, 42, 47 through 72, 78, 79, 81, 82, 86, 90, 91, 94, 95, and 102 through 109 as the researcher contended that these questions were either not pertinent to the objectives of this study, redundant for the sample selected, or would offend the respondents. The term "cohabited" was removed from questions 39, 41, 43, 73, and 74. Questions 83, 84, and 87, were deleted after pretesting the instrument on two postmenopausal individuals who both felt offended by these questions and viewed them as being inappropriate for the population to be studied. Internal consistency reliability measured for the revised tool utilizing Cronbach's alpha was 0.91. Permission to use this instrument was obtained from *Psychology Today* journal (Appendix F).

The Body Image Visual Analog Scale (BIVAS) is a 100-mm scale that measures body image with "complete satisfaction" on the left side of the scale and "complete dissatisfaction" on the right side of the scale. The distance in millimeters from the left end of the line to the point marked by the subject constitutes the score. Visual analog scales are convenient, easy, and rapidly administered instruments, however, some subjects have difficulty in understanding the method and conceptualizing the line as representative of a perception of an abstract concept (Wewers & Lowe, 1990). It is inappropriate to determine reliability of a visual analog scale by test-retest due to the dynamic nature of the concept of body image. However, visual analog scales are generally considered to be reliable and valid (Gift, 1989).

A Health and History tool (Appendix E) that was developed by the researcher supplemented the aforementioned instruments in meeting the objectives and inclusion criteria of this study. This tool consists of questions regarding the respondents medical and social history, employment status, and socialization. Content validity of the tool was addressed by a panel of experts.

Method of Collecting Data.

Data were collected through the use of mailed questionnaires. A cover letter (Appendix A) accompanied the questionnaires. This letter explained the purpose of the study, the importance of the study, and invited the participation of those randomly selected for the study. The cover letter also addressed risks and benefits, assurance of confidentiality, a noncoercive disclaimer, and the subject's option to withdraw from the study at any time. Consent was addressed by informing the subjects that completion and return of the questionnaires constituted implied consent to participate in the study. Respondents were provided an address and telephone number to contact if they had any questions or concerns regarding their participation in the study. A self-addressed, stamped envelope accompanied the letter and questionnaires. Respondents were also

instructed to indicate on the cover letter that they were not interested in participating in the survey to avoid further correspondence from the researcher.

A number in the upper right hand corner of each of the instruments was coded to use for second mailing purposes. When the questionnaires were completed and returned to the researcher, the numbers were removed from the tools. The code sheet with names of the participants along with the completed questionnaires were stored in a locked cabinet in the investigator's home until completion of this study.

# Chapter 5

## Analysis of Data

### Introduction

Chapter five describes the study sample and analysis of the data. SAS was utilized for data analysis. The objectives of the study were to: 1) describe income level, social support, presence of co-morbid conditions, and educational levels of the respondents; 2) compare and contrast differences in depression scores and perceptions of body image among the respondents who currently use HRT, respondents who currently do not use HRT but have used HRT previously, and respondents who have never used HRT; 3) correlate age, income level, social satisfaction, educational level, and presence of certain illnesses with depression scores and body image among the various groups; and 4) compare and contrast incidence of depression and perceptions of body image in postmenopausal women who are on various regimens of HRT. For readability, analysis will be presented according to the objectives of the study.

### Description of the Subjects

Of the five hundred questionnaires that were randomly sent out to the accessible population, one hundred forty-two women completed and returned the questionnaires by the deadline with a response rate of 28.4%. Sixty-six women indicated that they were currently taking hormone replacement therapy (HRT) for greater than one year (Group 1), 28 women had previously taken HRT but currently were not (Group 2), and 48 women had never taken HRT (Group 3). Sixty-five of the subjects returned the cover letter indicating that they were not interested in participating in the study.

For those women who had previously taken HRT, ten (36%) women reported taking hormones for less then 3 months, seven (25%) reported using hormones for 3 to 12 months. Six (21%) women reported hormone use for 1 to 2 years, two (7%) reported taking hormones for greater than 10 years, and the remainder (11%) reported using HRT

for 3 to 10 years. Only 18% of this group of women were on HRT long enough to reap any benefits of hormone use.

The question was posed to the respondents, "Why did you stop taking hormones?" Thirty-three women responded, with eight (24%) stating it was "doctor's orders". Eleven women stopped hormones due to side effects which included weight gain (6%), breast tenderness (3%), spotting (15%), and "felt ill" (9%). Four (12%) women stopped HRT because of breast cancer, two (6%) because of uterine cancer. Three (9%) women stopped because of expense and five because "didn't think I needed them", "scared", and "advice of friends". The additional five women who answered this question were currently taking hormones but had stopped using HRT previously due to side effects.

The ages of the respondents ranged from 55 to 75 years with a mean age of 65.73 years. See Table 1.

Table 1
Age of Groups by Frequency and Percent

| Group | Number | Percent | Mean | Range |
|---|---|---|---|---|
| Current Use (Group 1) | 66 | 46.0 | 64.06 | 55-75 years |
| Ever Use (Group 2) | 28 | 20.0 | 65.25 | 55-74 years |
| Never Use (Group 3) | 48 | 34.0 | 68.29 | 55-75 years |
| | N = 142 | 100.0 | | |

Only 118 of the 142 women reported their yearly income with the percentage of reporting being evenly distributed between the three groups. The mean income for the group as a whole was $28,707. Women who currently use HRT had a mean income of $33,564 compared with women who never used HRT who had a mean income of

$20,365. Women who had previously used HRT reported a mean income of $32,174. Almost seventeen percent of the respondents reported incomes of $7,500 or less. Whereas, almost 25 percent reported incomes of $37,501 or greater. See Table 2.

Table 2
Yearly Income of Groups by Frequency and Percent

| Group | $7,500 or less | $7,501 to $15,000 | $15,001 to $22,500 | $22,501 to $30,000 | $30,001 to $37,500 | $37,501 or more | total |
|---|---|---|---|---|---|---|---|
| Current Use (Group 1) | 5 | 4 | 10 | 8 | 10 | 17 | 54 |
| Ever Use (Group 2) | 3 | 4 | 3 | 2 | 3 | 8 | 23 |
| Never Use (Group 3) | 12 | 11 | 7 | 3 | 4 | 4 | 41 |
| Total | N = 20 | N = 19 | N = 20 | N = 13 | N = 17 | N = 29 | N =118 |
| Percent | 16.95 | 16.10 | 16.95 | 11.02 | 14.41 | 24.58 | 100.0 |

Social satisfaction. The majority of the women (86%) stated that they were satisfied with their social life. See Table 3.

Table 3
Social Life Satisfaction by Frequency and Percent

| Satisfaction with Social Life | Group 1 Current Use N(%) | Group 2 Ever Use N(%) | Group 3 Never Use N(%) | Total N(%) |
|---|---|---|---|---|
| Extremely Satisfied | 7 (5.00) | 8 (5.75) | 9 (6.50) | 24 (17.25) |
| Quite Satisfied | 38 (27.0) | 11 (8.00) | 25 (18.0) | 74 (53.00) |
| Somewhat Satisfied | 14 (10.0) | 3.(2.00) | 4 (3.00) | 21 (15.00) |
| Somewhat Dissatisfied | 6 (4.00) | 4 (3.00) | 6 (4.00) | 16 (11.00) |
| Quite Dissatisfied | 1 (0.75) | 1 (0.75) | 2 (1.50) | 4 (3.00) |
| Extremely Dissatisfied | 0 | 0 | 1 (0.75) | 1 (0.75) |
| Total | 66 (46.75) | 27 (19.5) | 47 (33.75) | 140 (100.0) |

Socialization. Seventy-four (53%) of the women were active in social clubs, while sixty-five (47%) stated they were not active in any social clubs. Eighty-eight (63%) of the women reported socializing with friends at least two to three times weekly. See Table 4.

Table 4
Socialization with Friends by Frequency and Percent

| Frequency of Socialization with Friends | Group 1 Current Use N(%) | Group 2 Ever Use N(%) | Group 3 Never Use N(%) | Total N(%) |
|---|---|---|---|---|
| Daily | 16 (11.25) | 7 (5.00) | 10 (7.00) | 33 (23.25) |
| 2 - 3 times weekly | 23 (16.25) | 10 (7.00) | 22 (15.50) | 55 (38.75) |
| Once weekly | 6 (4.25) | 1 (0.75) | 7 (5.00) | 14 (10.00) |
| 2 - 3 times monthly | 18 (13.00) | 3 (2.25) | 5 (3.50) | 26 (18.75) |
| Once monthly | 1 (0.75) | 5 (3.50) | 0 | 6 (4.25) |
| 2 - 3 times yearly | 2 (1.50) | 1 (0.75) | 4 (2.75) | 7 (5.00) |
| Total | 66 (47) | 27 (19.25) | 48 (33.75) | 141 (100) |

Marital status. One hundred thirty-three women reported their marital status with the majority of women being married (67%). Thirty-four (25.5%) of the women were widowed, seven were divorced or separated, and three were single. See Table 5.

Table 5
Marital Status by Frequency and Percent

| Marital Status | Frequency | Percent |
|---|---|---|
| Single, never married | 3 | 2.25 |
| Divorced or separated | 7 | 5.25 |
| Married (first marriage) | 82 | 61.75 |
| Remarried | 7 | 5.25 |
| Widowed | 34 | 25.50 |
| Total | N = 133 | 100.00 |

Employment. Forty-six (33%) of the women reported being employed outside the home. Eleven women reported working less then 20 hours per week, seven worked 20 to 29 hours weekly, and twenty-one women reported working 30 to 40 hours weekly. Seven women stated they worked more then 40 hours per week.

Educational level. The highest educational level completed by the respondents was a master's degree with four (3%) of the women holding a master's degree. Sixty-two (44%) of the women had some college education. Only twenty (14%) of the subjects completed any post-secondary education. Fifty-nine (42%) of the respondents had a high school diploma or less. See Table 6.

Table 6
Highest Educational Level of Groups by Frequency and Percent

| Educational Level | Group 1 current use | Group 2 ever use | Group 3 never use | Total |
|---|---|---|---|---|
| Grade School | 2 | 2 | 10 | 14 (10%) |
| High School Graduate | 22 | 10 | 13 | 45 (32%) |
| Some College | 30 | 14 | 18 | 62 (44%) |
| College Graduate | 8 | 0 | 4 | 12 (9%) |
| Some Graduate School | 1 | 0 | 2 | 3 (2%) |
| Master's Degree | 3 | 0 | 1 | 4 (3%) |
| Total | 66 | 26 | 48 | 140 |

Presence of illnesses. Hypertension and arthritis were the most frequent illnesses and/or problems reported by the respondents. Seventy-two (52.2%) of the respondents reported a diagnosis of hypertension and sixty-six stated that they had arthritis (47.8%). Only seventeen (12.3%) of the subjects reported a current or past history of heart problems. The respondents were asked to list any problems they had that were not listed

on the questionnaire. Twenty-eight (20%) listed "other" illnesses. Three listed sciatica and back problems, four women stated that they had high cholesterol, and three listed fibromyalgia. Two respondents had migraine headaches and two women suffered from psoriasis. Each of the other illnesses such as "sarcoidosis", "problems with blood clots", "hardening of arteries", "low blood sugar", "heel spurs", "Sjogren's", "carpal tunnel", "Parkinson's", "water retention", "hemorrhoids", "rheumatoid arthritis", "sleep apnea", "Multiple Sclerosis", and "leg pain at rest" were listed only once. See Table 7.

Table 7
Presence of Diseases by Frequency and Percent

| Disease/Problem | Frequency | Percent |
|---|---|---|
| High blood pressure | 72 | 52.2 |
| Seizures | 1 | 0.7 |
| Lung problems | 10 | 7.2 |
| Kidney problems | 8 | 5.8 |
| Arthritis | 66 | 47.8 |
| Stomach Problems | 28 | 20.3 |
| Breast cancer | 10 | 7.2 |
| Colon cancer | 6 | 4.3 |
| Thyroid | 28 | 20.3 |
| Heart problems | 17 | 12.3 |
| Uterine Cancer | 3 | 2.2 |
| Diabetes | 5 | 3.6 |
| Liver problems | 9 | 6.5 |
| Osteoporosis | 13 | 9.4 |
| Other | 28 | 20.3 |

Note: More than one disease was checked when applicable.

The number of concomitant illnesses ranged from 0 to 7 among the respondents. The mean number of illnesses among the respondents was 2.04 (SD 1.47). See Table 8.

TABLE 8
NUMBER OF CO-MORBID CONDITIONS BY FREQUENCY AND PERCENT

| Number of Co-morbid Conditions | Frequency | Percent |
|---|---|---|
| 0 | 13 | 9.50 |
| 1 | 35 | 25.25 |
| 2 | 39 | 28.25 |
| 3 | 26 | 18.75 |
| 4 | 13 | 9.50 |
| 5 | 8 | 5.75 |
| 6 | 3 | 2.25 |
| 7 | 1 | 0.75 |
| Total | N = 138 | 100.00 |

The mean weight of all subjects was 171 pounds (SD 51.5). Women who were currently taking HRT had a mean weight of 162 pounds while women who had never used HRT had a mean weight of 175 pounds.

Seventeen (12%) women reported that they were the primary caregiver for an ill or disabled family member. When asked, "Have you ever been or are you currently being treated for depression?", thirteen (9%) women indicated "yes". Eight of those women were currently taking HRT, four never took HRT, and only one had previously taken HRT but was currently not.

Twenty-five (17.5%) women reported alcohol use. Fourteen (10%) women reported drinking one or two drinks a week and nine (6%) women reported 3 to 7 drinks a week. Two (1.5%) women reported drinking 21 and 28 drinks weekly, respectively. Ninety-two (65%) of the respondents reported no alcohol use.

The subjects were also asked to rate their happiness now on a scale from 1 to 10 with one being the worst possible life and 10 being the happiest. Thirty-three women

rated their life a "ten" with a mean rating of 8.12 for the entire group. Those women who were currently taking HRT (Group 1) had a mean "happiness" score of 8.21 (SD 1.60) compared to women who were never on HRT (Group 3) who had a mean "happiness" score of 8.04 (SD 2.06).

The majority of the respondents were Protestant (74%), with Roman Catholic (17%) being the next most frequent religious preference. Three of the respondents were Mormon, and nine indicated "other" religious preference. The respondents were also asked ""How religious would you say you are?" Fifty-one (37%) responded that they were "very religious", seventy-five (55%) considered themselves "somewhat religious", nine (6.5%) stated "slightly religious", and two (1.5%) indicated that they were "not at all religious".

Sixty-seven of the respondents indicated that their health insurance covered medication costs and sixty-five stated that their insurance did not cover medication expense. Thirty-eight women commented on health insurance. The majority of the women indicated that their insurance only partially paid for their medications with several women stating that insurance would pay for medications after a large deductible was met. Other comments included, "can't get insurance", "have no insurance", and "don't take medications". There was no correlation between insurance covered medication costs and HRT use.

BIVAS, BIS, and CES-D Scores

Scores on the Body Image Visual Analog Scale (BIVAS) ranged from 0 to 99. Lower scores suggest increased satisfaction with body image. The mean BIVAS score for the group as a whole was 42.13. Women who were currently taking HRT had a mean BIVAS score of 42.89 in comparison to women who had never used HRT who had a mean score of 40.89.

The Body Image Scale (BIS) score was calculated as the mean of questions 1

through 23 on the Body Image questionnaire and scores ranged from 1.04 to 5.13, with a possible range of 1.00 to 6.00. Lower scores indicate greater satisfaction with body image. The mean score for the group as a whole was 2.63 (SD 0.64). As with the BIVAS scale, women who were currently taking HRT had a higher mean score than those women who were not currently taking HRT (2.54) and those women who had never used HRT (2.60).

Scores on the Center for Epidemiological Studies Depression (CES-D) Scale ranged from 0 to 31. The mean score for the entire group of respondents was 10.04 (SD 8.03). The possible range of the CES-D is zero to 60 with scores greater than 15 indicative of depression. See Table 9.

Table 9
Mean Body Image and Depression Scores by Groups

| MEASURE | Current HRT Use Group 1 n = 66 *M (SD)* | Ever HRT Use Group 2 n = 28 *M (SD)* | Never HRT Use Group 3 n = 48 *M (SD)* |
|---|---|---|---|
| **Body Image** | | | |
| Body Image Scale | 2.69 (0.73) | 2.54 (0.54) | 2.60 (0.57) |
| Body Image Visual Analog Scale | 42.89 (24.40) | 42.36 (25.40) | 40.89 (26.74) |
| **Depression** | | | |
| CES-D Scale | 9.19 (7.43) | 9.84 (8.03) | 11.34 (8.80) |

*Lower body image and depression scores indicate more positive body image and less depressive symptomology. Ranges include: BIS 1 to 6; BIVAS 1 to 100; CES-D 0 to 60 with scores greater than 15 indicative of depression.

Mean CES-D scores for the seventeen women who reported being primary caregivers for an ill or disabled family member was 10.06. The fourteen women who reported a current or past history of depression had a mean CES-D depression score of 14.85 (SD 8.92) with a range of 4 to 31.

The ten women who reported a history of breast cancer had a mean BIVAS score of 40.8 (SD 22.31) and mean BIS score of 2.71 (SD .57). The mean CES-D score for the women with a history of breast cancer was 9.31 (SD 8.03).

Differences in Body Image and Depression Scores between Groups.

Analysis of variance was used to determine if there was a difference in body image perception and depression scores in the three postmenopausal HRT groups. No statistically significant differences were found in either Body Image Scale or Body Image Visual Analog Scale scores among the three groups. See Tables 11 and 12.

Table 10
Analysis of Variance of Body Image Scale for Three Groups of Postmenopausal Women

| *SOURCE OF VARIANCE* | *SS* | *df* | *MEAN SQUARE* | *F* | *P* |
|---|---|---|---|---|---|
| Between groups | 0.55 | 2 | 0.27 | 0.67 | 0.51 |
| Within groups | 57.34 | 139 | 0.41 | | |
| Total | 57.89 | 141 | | | |

Table 11
Analysis of Variance of Body Image Visual Analog Scale for Three Groups of Postmenopausal Women

| *SOURCE OF VARIANCE* | *SS* | *df* | *MEAN SQUARE* | *F* | *P* |
|---|---|---|---|---|---|
| Between groups | 108.53 | 2 | 54.26 | 0.08 | 0.92 |
| Within groups | 86983.11 | 135 | 644.31 | | |
| Total | 87091.65 | 137 | | | |

Analysis of variance of CES-D scores found there was not a statistically significant difference in depression scores among the three groups. See Table 12.

Table 12
Analysis of Variance of CES-D Scores for Three Groups of Postmenopausal Women

| *SOURCE OF VARIANCE* | *SS* | *df* | *MEAN SQUARE* | *F* | *P* |
|---|---|---|---|---|---|
| Between groups | 128.31 | 2 | 64.15 | 1.00 | 0.37 |
| Within groups | 8891.19 | 138 | 64.43 | | |
| Total | 9019.50 | 140 | | | |

Relationships Among Variables

The relationship between the BIVAS, BIS, and CES-D scores were measured utilizing the Pearson product-moment correlation coefficient. According to Polit and Hungler (1995) the correlation between psychosocial variables range from .10 to .40. In this study a weak to moderate strength correlation of .56 was found between BIVAS and BIS scores ($p = .00$, $N=138$). The correlation between BIVAS and CES-D scores was .23 ($p = .0001$, $N = 138$) and correlation between BIS and CES-D scores .43 ($p = .00001$, $N = 141$).

Demographic and identified extraneous variables were also correlated with body image and depression. The demographic and extraneous variables chosen were age, education, income, marital status, social satisfaction, presence and number of illnesses, spirituality, and weight. The presence of arthritis or heart problems was also correlated with CES-D and body image. There was no significant correlation between age and depression scores or body image. Nor was there any relationship between educational level and depression scores or body image.

A positive correlation between social support with CES-D scores means the higher the social satisfaction, participation in social clubs, and the more frequent socialization with friends the less reported depressive symptomology. A moderately strong positive correlation (.42) was found between social satisfaction and CES-D scores ($p = .00$). Participation in social clubs ($r = .24$, $p = .00$) and frequency of participation with friends ($r = .30$, $p = .00$) both showed a weakly positive correlation with depression scores.

Income was negatively correlated with CES-D scores ($r = -.23$, $p = .01$) but not with BIVAS ($r = -.13$, $p = .18$). This means that higher income is inversely related to less depressive symptomology, however, a more positive body image is not correlated with higher income. The number of reported health problems showed a weak to moderate positive correlation with CES-D scores ($r = .27$, $p = .00$). In other words, fewer reported health problems was related to less depressive symptomology. Body image was positively correlated with arthritis with the group as a whole ( $r = .26$, $p = .002$). There was a statistically significant positive correlation of moderate strength between arthritis and body image within the group of women using hormones (BIVAS $r = .40$, $p = .00$; BIS $r = .33$, $p = .00$). Meaning, that this group of women had a more negative body image when diagnosed with arthritis. There was no statistically significant findings related to arthritis and body image in women who had never used HRT. There were no statistically significant findings related to alcohol use except for use of alcohol and the body image visual analog scale ($r = -.29$, $p = .02$). More alcohol use was related to a more negative body image on the BIVAS. There was a weak to moderate positive correlation between weight and body image and depression scores. This means that subjects who weighed more had more depressive symptoms and a more negative body image. See Table 13.

Table 13
Summary of Correlation of Body Image and Depression Scores with Weight for Total Sample and Three Groups

| MEASURE | Total Sample Body weight | Group 1 Current Use Body Weight | Group 2 Ever Use Body Weight | Group 3 Never Use Body Weight |
|---|---|---|---|---|
| **Body Image** | | | | |
| BIS | .23 (p = .01)* | .36 (p = .01)* | .20 (p = .33) | .31 (p = .04)* |
| BIVAS | .36 (p = .00)* | .51 (p = .00)* | .23 (p = .27) | .44 (p = .00)* |
| **Depression** | | | | |
| CES-D | .27 (p = .00)* | .28 (p = .03)* | .40 (p = .05)* | .20 (p = .18) |

* Indicates statistical significance

Current happiness showed an inverse relationship with depression in all three groups. This indicated that the higher the women rated their happiness, the less depressive symptoms they had. However, body image was negatively correlated only in the current HRT use and never HRT use groups. This means that women who were currently using HRT and those women who never used HRT who reported more happiness also had a more positive body image. There was no relationship found between body image and reported happiness in women who had previously used HRT but were currently not. See Table 14.

Table 14
Summary of Correlation of Body Image and Depression Scores with Happiness for Three Groups

| MEASURE | Group 1 Current HRT Use | Group 2 Ever HRT Use | Group 3 Never HRT Use |
|---|---|---|---|
| **Body Image** | | | |
| BIS | -.53 (p = .00)* | .25 (p = .22) | -.25 (p = .11) |
| BIVAS | -.42 (p = .00)* | .17 (p = .41) | -.35 (p = .03)* |
| **Depression** | | | |
| CES-D | -.61 (p = .00)* | -.25 (p = .23) | -.31 (p = .05)* |

* indicates statistical significance

Description of Type of Hormone Use

Fifty-six of the women who currently take HRT indicated the type of hormone replacement they were using. One woman indicated that she used only depo-provera and she was not included in the analysis since she did not use estrogen. Less then one-half of the women indicated the dosage of HRT used, therefore, dosage will not be used as a variable in this analysis. The overwhelming majority of women (69%) who were currently taking HRT used estrogen alone which included conjugated equine estrogen, estropipate, esterified estrogen, and transdermal 17-*B* estradiol. Medroxyprogesterone was the only progesterone used in combination with estrogen. None of the respondents indicated that they used methyltestosterone. See Table 15.

Table 15
Type of Hormone Use by Frequency and Percent

| Hormone Regimen | Frequency | Percent |
|---|---|---|
| **ESTROGEN ALONE** | | |
| Conjugated equine estrogen (Premarin) | 25 | 45.50 |
| Estropipate (Ogen/OrthoEst) | 6 | 11.00 |
| Esterified estrogen (Estratabs) | 2 | 3.50 |
| Transdermal 17-*B* estradiol | 5 | 9.00 |
| **ESTROGEN + PROGESTERONE** | | |
| Conjugated equine estrogen + medroxyprogesterone | 8 | 14.50 |
| Micronized estradial + medroxyprogesterone | 2 | 3.50 |
| Estropipate + medroxyprogesterone | 7 | 13.00 |
| Total | N = 55 | 100.00 |

Analysis of Variance for Body Image and Depression by HRT Regimen.

The regimen of HRT was divided into two groups, those women who were taking estrogen alone and those women who were taking estrogen plus a progesterone. Body image and depression scores were analyzed using analysis of variance. An analysis of variance failed to indicate a statistically significant difference between the groups. See Table 16.

Table 16.
Analysis of Variance for Body Image and Depression by HRT Regimen

| MEASURE | Estrogen n = 38 *M (SD)* | Estrogen + Progesterone n = 17 *M (SD)* | *F* | *P* |
|---|---|---|---|---|
| **Body Image** | | | | |
| Body Image Scale | 2.72 (0.82) | 2.56 (0.69) | 0.48 | 0.49 |
| Body Image Visual Analog Scale | 43.11 (25.44) | 40.94 (22.20) | 0.09 | 0.77 |
| **Depression** | | | | |
| CES-D Scale | 8.32 (7.40) | 9.65 (7.18) | 0.39 | 0.54 |

Summary of Data Analysis

The following statements summarize the findings in this study.

1. The average subject in this study was 65.7 years old, weighed 171 pounds, was married and Protestant, with highest educational level completed being high school.
2. Almost one-half of the respondents were currently using HRT and one-third had never used HRT. For those women who previously used HRT, one-third stopped because of side effects, 9% because of expense, and 18% due to breast or uterine cancer.
3. Women who currently were using HRT or who had previously used HRT had a significantly higher income level than women who had never used HRT.
4. The most frequent health problems reported by the respondents was hypertension and arthritis. The number of concomitant health problems ranged from zero to seven with an average number of 2.04.
5. The average score on the BIVAS was 42.13 and the BIS was 2.63 with lower scores indicative of a more positive body image. Although not statistically significant, women who had never used HRT had lower BIVAS and BIS scores than women who were currently taking HRT.
6. The mean CES-D score for the entire sample was 10.04. Higher CES-D scores indicate greater depressive symptoms with scores greater than 15 indicative of depression. Although not statistically significant, women who were using HRT had slightly lower mean CES-D scores than women who had never used HRT.
7. ANOVA found no significant difference in body image or depression scores among the three groups of postmenopausal women.
8. Pearson correlation showed a moderate significant positive relationship between positive body image and depressive symptomology (i.e. CES-D scores).

9. There was no significant correlation among body image and age, spirituality, or education, nor was there any significant correlation among depression scores with age, spirituality or education. Social satisfaction, weight, number of health problems, and income showed a weak to moderate correlation. There was no significant correlation between income and body image or between number of health problems and body image. The presence of arthritis showed a weak correlation with both body image and depression scores.

10. For the women who were using HRT, 38 reported using estrogen alone and 17 reported using estrogen plus a progesterone.

11. ANOVA found no significant difference in body image and depression scores by HRT regimen.

# CHAPTER 6

## Major Findings, Implications, Limitations, and Recommendations for Future Research

The final chapter highlights the major findings of the data analysis. Implications, limitations of the study, and recommendations for future research are also discussed.

### Major Findings

The summary of major findings related to the objectives is discussed in this section.

Objective #1. The first objective was to describe selected income level, social support, presence of co-morbid conditions, and educational levels of respondents.

Women who were currently taking HRT reported a higher income level than women who had never taken HRT. Twenty-seven (50%) of the HRT current users reported incomes of $37,500 or greater. Conversely, twenty-three (56%) of the women who never used HRT reported incomes of $15,000 or less with 52% of those women having incomes less than $7,500. It is not surprising that women who have less financial resources are less likely to use HRT. Of those women who are not currently taking HRT but have used HRT, three (9%) cited expense as the reason for stopping HRT.

Although social satisfaction is not necessarily a measure of social support, it is presumed that individuals' perceived satisfaction with their social life is a strong indicator of adequate social support. The majority of the women were satisfied with their social life. Over 50% of the subjects indicated activity in social clubs and 63% socialized with friends two to three times weekly. Over two-thirds of the respondents were married with 25% being widows. Employment is also a means of socialization and potential support from co-workers. One-third of the respondents reported being employed outside the home.

The mean number of reported health problems for this group was 2.04 (SD 1.47) which was less than the average 3.2 (SD 2.36) and 3.6 (SD 2.18) reported health problems of community dwelling elderly women reported in other studies (Heidrich, 1994; Heidrich & Ryff,1992). Hypertension and arthritis were the most frequently reported illnesses in this study. Heidrich & Ryff also reported arthritis (67%) as the most frequently reported health problem in the age group of 60 to 75 years, followed by osteoporosis (38%) and hypertension (28%).

Educational levels of the respondents revealed that only 14 percent of the respondents completed post-secondary education. However, only 10% of this sample did not have a high school diploma. Statistics from the South Dakota State Department of Health (1996) show that 24% of the population from this area of South Dakota over the age of 18 did not graduate from high school. State wide and national percentages for not completing high school are 22.3 and 19.3, respectively. For the county where the sample was obtained, 21.9% of men and women had at least an associate degree from a post-secondary institution. State wide and national percentages for having at least an associate degree are 23.1 and 25.1, respectively. Although this sample had less post-secondary education than area, state and national averages, they had a higher percentage of high school graduates than reported for the area, state, or nation. It can be inferred that individuals with more education have higher income and make different health care choices than those with less education.

Objective #2. The second objective was to compare and contrast differences in depression scores and perceptions of body image among the respondents who (1) currently use HRT; (2) currently do not use HRT, but have used HRT previously; and (3) have never used HRT. Current use, ever use, and never use of HRT made no statistically significant difference in either of the two body image scores or the depression scores of the respondents. Women who had never used HRT had more positive body images then

women who were currently taking HRT. This difference may be related to the differences in mean age of the two groups. Those women who have never used HRT were on average 4 years older than the current HRT use group.

Although Janelli (1986) studied women with a greater difference in age than four years, the findings suggest a relationship between age and body image. When the Draw-A-Person (DAP) technique was utilized in the Janelli study, there was a significant disparity in height of the DAP. The average height in the older group drawings was 4.89 inches compared with the younger group DAP height of 6.36 inches. Janelli suggested this difference between the two groups may be explained by inherent societal prejudices against older persons that can influence their self concept with feelings of inadequacy and inferiority. In the same study by Janelli, both the younger and older subjects had mean body-cathexis scores representative of a slight positive perception of body image which is consistent with the BIS and BIVAS scores in this study.

Interestingly, the subjects with a history of breast cancer had more positive body image scores on average than the HRT group. In a study conducted by Mock (1993), breast cancer patients with a mean age of 52 years who had a mastectomy reported average BIVAS scores of 39.28 (SD 25.31). This is comparable to the BIVAS scores of the breast cancer subjects in this study.

While not statistically significant, reported depressive symptomology (CES-D) was marginally lower in postmenopausal women who currently take HRT compared with those women who had previously used HRT, but currently do not, and with those women who had never used HRT. Women who had previously or were currently being treated for depression had higher depressive symptomology with CES-D scores of 14.85. The large percentage (66%) of those women with a history of depression who were current HRT users may have increased the depression scores for this group.

Mean CES-D scores in community dwelling women 65 years or older were similar to scores in this study (Heidrich, 1994; Mendes de Leon, Rapp, and Kasl, 1994) . Reed (1986) reported marginally higher mean CES-D scores in "mentally healthy" community dwelling elders with a mean age of 68.82 years.

Objective #3. The third objective was to correlate age, income level, social satisfaction, educational level, and presence of certain illnesses with depression and body image scores among the various HRT groups. The relationship between income and depression was moderately correlated. Financial strain has been demonstrated to be strongly associated with concurrent depression among elderly men and women (Mendes de Leon, Rapp, & Kasl, 1994).

Social satisfaction, participation in social clubs, and frequency of socialization were positively correlated with low CES-D scores indicating few depressive symptoms. This is consistent with findings of other studies that explored the relationship between social support and depression in the elderly (Badger, 1993; Kanacki, Jones, & Galbraith, 1996).

The number of reported health problems showed a weak relationship with depressive symptomology. The presence of arthritis was weakly associated with depression. There was no significant correlation between heart problems and depression. Badger studied the relationship between physical health impairment and depression among older adults and reported a Pearsons correlation of .41 ($p < .01$) between physical health impairment and depression. Depressed patients in the Medical Outcomes Study were discovered to have greater impairments in physical health functioning than did patients who were not depressed (Wells et al., 1989). Bruce, Seeman, Merrill, and Blazer (1994) reported that high depressive symptoms were associated with an increased risk of onset of disability in activities of daily living in a community cohort of men and women aged 70 through 79 years.

The presence of arthritis was significantly associated with negative body image reports. A weak significant inverse correlation was found between body image and amount of alcohol used. In other words, the greater amount of self-reported alcohol use, body image was perceived to be more negative. Interestingly, there was no significant correlation between depression and alcohol use.

Objective #4. The fourth objective was to compare and contrast depression and body image scores in postmenopausal women who were on various regimens of hormone replacement therapy. There was no statistically significant difference in perceived body image and depression scores of women who take estrogen alone with women who take estrogen plus progesterone. It is implied that those women who take estrogen with progesterone have had hysterectomies. However, it is unknown whether or not these women had partial or complete hysterectomies. Kritz-Silverstein, Wingard, Barrett-Conner, and Morton studied the relationship of hysterectomy, with and without oophorectomy, to depression in older women. In their sample of postmenopausal women, hysterectomized women with oophorectomy had marginally higher depression scores than hysterectomized women with ovarian conservation.

Implications for Practice

Based on the results of this study, implications for practice include:

1. This study found that 24 (17%) of the respondents had depression scores greater than 15 which is indicative of depression. The mean scores of the sample was also consistent with the general population. The literature reports reliable self-report depression scales exist which take very little time to complete. Self-report depression tools can assist the primary care provider in detecting depressive symptoms in their clientele. The use of screening tools such as the CES-D can assist the nurse practitioner or clinician to quickly recognize and detect depression in their practice during routine office visits. However, because the CES-D measures depressive symptoms and not the

diagnosis of depression, it would be preferable to translate any findings of this study in the context of an impact on general depressive mood, rather than specifically on depression as a clinical diagnosis.

2. After cognitive disorders (delirium and dementia), depression is the most common psychiatric disorder seen in the elderly. Presently, only about 10% of older adults who suffer from depression receive treatment, largely because of the erroneous belief on the part of some health care providers and elderly patients that depression is an inescapable, untreatable part of aging caused by illness, bereavement, and other events that require difficult life adjustments (Uphold & Graham, 1994). It is essential that nurses educate the public on the identification and treatment of depression. Many postmenopausal women may not even be aware of their depressive symptoms. By addressing depressive symptoms at routine office visits, the nurse practitioner can assist postmenopausal women in becoming aware of their altered mood and help them to achieve optimal mental health.

3. There is an abundance of literature that focuses on body image in the younger population, pregnancy, chronic illnesses, and debilitating injuries. However, there is a dearth of literature on body image in menopausal and postmenopausal women. The significant correlation between body image and depression among postmenopausal women in this study suggests that addressing body image along with depression in this population of women should be considered by health care providers.

Limitations of the Study

Sample limitations. The initial sample represented approximately 27% of the accessible population of postmenopausal women who were seen at a local clinic and only 28.4% of the sample responded. Therefore, the issue of sample representation must be considered. Also, the majority of respondents (73%) indicated that they go for regular physical checkups as a preventive health care measure, whereas, only 3.75% indicated

that they had to be very ill before they would see a health care professional. Given the positive health seeking behavior of the respondents it is unlikely that the sample is representative of the general population. The large proportion (66%) of postmenopausal women who are or have been on HRT in this sample compared with the estimated 20% of women who use HRT at any time during the postmenopausal years should be addressed (Andrews, 1994; Pearlstein, 1995). This discrepancy may be due to the philosophy of the primary care providers in the practice where the sample was obtained. Another explanation for this disparity could be that women who use HRT were more biased to respond as they may have perceived a greater benefit from the research.

Methodological limitations. Because of the low return rate of the questionnaires, 28.4%, there is a concern about selection bias in interpreting the findings. It is the belief of this author that the majority of questionnaires returned were from patients that the author knew and had personally cared for in practice. Social desirability response bias occurs when subjects misrepresent their responses in order to give answers that are congruent with prevailing social mores. It is also possible that patients with higher depressive symptomology would not have the energy or motivation to complete and return the survey. The length of the survey may have deterred many subjects due to the time factor required to complete the survey. Therefore, it is possible that women who had more personal time on their hands were more apt to complete and return the survey.

The utilization of a questionnaire leads to several drawbacks. Subjects may misinterpret items or leave questions unanswered. Questionnaires are dependent upon the honesty and integrity of the subjects. Moreover, the questionnaire's physical appearance may influence the respondent's ability to complete it such as the arrangement or typographic qualities (Polit & Hungler, 1995).

The cross-sectional design of this study is often much weaker than longitudinal designs (Polit & Hungler). Therefore, a longitudinal design studying a cohort of

postmenopausal women as they age from early menopause into "old, old" age could be beneficial in identifying depressive symptomology and perceived body image in elderly women who use HRT with those who do not use HRT.

Not all extraneous variables were controlled. Medications can potentially influence body image and depression scores. For example, the use of antidepressants could alter depression scores. Exercise as an extraneous variable was not addressed in this study. Exercise has been shown to decrease the incidence of cardiovascular disease and osteoporosis along with improving mood by releasing endorphins (Pagani-Hill, Chao, Ross, & Henderson, 1991; Prince et al., 1991; ).

Recommendations for Future Research

There is a myriad of literature out that focuses on hormone replacement therapy, however, there is a paucity of research regarding the effect of hormone use on depression and body image in postmenopausal women . This study could be replicated using a larger sample size and inclusion of various geographic areas. Qualitative research could be conducted with postmenopausal women to elicit themes regarding depression, body image, disability, and social support. It would be beneficial to use established social support tools such as the Personal Resource Questionnaire 85 (PRQ-85) or the Interpersonal Support Evaluation List (ISEL) in studying the correlation of depression and social support in postmenopausal women. Body image is very closely related to self-concept and self-esteem, therefore, it would be interesting to compare and correlate perceived body image with established scales, such as the Tennessee Self-Concept Scale or the Rosenberg Self Esteem Scale.

Future research could focus on quality of life, disability, and chronic illnesses in elderly women over the age of 80 who were or had taken HRT with those women who never took HRT. Further research is required to more fully understand elderly women and their mental health needs.

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# APPENDIX A

South Dakota State University

SDSU

College of Nursing

Department of Graduate Nursing

Box 2275, SDSU
Brookings, SD 57007-1604
Phone 605-688-4114
FAX 605-688-6073

September 15, 1997

Jane Doe
Hometown, SD 00000

Dear Jane:

I am writing to you, Jane, about a study I am conducting that is concerned with post-menopausal women's health. You are invited to participate in this study that is being done to compare how women who are on estrogen feel about themselves with women who are not on estrogen. Your participation in this study will increase knowledge about estrogen use.

I am a registered nurse and have worked at the Tschetter-Hohm Clinic in Huron, South Dakota for the past 10 years. I am currently a graduate nursing student at South Dakota State University and anticipate working as a nurse practitioner with women upon completion of my studies.

If you consent to participate, the enclosed questionnaires should take you approximately 30 to 45 minutes to complete. The questions include general medical and other information about yourself along with questions regarding body image and depression. Please try to answer the questions as accurately and honestly as possible. You will not be required or expected to take any medications or change any current lifestyle behaviors. Your decision to participate or not to participate will in no way affect the health care currently provided to you. You have the right not to participate and to withdraw from this study at any time. All results are confidential, with the researcher being the only one having access to the completed questionnaires. If you should have any questions or concerns regarding your participation in this study you may contact me at the above address or phone number. There are no risks to you from participating in this study. Neither are there any benefits to you, however, the findings from the study will increase our knowledge about estrogen use.

In order to complete this study in a timely fashion, I ask that you **please return the questionnaire in the enclosed postage-paid envelope by October 15**. If you choose not to participate in this study, you can indicate on this letter that you are not interested in participating and return it so that you will not be contacted again. You may contact me at (605) 688-4114 if you would like to receive a summary of the results of this study.

**Thank you very much** for your consideration and assistance in this study to assist us in meeting the health needs of women in South Dakota.

Sincerely,

Doreen Boomsma, RN, BS

P.S. You may notice a number in the upper right hand corner. That number is for second mailing purposes only and is in no way intended to be used for identification purposes.

# APPENDIX B

## The Center for Epidemiologic Studies Depression Scale (CES-D)

*Instructions for questions. Below is a list of the way you might have felt or behaved. Please tell me how often you felt this way during the past week.*

| During the past week: | Rarely or none of the time (less than 1 day) | Some or a little of the time (1-2 days) | Occasionally or a moderate amount of the time (3-4 days) | Most or all of the time (5-7 days) |
|---|---|---|---|---|
| 1. I was bothered by things that usually don't bother me. | 0 | 1 | 2 | 3 |
| 2. I did not feel like eating; my appetite was poor. | 0 | 1 | 2 | 3 |
| 3. I felt that I could not shake off the blues even with help from my family or friends. | 0 | 1 | 2 | 3 |
| 4. I felt that I was just as good as other people. | 0 | 1 | 2 | 3 |
| 5. I had trouble keeping my mind on what I was doing. | 0 | 1 | 2 | 3 |
| 6. I felt depressed. | 0 | 1 | 2 | 3 |
| 7. I felt that everything I did was an effort. | 0 | 1 | 2 | 3 |
| 8. I felt hopeful about the future. | 0 | 1 | 2 | 3 |

CES-D Scale (cont.)

| During the Past week: | Rarely or none of the time (Less than 1 day) | Some or a little of the time (1-2 days) | Occasionally or a moderate amount of the time (3-4 days) | Most or all of the time (5-7 days) |
|---|---|---|---|---|
| 9. I thought my life had been a failure. | 0 | 1 | 2 | 3 |
| 10. I felt fearful. | 0 | 1 | 2 | 3 |
| 11. My sleep was restless. | 0 | 1 | 2 | 3 |
| 12. I was happy. | 0 | 1 | 2 | 3 |
| 13. I talked less than usual. | 0 | 1 | 2 | 3 |
| 14. I felt lonely. | 0 | 1 | 2 | 3 |
| 15. People were unfriendly. | 0 | 1 | 2 | 3 |
| 16. I enjoyed life. | 0 | 1 | 2 | 3 |
| 17. I had crying spells. | 0 | 1 | 2 | 3 |
| 18. I felt sad. | 0 | 1 | 2 | 3 |
| 19. I felt that people dislike me. | 0 | 1 | 2 | 3 |
| 20. I could not get "going". | 0 | 1 | 2 | 3 |

# APPENDIX C

How satisfied are you with the way your body looks?

**1** Height:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**2** Weight:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**3** Hair:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**4** Eyes:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**5** Ears:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**6** Nose:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**7** Mouth:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**8** Teeth:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**9** Voice:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**10** Chin:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**11** Complexion:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**12** Overall facial attractiveness:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**13** Shoulders:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**14** Breasts (females):
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**15** Arms:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**16** Hands:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**17** Size of abdomen:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**18** Buttocks (seat):
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**19** Hips (upper thighs):
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**20** Legs and ankles:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**21** Feet:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**22** General muscle tone of development:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**23** Overall body appearance:
__ A Extremely satisfied
__ B Quite satisfied
__ C Somewhat satisfied
__ D Somewhat dissatisfied
__ E Quite dissatisfied
__ F Extremely dissatisfied

**24** When you were a child (one to 12 years), did your peers make fun of you or reject you for any aspect of your physical appearance?
__ A Very frequently
__ B Frequently
__ C Sometimes
__ D Rarely
__ E Never

**25** Compare your physical attractiveness when you were a child (one to 12 years), with others of your age. I was:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ G Much less attractive.

**26** Compare your physical attractiveness when you were an adolescent, (13 to 19 years), with others of your age. I was:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ G Much less attractive.

**27** Compare your physical attractiveness when you were a young adult, (20 to 30 years), with others of your age. I was:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ B Much less attractive.

**28** Compare your physical attractiveness as a mature adult, (31 to 45 years), with others of your age. I was:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ G Much less attractive.

**29** Compare your physical attractiveness as a fully mature adult, (46 or over), with others of your age. I was:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ G Much less attractive.

**30** Compare your overall physical attractiveness now with others of your age. I am:
__ A Much more attractive.
__ B Considerably more attractive.
__ C Slightly more attractive.
__ D About the same.
__ E Slightly less attractive.
__ F Considerably less attractive.
__ G Much less attractive.

**31** In general, how did you feel about the way your body looked when you were pregnant?
__ A Very attractive and feminine.
__ B Funny and humorous.
__ C Clumsy and awkward.
__ D Very ugly and unfeminine.
__ E No feelings one way or the other.
__ F Not applicable.

**32** What are the most important factors for you in the selection of a marriage partner? Rank the following in order of importance by numbering from one to seven. Put a number beside each letter on the answer sheet.
__ A Physical appearance
__ B Personality
__ C Affection and liking for me
__ D Intelligence
__ E Family background
__ F Financial resources and security
__ G Education or occupation

**33** Have you experienced either a temporary or permanent *positive* change in physical attractiveness (cosmetic surgery, dental surgery, etc.)? Check all answers that are applicable.
__ A Never
__ B Early change (12 years or younger)
__ C Adolescent change (13-19 years)
__ D Young adult change (20-30 years)
__ E Adult change (31-45 years)
__ F Later change (46 or greater)

**34** Have you experienced either a temporary or permanent *negative* change in physical attractiveness (car accident, injury, weight change, etc.)? Check all the answers that are applicable.
__ A Never
__ B Early change (12 years or younger)
__ C Adolescent change 13-19 years)
__ D Young adult change (20-30 years)
__ E Adult change (31-45 years)
__ F Later change (46 or greater)

**35** How satisfied are you with your present marriage?
__ A Very satisfied
__ B Somewhat satisfied
__ C Satisfied
__ D Somewhat dissatisfied
__ E Very dissatisfied
__ F Not applicable

**36** If you are not married, how satisfied are you with your dating relationships now?
__ A Very satisfied
__ B Somewhat satisfied
__ C Satisfied
__ D Somewhat dissatisfied
__ E Very dissatisfied
__ F Am not dating
__ G Not applicable

**37** How satisfied are you with your occupation?
__ A Very satisfied
__ B Somewhat satisfied
__ C Satisfied
__ D Somewhat dissatisfied
__ E Very dissatisfied
__ F Not applicable

**38** Imagine a ladder with 10 rungs. The top rung (#10) represents the ideal happy life. The bottom rung (#1) represents the worst possible life. Put a number by each letter on the answer sheet.
___ A On what rung do you think you are now?
___ B On what rung did you think you were as a child (12 or younger).
___ C On what rung were you as an adolescent (age 13 to 19)?
___ D On what rung were you as a young adult (20 to 30)?
___ E On what rung were you as a mature adult (31 to 45)?
___ F On what rung are you as a fully mature adult (46 or over)?

**39** How often do you dislike yourself?
__ A Very often
__ B Fairly often
__ C Sometimes
__ D Rarely
__ E Practically never

**40** How many years have you been married to your current partner?
__ A Six months or less
__ B Seven months to one year
__ C One to two years
__ D Three to five years
__ E Six to eight years
__ F Nine to 11 years
__ G Twelve to 15 years
__ H More than 15 years
__ I Not applicable

**41** How long did you know your current partner before you married?
__ A Less than 6 months
__ B Six months to one year
__ C One to two years.
__ D Three to four years.
__ E Five to six years.
__ F More than six years.
__ G Not applicable.

**42** What is your partner's income?
__ A Less than $1,000
__ B One thousand to $5,000
__ C Six thousand to $10,000
__ D Eleven thousand to $15,000
__ E Sixteen thousand to $20,000
__ F Twenty-one thousand to $25,000
__ G Twenty-six thousand to $30,000
__ H Thirty-one thousand to $35,000
__ I Thirty-six thousand to $40,000
__ J Over $40,000
__ K Not applicable

**43** What is your partners occupation?
__ A Professional with M. D., Ph.D., etc.
__ B Nurse, schoolteacher, social worker, counselor.
__ C Other professional (e.g. clergyman, artist, writer).
__ D Manager, administrator, proprietor, businessman.
__ E Secretary, clerical, sales.
__ F Technician, craftsman.
__ G Housewife
__ H Retired
__ I Other
__ J Not applicable

**44** What level of education has your partner completed?
__ A Grade school.
__ B High-school graduate.
__ C Some college.
__ D College graduate.
__ E Some graduate work.
__ F Master's degree.
__ G Ph.D., MD, or other advanced degree.
__ H Not applicable.

**45** In the past six months, how often on the average did you engage in sexual intercourse?
__ A Not at all.
__ B A few times.
__ C Once or twice a month.
__ D Once or twice a week.
__ E Three or four times a week.
__ F Five or more times a week.
__ G Daily or more often.

**46** How tall are you? _____ ft. _____ in.

**47** How much do you weigh? _____

**48** What is your marital status?
__ A Single, never married.
__ B Divorced or separated.
__ C Married (first marriage).
__ D Remarried.
__ E Widowed.

**49** How many children do you have?
__ A None.
__ B One.
__ C Two.
__ D Three.
__ E Four.
__ F Five.
__ G More than five.

**50** What is your annual income (not including your partner's or that of other family members)?
__ A Less than $1,000.
__ B One thousand dollars to $5,000.
__ C Six thousand dollars to $10,000.
__ D Eleven thousand dollars to $15,000.
__ E Sixteen thousand dollars to $20,000.
__ F Twenty-one thousand to $25,000.
__ G Twenty-six thousand to $30,000.
__ H Thirty-one thousand to $35,000.
__ I Thirty-six thousand to $40,000.
__ J Over $40,000.

**51** What is your occupation?
__ A Professional with MD, Ph.D., etc.
__ B Nurse, schoolteacher, social worker, counselor.
__ C Other professional (e.g. clergyman, artist, writer).
__ D Manager, administrator, proprietor, businessman.
__ E Secretary, clerical, sales.
__ F Technician, craftsman.
__ G Housewife.
__ H Student.
__ I Retired.
__ J Not applicable.

**52** What level of education have you completed?
__ A Grade school.
__ B High school graduate.
__ C Some college.
__ D College graduate.
__ E Some graduate work.
__ F Master's degree.
__ G Ph.D., MD, or other advanced degree.

**53** What is your present religious preference?
__ A Atheist, agnostic.
__ B Unitarian.
__ C Jewish.
__ D Protestant.
__ E Roman Catholic.
__ F Mormon.
__ G An Eastern religion
__ H Other.

**54** What kind of religious instruction did you receive when you were a child?
__ A Atheist, Agnostic.
__ B Unitarian.
__ C Jewish.
__ D Protestant.
__ E Roman Catholic
__ F Mormon.
__ G An Eastern religion
__ H Other.

**55** How religious would you say you are?
__ A Very religious.
__ B Somewhat religious.
__ C Slightly religious.
__ D Not at all religious.
__ E Antireligious.

Adapted from Berscheid, E., Walster, E., & Bohrnstedt G. (1972). Body image-A Psychology Today questionnaire. Psychology Today, 6(2), 57-64. Used with permission.

APPENDIX D

# BODY IMAGE VISUAL ANALOG SCALE

Body image is the picture of our own body which we form in our mind, or in other words, the way your body appears to you.

Please mark with an "X" on the line how you feel about your body now.

completely satisfied

completely dissatisfied

APPENDIX E

# Health & History Questionnaire

**1.** Are you currently taking hormones? __ Yes __ No (If no, move to question #2)
Please list the hormones you take _____
How long have you taken hormones?
__ less than 1 yr. __1-5 years __6-10 yrs. __11-15 yrs. __more than 15 yrs.

**2.** Have you ever taken hormones after you reached menopause? __ Yes __ No
If yes, how long did you take them?
__ less than 1 yr. __ 1- 5 years __ 6-10 yrs. __ 11-15 yrs. __ more than 15 yrs.
Why did you stop taking hormones? _____

**3.** Does your health insurance cover medication costs? __ Yes __ No
Comments_____

**4.** Are you currently employed outside the home? __Yes __No
If yes, how many hours do you work a week?
__ less than 10 hours weekly
__ 10-19 hours weekly
__ 20-29 hours weekly
__ 30-40 hours weekly
__ more than 40 hours weekly

**5.** Are you active in any social clubs? __ Yes __ No

**6.** How often do you socialize with friends?
__ daily __ 2 - 3 times weekly __ once a week
__ 2 - 3 times monthly __ once a month __ 2 - 3 times yearly

**7.** How satisfied are you with your social life?
__ extremely satisfied __ quite satisfied __ somewhat satisfied
__ somewhat dissatisfied __ quite dissatisfied __ extremely dissatisfied

**8.** How often do you talk to or see members of your family?
__ daily __ 2 - 3 times weekly __ once a week
__ 2 - 3 times monthly __ once a month __ 2 - 3 times yearly

**9.** Are you the primary caregiver for a disabled or ill member of your family? __ Yes __ No

**10.** Have you had a member of your family or a significant other die in the past 6 months?
__ Yes __ No

**11.** Which of the following statements best describes your health care practices?
__ I go for regular physical checkups as a preventive health care measure.
__ I see a health care professional only when I have a specific complaint.
__ I have to be very ill before I will see a health care professional.

**12.** Please indicate if you currently have or have had any of the following diseases or problems. (You may circle as many that apply to you)

| | | | |
|---|---|---|---|
| high blood pressue | arthritis | thyroid | diabetes |
| seizures | stomach problems | heart problems | liver problems |
| lung problems | breast cancer | uterine cancer | osteoporosis |
| kidney problems | colon cancer | skin cancer | |

List any problems you have that are not listed above _____
_____

**13.** Have you ever been or are you currently being treated for depression? __Yes __No

**14.** Have you ever been treated for a mental illness? __Yes __No
What was it?_____

**15.** Do you currently have a terminal illness with a life expectancy of less than 6 months?
__ Yes __ No

**16.** Do you currently smoke cigarettes? __ Yes __No
If yes, how many cigarettes do you usually smoke per day?
__ 1 pack or less
__ between one and two packs
__ two packs or more

**17.** Have you ever smoked? __Yes __No
If yes, how long did you smoke?
__ 1-5 years __ 6-10 years __ 11-15 years __ 16-20 years __ greater than 20 yrs.
If yes, how long has it been since you quit smoking?
__ 1-5 years __ 6-10 years __ 11-15 years __ 16-20 years __ greater than 20 yrs.

**18.** How often do you drink alcoholic beverages?

| | | |
|---|---|---|
| __ never | __ 10 times a year or less | __ once a month |
| __ 2 times monthly | __ about once a week | __ 2 - 3 times weekly |
| __ nearly every day | | |

# APPENDIX F

Doreen Boomsma

Registered Nurse

Telephone (605) 883-4587

RR 2 Box 134
Wolsey, SD 57384

Psychology Today Permission
Judith Levis
P. O. Box 2552
Fairfax, VA 22031

Dear Judith,

I am a graduate nursing student at South Dakota State University in Brookings, South Dakota. I am currently working on my graduate thesis which is focusing on postmenopausal women's perceptions of body image.

The purpose of this letter is to request the use of the Body Image Scale for my study. This instrument was developed by Berscheid, Walster, and Bohrnstedt and published in a 1972 issue of *Psychology Today*. This instrument would assist me immensely in collecting data for this study and I would very much appreciate permission for the use of this tool.

You may reach me at the above address or call me collect at the above telephone number if you should have any questions or concerns regarding the use this tool in my research. Thank you very much for your time and consideration in this matter.

Sincerely,

Doreen Boomsma, RN, BS

# APPENDIX G

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
Bethesda, Maryland 20892

Dear Colleague:

Thank you for your inquiry regarding the CES-D Scale. We are always happy to have the scale used by qualified researchers. The scale is in the public domain, therefore, it may be used without copyright permission.

If the CES-D scale is used in your study or research, we would appreciate receiving copies of your results. We are trying to maintain records of the scale's effectiveness and the various areas in which it is most useful.

Please feel free to call us if you have any questions. Our number is (301) 443-3774.

Sincerely,

Epidemiology and Psychopathology
Research Branch
Division of Epidemiology and
Services Research
National Institute of Mental Health
National Institutes of Health

Enclosures

# APPENDIX H


College of Nursing

Department of Graduate Nursing

Box 2275, SDSU
Brookings, SD 57007-1604
Phone 605-688-4114
FAX 605-688-6073

November 28, 1997

Jane Doe
Subjects Address
Hometown, South Dakota 00000

Dear Jane,

I would like to thank you for completing the survey several weeks ago on women's health. Your input is greatly appreciated and will assist us in meeting the health needs of women.

One of the questionnaires that you completed was the Center for Epidemiological Studies Depression Scale which is a screening tool for depression in the general population. Scores of 16 or greater may indicate a problem with depression. Your score was 18 on this tool. Although, this does not mean that you have depression, it would be beneficial for you to inform your primary health care provider of this result so that he or she could evaluate this further.

Thank you again for your valuable input.

Sincerely,

Doreen Boomsma, RN