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## Depression and Anxiety in Postmenopausal Women: A Study of Black, White, and Hispanic Women

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DEPRESSION AND ANXIETY IN POSTMENOPAUSAL WOMEN:  
A STUDY OF BLACK, WHITE, AND HISPANIC WOMEN

by

Patricia Groessl

A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
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Counselor Education and Counseling Psychology Department

Western Michigan University  
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DEPRESSION AND ANXIETY IN POSTMENOPAUSAL WOMEN:  
A STUDY OF BLACK, WHITE, AND HISPANIC WOMEN

Patricia Groessl, Ed.D.

Western Michigan University, 1987

The purpose of this study was to investigate depression and anxiety in postmenopausal women. The study examined four areas: race, hormone state, number of menopause symptoms, and demographic data.

The sample consisted of 90 women between the ages of 45 and 65. All subjects had completed either natural or surgical menopause by a minimum of one year. The subjects were volunteers from the West Michigan area.

There were 30 subjects from each of the following race categories: black, white, and Hispanic. On the basis of self reports, the subjects were assigned to one of the following hormone state groups: (a) women who take hormones, (b) women who sought or tried to take hormones but were unable to take them, and (c) women who sought no hormone treatment.

A personal questionnaire was used to obtain demographic information about the participants. Three instruments were used to measure the dependent variables. The Self Analysis Form by the Institute for Personality and Ability Testing (IPAT) was used to assess anxiety levels.

The Personal Assessment Inventory (IPAT) was used to measure levels of depression and Neugarten's Menopause Symptoms Checklist was used to report number of menopause symptoms.

Statistical analyses were performed using one and two way analysis of variance, simple regression, and summary statistics. The Bonferroni (Dunn) t Test, the Ryan, Einot, Gabriel, and Welsh Multiple Range Test, and the Chi Square test were used to make multiple comparisons with a .05 level of significance.

It was hypothesized depression and anxiety were not related to hormone state or race. Ancillary questions were posed concerning the relationship of depression and anxiety to number of menopause symptoms, age, educational status, employment status, family status, household status, health, weight, and sexual activity.

Results lead to the conclusion that depression and anxiety in postmenopausal women were not related to hormone state, race, age, weight, sexual activity, and family status. However, depression was related to number of menopause symptoms, education, household status, and health. Anxiety was related to number of menopause symptoms, education, and employment.

Discussion of the results include implications of the findings and suggestions for future research.

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black, white, and Hispanic women**

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**Western Michigan University, 1987**

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## CHAPTER I

### INTRODUCTION

In recent years there has been an increased recognition of and interest in postmenopausal women and their uniqueness. More recently older women are being recognized in the psychological community as having special needs. Particular to the group of women classified as postmenopausal more emphasis has been given to the many changes, physically, emotionally, and socially, that may influence their sense of well being.

Postmenopause is defined as being one year past menopause. Menopause, also known as the climacteric, is the period of time that marks the cessation of a woman's reproductive activity. Historically menopause has been subject to ignorance, myths and misunderstanding. Some folklore (Gruis & Wagner, 1979) relates the female suffers from social and cultural attitudes regarding the belief that she is no longer needed because her primary function, that of child bearing, is over. In early writings, psychiatrists wrote of the negative psychological impact of menopause. Deutsh (1945) believed that women experienced "organic decline," "partial death," and "narcissistic mortification." She says,

Woman has ended her existence as a bearer of a

mortification." She says,

Woman has ended her existence as a bearer of a further life, and has reached her natural end as a servant of the species . . . with the lapse of the reproductive service, her beauty vanishes, and usually the warm, vital flow of feminine emotional life as well. (p. 37)

This study acknowledges that today, generations of women entering the postmenopausal stage may look at their lives from new or different standpoints than previous generations. Media coverage of "sensitive" subjects has been somewhat successful in enabling women to deal more openly and effectively with matters that involve changes within themselves and their bodies (Sarrel, 1983). However, as with other parts of life that involve change, the changes may not come about smoothly. Women, during this time of life, may be required to make fairly major physical, social and emotional adjustments and as a result, anxiety and/or depression may be created as these adjustments occur.

The study reported here was designed to investigate postmenopausal women and to look at several factors that may effect their sense of well being. The purpose of the study was to investigate and compare differences between depression and anxiety in postmenopausal women. Race and hormone state were variables addressed in the research. To assess racial differences, postmenopausal women from three different categories were examined, black, white and Hispanic. Hormone state was delineated as: (a) women who



are currently taking hormones (estradiol, progesterone, etc.), (b) women who sought or tried hormones but could not take them, and (c) women who sought no treatment for hormone replacement.

Depression and anxiety levels were measured and comparisons were made with the woman's race and hormone state. Additionally, relationships between depression and anxiety and the number of menopause symptoms a woman experienced in a three month period were analyzed. Additionally, the number of symptoms was compared to race and hormone state. Age, educational status, employment status, family status, household status (with whom the woman lives), health, weight, and sexual activity were also measured as to their relationship to depression and/or anxiety.

Anxiety was the first consideration in this study. Anxiety may occur in postmenopausal women for many and varying reasons. Some of the reasons may include a change in the status of social roles, outer and inner physical manifestations of the aging process, retirement, widowhood, divorce, care of aging parents and children leaving home. Additionally, many postmenopausal women may have acquired attitudes that encourage them to suppress hostile and angry feelings and to internalize this anger and hostility (Ballinger, 1967). There may be self blaming and guilt which may then have an effect on anxiety.

Depression affects women of all ages and is one of the leading problems of women who seek professional help with psychological difficulties (Gruis & Wagner, 1979). There is little doubt that depression is a major problem for many women. Some researchers (Hargreaves, 1975) report that depression begins in postmenopausal women when these women experience a diminishing responsibility in their roles. However, he believes many other factors may also contribute to depression: genetic predisposition, stressful life events, personality traits, guilt, and frustration. Marriage, motherhood, work and socioeconomic status can also be directly tied to depression in women.

Concerning stress and anxiety management for premenopausal women, Sarrel (1986) believes that sex hormones may be a protective factor. Sarrel has done much research with postmenopausal women on the effects of hormone deprivation. He reports that lower levels of estradiol and progesterone raise a woman's vulnerability to heart attack, stroke and hypertension. He questions the relationship between sex hormones and depression and anxiety.

Decline in activity of sex hormones now occurs at an age much earlier relative to the total life span of women. Women, over the last few generations, have increased their life expectancy; however, there have been no additional increases in the endocrine activity. Additionally, many women have surgically induced loss of endocrine function

women have surgically induced loss of endocrine function through hysterectomies and oophorectomies (Dennerstein & Burrows, 1982). As a result, there are many women who may have ovarian hormonal deficiencies. These women, either through surgery or because of the changes that are special to their sex, undergo hormonal transformations that in many cases effect their sense of well being (Sarrel, 1986).

Some women may seek treatment for hormone deficiency. These women may receive estrogen. Estrogen replacement therapy involves replacing the amount of estrogen that the woman's body no longer produces. It should be noted that a woman continues to produce estrogen in a very slight amount even though her ovaries are removed or she is postmenopausal. However, the estrogen level is significantly lower. For women who receive estrogen replacement therapy, it is usually taken in the form of a pill. The most common form of estrogen used in estrogen replacement therapy is "conjugated estrogen equine," a mixture of natural estrogen obtained from the urine of pregnant mares (Block, Davidson, & Grambs, 1981).

Estrogen is a powerful substance. For some women estrogen replacement is contraindicated. It is usually not prescribed for women with a history of blood-clotting, abnormal genital bleeding, hypertension, heart condition, fibroid tumors, stroke, or for women with suspected breast

or uterine cancer (Block et al., 1981). As a result, there is a group of women who try or want to take hormones but are unable to take them for various reasons.

Thirdly, there is a group of women who seek no medical treatment for hormone deprivation. McKinley and Jeffrey (1974) report that three out of four women between the ages of 45 and 55 years do not consult their doctor for treatment of symptoms of the climacteric. They also state that up to 75% of women will experience menopausal symptoms and 50% of women will be seriously distressed by them at some stage, yet only one in four will seek medical intervention.

This study classified women into three different groups of postmenopausal hormone states: (1) postmenopausal women who are taking hormones, (2) postmenopausal women who sought or tried hormones but could not take them for various reasons, and (3) postmenopausal women who sought no hormone treatment.

Hormone state was one part of this study. As an added dimension, this study addressed the differences in postmenopausal women in three race categories; black, white, and Hispanic. No studies were found comparing race and hormone state differences in postmenopausal women with regard to depression and anxiety.

## Purpose of the Study

This study was prompted by the following questions: Is depression in postmenopausal women related to race or hormone state? Is anxiety in postmenopausal women related to race or hormone state? Is the number of menopause symptoms the postmenopausal women experience related to anxiety and depression? Do the factors of age, educational status, employment status, family status, household status (with whom the woman lives), health, weight, and sexual activity relate to levels of depression and anxiety in postmenopausal women?

First, the study examined the relationship between race and hormone state in postmenopausal women with regard to levels of depression and anxiety. The following three groups were studied: (1) black, white and Hispanic postmenopausal women who are taking hormones; (2) black, white, and Hispanic postmenopausal women who sought or tried hormones but could not take them for various reasons; and, (3) black, white, and Hispanic postmenopausal women who sought no hormone replacement treatment.

Secondly, the study examined the number of menopausal symptoms a postmenopausal woman experienced and the relationship these symptoms may have to depression and anxiety.

Thirdly, demographic data of the sample was used to further measure any relationships that might exist between

depression and anxiety and the following eight variables: age, educational status, employment status, family status, household status (with whom the woman lives), health, weight, and sexual activity.

In summary, the study focused on women, ages 45 to 65, who have gone through menopause (either natural or surgical) with at least one year since the last menstruation.

The women were placed into the following three categories: 30 black women, 30 white women, and 30 Hispanic women. Each group contained three subgroups of: (1) 10 postmenopausal women who are currently taking hormones, (2) 10 postmenopausal women who sought or tried hormones but could not take them, and (3) 10 postmenopausal women who have sought no treatment for hormone replacement.

The design provided for a nine cell table according to hormone state and race. There were 10 subjects in each cell.

Specifically, the study dealt with the following questions:

Levels of depression:

1. Are there significant differences in mean depression levels between women who are taking hormones, those who sought or tried hormones but could not take them, and those women who sought no treatment?

2. Are there significant differences in mean depression levels in postmenopausal women with regard to race?

3. Are levels of depression in postmenopausal women significantly related to menopausal symptoms?

4. Are levels of depression in postmenopausal women significantly related to age, educational status, employment status, family status, household status, health, weight, and sexual activity?

#### Levels of anxiety.

1. Are there significant differences in mean anxiety levels between women who are taking hormones, those who sought or tried hormones but could not take them, and those women who sought no treatment?

2. Are there significant differences in mean levels of anxiety in postmenopausal women with regard to race?

3. Are levels of anxiety in postmenopausal women significantly related to menopausal symptoms?

4. Are levels of anxiety in postmenopausal women significantly related to age, educational status, employment status, family status, household status, health, weight, and sexual activity?

#### Importance of the Study

Research issues in the area concerning ethnic and racial variations among women of the postmenopausal stage of development are rare and/or nonexistent. Consequently

there seemed to be a need to examine issues related to ethnic and racial variations if postmenopausal women are to be understood as a whole.

Many researchers (Baruch, Barnett, & Rivers, 1983; Block et al., 1981; Corl, 1980) have cited the need for and lack of literature and research about older women. Additionally, much of the research to date has centered on menopause and postmenopause as a disease ignoring the many questions women may have on the normalcy of postmenopause.

#### Hypotheses

Null Hypothesis 1: There is no significant difference in mean depression levels in postmenopausal women with regard to hormone state or race.

Null Hypothesis 2: There is no significant difference in mean anxiety levels in postmenopausal women with regard to hormone state or race.

#### Ancillary Questions

This study of postmenopausal women also explored the following ancillary questions:

1. Is there a significant relationship between the number of menopause symptoms experienced and levels of depression and anxiety?
2. Is there a significant relationship between age and levels of depression and anxiety in postmenopausal



women?

3. Is there a significant relationship between educational status and levels of depression and anxiety in postmenopausal women?

4. Is there a significant relationship between employment status and levels of depression and anxiety in postmenopausal women?

5. Is there a significant relationship between family status and levels of depression and anxiety in postmenopausal women?

6. Is there a significant relationship between household status and levels of depression and anxiety in postmenopausal women.

7. Is there a significant relationship between health and levels of depression and anxiety in postmenopausal women?

8. Is there a significant relationship between weight and levels of depression and anxiety in postmenopausal women?

9. Is there a significant relationship between sexual activity and levels of depression and anxiety in postmenopausal women?

## CHAPTER II

### REVIEW OF THE LITERATURE

The search of the literature on postmenopausal women with regard to depression and anxiety was made in four areas. The first area examined was research on the effects of hormone replacement therapy and general hormone usage in postmenopausal women. Secondly, information was sought on research analyzing race differences in postmenopausal women. Next, information on menopause symptoms and their relationship to depression and anxiety in postmenopausal women was explored. Finally, a search was made for information about demographic factors and how they may relate to depression and anxiety in postmenopausal women.

In this survey of literature on postmenopausal women, the findings, for the most part, characterized the middle years of a woman's life as a time of development and transition rather than of inactivity followed by decline. However, some existing literature still tends to portray middle-aged women as generally unattractive, uninteresting, unintelligent, and as dependent, rather than persons in the process of growth (Lamberts & Robin, 1982).

#### Existing Research and Studies

Previously, for postmenopausal women, interest has

centered on studies of the effects of hormone replacement therapy and the physiological aspects of hormone deprivation. However, recently, more literature has been published emphasizing the relationship between hormones and psychological effects.

At this point, the psychological effects of estrogen and other hormone treatments on females are inconclusively reported. De Lignieres and Vincens (1982) in a study of Parisian women found a relationship between mood and plasma estradiol levels. Moderate depressive symptoms were correlated to the lowest plasma estradiol level, before and after treatment. Only when a moderate increase in estradiol level was introduced did the estradiol treatment itself lead to a pleasant feeling of well-being. When an excessive increase was used in the treatment, most of the women complained of unpleasant side effects, mostly irritability and aggressiveness. Progesterone had very few psychological effects if estradiol levels were low or slightly increased. De Lignieres and Vincens stated that therapeutic administrations of natural steroids appear to strongly influence mood and behavior of postmenopausal women.

However, other studies had results that were conflicting with regard to estradiol and the influence it may have on mood and behavior. Coope (1981) found that exogenously administered estrogen did not have any

therapeutic efficacy in relieving mild residual depressive symptoms of lithium treated subjects.

Response to hormone replacement therapy and the role of personality characteristics to sex-role orientation in the etiology of climacteric symptoms was reported in a study by Collins, Hanson, and Eneroth, (1983). In this study, it was found that postmenopausal women's psychosomatic and psychological complaints were significantly related to personality variables, rather than estradiol levels, whereas, vasomotor and sleep-related symptoms showed no such association to personality variables but was positively correlated to hormonal levels. In another study, depression was positively correlated (Hammar, Berg, Fahraeus, & Larsson-Cohn, 1984) to the severity of the vasomotor symptoms.

Altman (1975) found a physiological basis for depression in postmenopausal women. He reported that the mean plasma luteinizing hormone concentration in postmenopausal women suffering unipolar depressive illness was 33% less than that of normal postmenopausal women. This finding was confirmed in another study (Amsterdam, Winokur, Lucki, & Snyder, 1983). Amsterdam and his associates found similar results of a lower luteinizing hormone concentration in depressed postmenopausal women.

Depression has been studied by many researchers, albeit with conflicting results, however, the review of

the literature on anxiety of postmenopausal women was more limited in its scope. Dennerstein and Burrows (1982), in a study on affect, found that estradiol had a beneficial influence on aspects of affect such as anxiety, irritability, and insomnia. In another study investigating the relationship between the menopausal phase and anxiety in normal middle-aged women, the results indicate that the important variable in the amount of anxiety experienced by a woman in the climacteric years is not the menopausal stage, but the kind of personality experiencing the stage (Levit, 1963).

The next part of the survey of literature dealt with information on depression and anxiety with regard to race differences in postmenopausal women. In this area, the information was limited. The studies focused, for the most part, on black and Hispanic older women who are heads of household making comparisons to their economic status (Blau, Rogers, Oster, & Stephenson, 1978; Butler, 1978). Additionally, several research projects dealt with cross cultural studies of menopausal women (Agoestina & van Keep, 1984; Block et al., 1981; Davis, 1980; Indira & Murthy, 1980). However, no information was located on women in the classification designated as "postmenopausal" with regard to cross race studies in depression and/or anxiety. As a result, there seemed to be a need to examine these issues with the race variables.

There is a wealth of information available on women and the physiological and psychological symptoms they experience relative to menopause (Bart & Grossman, 1976; Berkun, 1986; Block et al., 1981; Campbell & Whitehead, 1977; Frey, 1981; Greenblatt, 1982; Kraines, 1963; Lichten, 1978; Neugarten, Wood, Kraines, & Loomis, 1963). However, the information on postmenopausal women and the menopausal symptoms they may continue to experience is sparse. Sarrel (1983) states many women experience menopausal problems (hot flashes, cold sweats, lack of concentration, breast pains, irritable and nervous feelings, pounding of the heart, vaginal atrophy, etc.) after completion of menopause. A study that examined menopausal problems after menopause (Collins et al., 1983) found emotional and personality factors play a part in the development of symptoms and complaints in the women. In the Collins et al. study anxiety was found to be a factor in the menopause symptomology.

The final part of this study on postmenopausal women examined a variety of demographic factors that may have an influence on depression and anxiety. Factors such as age, health, marital status, education, employment and sexual activity may be subjected to change in the lives of postmenopausal women. The relationship of these demographic factors and depression and anxiety has been researched in a few studies. A review of the literature suggests that

many of these demographic factors may indeed be related to depression and anxiety in postmenopausal women (Block et al., 1981). Powell (1977), in studying the relationship of employment to the psychological adjustment of older women, found significantly higher psychiatric symptom scores from women not employed outside the home than by women employed full time. However, a contrasting finding (Lowenthal, Thurnher, & Chiriboga, 1975) found women more depressed and anxious when working in a job out of the home.

In terms of education, Lennon (1980) found postmenopausal women who occupy disadvantaged social situations, specifically, those with little education, most likely to exhibit psychological distress.

In the postmenopausal phase of her life, a woman may experience changes in parenting roles. Primary roles such as homemaking and child rearing may be changed with a resultant void left to fill. New goals and self definitions may need to be formulated. Blau et al. (1978) found many women did not create new and satisfying roles for themselves when their earlier ones no longer existed. However, the concept that when children leave home being a time of crisis for many women is challenged by other research findings (Deutscher, 1969; Glenn, 1975).

The last demographic factor considered in this study is sexual activity and how it related to depression and

anxiety. Studies have investigated women and their sexual activity (Kinsey, Pomeroy, Martin, & Gebhart, 1953; Masters & Johnson, 1966) and found little if any aging in the sexual capacities of the woman until late in her life. Masters and Johnson report that sexual activity declines with age for older women because suitable partners are not available. They report sexual interest does not decline. Studies of what effect sexual activity or lack of sexual activity have on depression and anxiety are inconclusive. Additional studies of postmenopausal women and sexuality concentrate, for the most part, on studies of endocrine changes and how these changes affect the woman's sexual activity (Bachmann, Leiblum, Kemmann, Colburn, Swartzman, & Sheldon, 1984; Leiblum, Bachmann, Kemmann, Colburn, Swartzman, 1983; Sarrel, 1986; Semmens & Semmens, 1984).



## CHAPTER III

### METHODS AND PROCEDURES

A total of 90 postmenopausal women were used for this study. They were volunteers who ranged in age from 45 to 65 years. Subjects were members of one of the following three racial groups: black, white and Hispanic. All subjects completed either a natural or surgical (hysterectomy and/or bilateral oophorectomy) menopause by a minimum of one year.

Subjects were obtained from a variety of sources (see Appendix A). The subjects were recruited over a five month period from September, 1986 to January, 1987. Local civic, social, church and community groups were contacted; subjects were also encouraged to participate through community lectures.

#### Procedures

Personal contact was made with each of the 90 women in the study. The purpose of the study was explained and confidentiality was promised. All volunteers were screened to determine eligibility and to ensure that they were comfortable with the research procedures. The subjects who were deemed suitable for this project were asked to participate in the study.

An interviewer met with each subject to deliver a packet of materials. Each individual was asked to fill out questionnaire data either during this meeting or to take the questionnaires home and mail them back within a two week period. A stamped, return addressed envelop was provided, when necessary, to each subject.

Each packet consisted of:

1. An instruction letter with explanation of the research project (see Appendix B).
2. A personal questionnaire, which contained health information and personal history (see Appendix C).
3. Post card to be sent by subject to researcher if subject would like an analysis of results of the research (see Appendix D).
4. Personal Assessment Inventory (see IPAT Depression Scale in Appendix E).
5. Self Analysis Form (see IPAT Anxiety Scale in Appendix F).
6. Neugarten's Menopause Symptoms Checklist (see Appendix G).

Approximate time necessary to complete the materials in the packet was one half to one hour.

This procedure received approval from the Human Subjects Institutional Review Board at Western Michigan University.

## Description of the Sample

Tables 1 and 2 show the demographic characteristics of the sample. Self report was the criterion used in determining the different groups in which each subject placed herself. All of the women were from the West Michigan area.

Table 1  
Demographic Characteristics of Sample by Race

| Characteristic        | Black<br>N = 30 | White<br>N = 30 | His-<br>panic<br>N = 30 | Total<br>N = 90 | Total<br>% |
|-----------------------|-----------------|-----------------|-------------------------|-----------------|------------|
| Educational Status    |                 |                 |                         |                 |            |
| Less than high school | 8               | 1               | 16                      | 25              | 28         |
| High school graduate  | 6               | 9               | 4                       | 19              | 21         |
| Some college          | 12              | 8               | 6                       | 26              | 29         |
| College graduate      | 3               | 8               | 3                       | 12              | 16         |
| Some graduate school  | 1               | 4               | 1                       | 6               | 6          |

Table 1--Continued

| Characteristic            | Black<br>N = 30 | White<br>N = 30 | His-<br>panic<br>N = 30 | Total<br>N = 90 | Total<br>% |
|---------------------------|-----------------|-----------------|-------------------------|-----------------|------------|
| Employment Status         |                 |                 |                         |                 |            |
| Unemployed                | 5               | 8               | 11                      | 24              | 27         |
| Employed - labor          | 7               | 3               | 8                       | 18              | 20         |
| Employed - professional   | 13              | 9               | 5                       | 27              | 30         |
| Retired                   | 5               | 10              | 6                       | 21              | 23         |
| Family Status *           |                 |                 |                         |                 |            |
| Never married             | 0               | 0               | 1                       | 1               | 1          |
| Married without children  | 2               | 1               | 2                       | 5               | 5          |
| Married with children     | 16              | 21              | 16                      | 53              | 60         |
| Divorced without children | 1               | 0               | 0                       | 1               | 1          |
| Divorced with children    | 9               | 3               | 5                       | 17              | 19         |
| Widowed without children  | 0               | 0               | 1                       | 1               | 1          |
| Widowed with children     | 2               | 5               | 4                       | 11              | 13         |

\* Frequency missing - 1

Table 1--Continued

| Characteristic             | Black<br>N = 30 | White<br>N = 30 | His-<br>panic<br>N = 30 | Total<br>N = 90 | Total<br>% |
|----------------------------|-----------------|-----------------|-------------------------|-----------------|------------|
| Household Status           |                 |                 |                         |                 |            |
| Lives with spouse          | 16              | 22              | 16                      | 54              | 60         |
| Lives with friend          | 2               | 3               | 0                       | 5               | 6          |
| Lives with children        | 1               | 2               | 6                       | 9               | 10         |
| Lives alone                | 11              | 3               | 8                       | 22              | 24         |
| Health Status              |                 |                 |                         |                 |            |
| Good                       | 14              | 17              | 12                      | 43              | 48         |
| Average                    | 11              | 11              | 16                      | 38              | 42         |
| Poor                       | 5               | 2               | 2                       | 9               | 10         |
| Weight Status              |                 |                 |                         |                 |            |
| Just right                 | 3               | 5               | 3                       | 11              | 12         |
| 10 lbs overweight          | 9               | 12              | 6                       | 27              | 30         |
| 20 lbs overweight          | 8               | 4               | 7                       | 19              | 21         |
| 25 lbs. or more overweight | 10              | 9               | 14                      | 33              | 37         |
| Underweight                | 0               | 0               | 0                       | 0               | 0          |

Table 1--Continued

| Characteristics            | Black<br>N = 30 | White<br>N = 30 | His-<br>panic<br>N = 30 | Total<br>N = 90 | Total<br>% |
|----------------------------|-----------------|-----------------|-------------------------|-----------------|------------|
| Sexual Activity            |                 |                 |                         |                 |            |
| Not at all                 | 13              | 12              | 11                      | 36              | 40         |
| 1 to 2 times<br>a month    | 3               | 4               | 6                       | 13              | 15         |
| 3 to 5 times<br>a month    | 7               | 6               | 6                       | 19              | 21         |
| 6 or more times<br>a month | 7               | 8               | 7                       | 22              | 24         |

Table 2

## Demographic Characteristics of Sample by Hormone State

| Character-<br>istic      | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 | Total<br>N = 90 | Total<br>% |
|--------------------------|----------------------------|-----------------------------|--------------------------|-----------------|------------|
| Educational Status       |                            |                             |                          |                 |            |
| Less than<br>high school | 5                          | 11                          | 9                        | 25              | 28         |
| High school<br>graduate  | 9                          | 7                           | 3                        | 19              | 21         |
| Some college             | 7                          | 8                           | 11                       | 26              | 29         |
| College gradu-<br>ate    | 7                          | 3                           | 4                        | 14              | 16         |
| Some graduate<br>school  | 2                          | 1                           | 3                        | 6               | 6          |

Table 2--Continued

| Character-<br>istic            | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 | Total<br>N = 90 | Total<br>% |
|--------------------------------|----------------------------|-----------------------------|--------------------------|-----------------|------------|
| Employment Status              |                            |                             |                          |                 |            |
| Unemployed                     | 8                          | 9                           | 7                        | 24              | 27         |
| Employed -<br>labor            | 10                         | 3                           | 5                        | 18              | 20         |
| Employed -<br>professional     | 7                          | 9                           | 11                       | 27              | 30         |
| Retired                        | 5                          | 9                           | 7                        | 21              | 23         |
| Family Status *                |                            |                             |                          |                 |            |
| Never married                  | 1                          | 0                           | 0                        | 1               | 1          |
| Married without<br>children    | 0                          | 2                           | 3                        | 5               | 5          |
| Married with<br>children       | 18                         | 18                          | 17                       | 53              | 60         |
| Divorced with-<br>out children | 0                          | 0                           | 1                        | 1               | 19         |
| Divorced with<br>children      | 6                          | 5                           | 6                        | 17              | 19         |
| Widowed without<br>children    | 0                          | 1                           | 0                        | 1               | 1          |
| Widowed with<br>children       | 4                          | 4                           | 3                        | 11              | 13         |

\* Frequency missing - 1

Table 2--Continued

| Character-<br>istic           | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 | Total<br>N = 90 | Total<br>% |
|-------------------------------|----------------------------|-----------------------------|--------------------------|-----------------|------------|
| Household Status              |                            |                             |                          |                 |            |
| Lives with<br>spouse          | 17                         | 19                          | 18                       | 54              | 60         |
| Lives with<br>friend          | 3                          | 0                           | 2                        | 5               | 6          |
| Lives with<br>children        | 2                          | 2                           | 5                        | 9               | 10         |
| Lives alone                   | 8                          | 9                           | 5                        | 22              | 24         |
| Health Status                 |                            |                             |                          |                 |            |
| Good                          | 13                         | 12                          | 18                       | 54              | 60         |
| Average                       | 15                         | 14                          | 9                        | 38              | 42         |
| Poor                          | 2                          | 4                           | 3                        | 9               | 1          |
| Weight Status                 |                            |                             |                          |                 |            |
| Just right                    | 4                          | 4                           | 3                        | 11              | 12         |
| 10 lbs.<br>overweight         | 14                         | 5                           | 8                        | 27              | 30         |
| 20 lbs.<br>overweight         | 9                          | 5                           | 5                        | 19              | 21         |
| 25 lbs. or more<br>overweight | 3                          | 16                          | 14                       | 33              | 37         |
| Underweight                   | 0                          | 0                           | 0                        | 0               | 0          |



Table 2--Continued

| Character-<br>istic        | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 | Total<br>N = 90 | Total<br>% |
|----------------------------|----------------------------|-----------------------------|--------------------------|-----------------|------------|
| Sexual Activity            |                            |                             |                          |                 |            |
| Not at all                 | 10                         | 13                          | 13                       | 36              | 40         |
| 1 to 2 times<br>a month    | 4                          | 6                           | 3                        | 13              | 15         |
| 3 to 5 times<br>a month    | 6                          | 6                           | 7                        | 19              | 21         |
| 6 or more times<br>a month | 10                         | 5                           | 7                        | 22              | 24         |

The results of the demographic analysis show the women, as a whole, to be well educated: approximately 28% of the women did not have a high school education; 21% of the women were high school graduates; 29% of the women had attended college; and, 22% had enrolled in graduate school. Additionally, 60% of the women characterized their health as "average" or "good" and only 10% said their health was "poor." The mean age of the sample was 55.8 years.

#### The Instruments

Three instruments were used in this study: The Self Analysis Form (The Institute for Personality and Ability Testing Anxiety Scale), the Personal Assessment Inventory

(The Institute for Personality and Ability Testing Depression Scale), and Neugarten's Menopause Symptoms Checklist. The Self Analysis Form was used to assess both covert and overt anxiety levels in the women. The Personal Assessment Inventory was used to measure levels of depression and Neugarten's Menopause Symptoms Checklist was used to report number of menopause symptoms.

#### Self Analysis Form (IPAT Anxiety Scale)

The Self Analysis Form was developed as a means of obtaining information about a person's anxiety in a quick, objective and standard manner. In order to assess anxiety levels, the subjects are asked to rate themselves on some behaviors, feelings, and reactions. The Self Analysis Form, developed by Krug, Scheier, and Cattell (1976) and IPAT staff, had its beginnings in the Sixteen Personality Factor Questionnaire. The 5 principal 16 PF factors of anxiety are included: suspiciousness (L+), emotional instability (C-), tension (Q4+), low integration (Q3-), and guilt proneness (O+). This test was first published in 1957. There are separate scores measuring covert and overt anxiety, although for purposes of this research only one composite score was used for anxiety.

Test-retest correlation coefficients were obtained in at least four different studies using approximately 750 subjects. Reliability ranges were from .82 to .93.

subjects. Reliability ranges were from .82 to .93. Reliability was also assessed for internal consistency. Several studies using a total of over 3,500 subjects reported internal consistency reliability coefficients ranged from .78 to .92.

The validity of the Self Analysis Form was measured in three different ways. First, a correlation was made between test scores and the "pure" anxiety factor. This "pure" factor was identified through factor analysis. The factor was identified as anxiety and represented elements common to all the anxiety measures studied. Correlation of Self Analysis Form scores with the "pure" factor was reported to be .90. These correlations were made with samples from many different age, sex, education, and cultural groups. Secondly, the validity was tested comparing how well the test scores agreed with clinically judged anxiety levels. When adjustments were made for inter-clinician judgment, the corrected correlation coefficient was approximately .90. Thirdly, the Self Analysis Form scores were correlated with other questionnaires that measured anxiety. Again, a validity coefficient of approximately .90 was obtained. As a whole, the validity of the Self Analysis Form approached .90.

The Self Analysis Form was administered to each subject individually. However, approximately 16 of the 90 subjects in this study filled out the questionnaire at

items of the Self Analysis Form take approximately 10 to 15 minutes to complete. The reading grade level is 6.8. It should be noted that in 6 cases, this researcher read the instruments to the subjects as their reading was below the 6.8 grade level.

Upon completion of the instrument, a raw score was computed for each subject. For purposes of this research, the raw scores were not converted to standard scores. Each subject's raw score was compared to the general adult population (females only) norm scale. This scale was based on 405 women. Table 3 shows the mean anxiety levels of the Self Analysis Form (IPAT Anxiety Scale) and the means for the postmenopausal women in this study.

Table 3  
Anxiety: Means and Standard Deviations

|        | Mean | Standard Deviation |
|--------|------|--------------------|
| IPAT   | 28.6 | 11.3               |
| Sample | 27.4 | 11.7               |

Personal Assessment Inventory (IPAT Depression Scale)

The Personal Assessment Inventory (IPAT Depression Scale) was devised by Krug and Laughlin, in 1976. It is used in clinical diagnosis and psychological research on depression. The test is made up of 40 items and in a

and psychological research on depression. The test is made up of 40 items and in a format that makes scoring fully objective and can be done in one to two minutes. Over 1,000 individually diagnosed psychiatric cases and several thousand normal controls were analyzed during the development of the scale. Factor analysis and contrasted-groups were both employed to insure construct and empirical validity in the final scale. Reliability coefficients averaged .93.

There is no time limit for the Personal Assessment Inventory. The 40 items take approximately 10 to 15 minutes to finish. It can be self administered. Reading grade level is 5.9. Again, it should be noted that it was necessary to read the questions to 6 subjects as their reading levels were below the fifth grade, nine month level.

Results are given in raw scores. The norms used for the Personal Assessment Inventory represent the category of "women only." Table 4 illustrates the means and standard deviations for the Personal Assessment Inventory and the means and standard deviations for the sample in this study.

Table 4  
Depression: Means and Standard Deviations

|        | Mean  | Standard Deviation |
|--------|-------|--------------------|
| IPAT   | 22.03 | 10.45              |
| Sample | 18.98 | 10.06              |

Neugarten's Menopause Symptoms Checklist

Neugarten's Menopause Symptoms Checklist (Levit, 1963) was developed by Bernice Neugarten in 1963 at the University of Chicago. It is used to assess menopausal symptoms in women of various ages. The list contains symptoms most often reported as being typical complaints of menopausal women. The subjects were asked to check those symptoms they had experienced within the past three months. A score was taken as a simple count of the number of items checked.

Kraines (1963) reports test-retest correlation coefficients have been obtained and reliability coefficients computed for the total number of symptoms. The product-moment correlation coefficient was .79. Actual score differences between the two testings averaged 2.6 points for the number of symptoms checked.

Six other separate scores can be obtained from the checklist including: a weighted score based on frequency and severity of the symptoms; a score based upon eleven

symptoms which previous investigators have judged to be primarily psychological in nature; a score based on symptoms judged to be primarily physical or somatic in nature; a score based on a group of five symptoms which were identified as psychosomatic (headaches, tired feelings, dizzy spells, pounding of the heart); and a score using 11 items which were regarded as highly indicative of menopause. However, because this research concentrated on postmenopausal women rather than menopausal women, the simple count of symptoms was believed to be adequate in assessing the women's symptoms. Not addressed in this use of the checklist then was the severity of the symptom and/or the frequency with which the subject experienced the symptoms. However, this symptom checklist was easily administered and provided quantifiable measures of symptoms. Table 5 provides means and standard deviations of symptoms.

Table 5  
Number of Menopause Symptoms: Means  
and Standard Deviations

|        | Mean | Standard Deviation |
|--------|------|--------------------|
| Sample | 7.75 | 5.00               |

### Statistical Analysis

The following statistical procedures were used to

test the hypotheses and ancillary questions posed by this study.

The design provided for nine cell tables reporting mean levels of anxiety and depression on the independent variables of race and hormone state. In analyzing the results, a two-way analysis of variance was performed using depression and anxiety as the dependent variables, with the independent variables being race and hormones. After completion of the two way analysis of variance, multiple comparisons were done using either the Bonferroni (Dunn) t Test or the Ryan, Einot, Gabriel, and Welsch Multiple Range Test.

Secondly, the dependent variable of number of menopause symptoms was assessed with regard to race and hormone state using two way analysis of variance. Additionally, the number of symptoms was used as an independent variable and regressed with depression and anxiety as the dependent variables.

Thirdly, statistical analyses were made with regard to demographic data. The relationship of anxiety and depression was compared with eight other variables. These variables were: age, educational status, family status, household status (with whom the woman lives), employment status, health, weight, and sexual activity. The following statistical procedures were used to examine the demographic information and questions posed: summary



statistics reporting counts and means; one way analysis of variance; simple regression; and the Chi Square test for independence.

## CHAPTER IV

### ANALYSIS OF THE DATA

The findings for the specific hypotheses are presented and followed by the results of the ancillary questions. Finally, the study is summarized.

#### Results of the Hypotheses

Null Hypothesis 1: There is no significant difference in mean depression levels in postmenopausal women with regard to hormone state or race.

A two way analysis of variance indicated no significant differences at the .05 level in mean scores on depression for postmenopausal women with regard to hormone state or race. Therefore, the null hypothesis was supported by the findings. Table 6 reports the results.

Next, the Ryan-Einot-Gabriel-Welsh Multiple Range Test was used to examine each group separately. Table 7 shows the means and standard deviations for the various hormone and race groupings. It is to be noted that the overall depression levels of the women in this sample were lower than the IPAT Depression Scale raw score mean of 22.03.

Table 6

Two Way Analysis of Variance of the Dependent  
Variable Depression and Independent Variables  
Race and Hormone State

| Source             | Df | Sum of<br>Squares | Mean<br>Square | F     | P    |
|--------------------|----|-------------------|----------------|-------|------|
| Model              | 8  | 480.69            | 60.09          | 0.577 | 0.79 |
| Error              | 81 | 8440.30           | 104.20         |       |      |
| Corrected<br>Total | 89 | 8920.99           |                |       |      |

  

| Source          | Df | Type I Sum<br>of Squares | F value | P    |
|-----------------|----|--------------------------|---------|------|
| Race            | 2  | 124.16                   | 0.06    | 0.55 |
| Hormones        | 2  | 75.36                    | 0.36    | 0.69 |
| Race X Hormones | 4  | 281.18                   | 0.67    | 0.61 |

Null Hypothesis 2: There is no significant difference in mean anxiety levels in postmenopausal women with regard to hormone state or race.

Table 7  
Depression: Independent Variables  
Race and Hormone State

| Hormone State         |                    |                           |                            |                             |                          |
|-----------------------|--------------------|---------------------------|----------------------------|-----------------------------|--------------------------|
|                       | IPAT<br>Depression | Total<br>Sample<br>N = 90 | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 |
| Mean                  | 22.03              | 18.98                     | 19.73                      | 19.53                       | 17.70                    |
| Standard<br>Deviation | 10.45              | 10.06                     | 10.13                      | 9.39                        | 10.68                    |

  

| Race                  |                    |                           |                 |                 |                    |
|-----------------------|--------------------|---------------------------|-----------------|-----------------|--------------------|
|                       | IPAT<br>Depression | Total<br>Sample<br>N = 90 | Black<br>N = 30 | White<br>N = 30 | Hispanic<br>N = 30 |
| Mean                  | 22.03              | 18.98                     | 18.53           | 17.83           | 20.60              |
| Standard<br>Deviation | 10.45              | 10.06                     | 10.41           | 8.60            | 10.99              |

The next question this study sought to answer was if there is a difference in anxiety mean scores in postmenopausal women with regard to hormone state or race. In order to answer this question, a two way analysis of variance was computed. the results support the acceptance of the null hypothesis. This study found no difference in means of anxiety of postmenopausal women with regard to effects of hormone state or race. Table 8 illustrates the findings.

Table 8

Two Way Analysis of Variance of the Dependent  
Variable Anxiety and the Independent Variable  
Race and Hormone State

| Source             | Df | Sum of<br>Squares | Mean Square | F     | P    |
|--------------------|----|-------------------|-------------|-------|------|
| Model              | 3  | 475.08            | 59.38       | 0.404 | 0.91 |
| Error              | 81 | 11892.70          | 146.82      |       |      |
| Corrected<br>Total | 89 | 12367.78          |             |       |      |

  

| Source          | Df | Type I Sum<br>of Squares | F value | P    |
|-----------------|----|--------------------------|---------|------|
| Race            | 2  | 150.42                   | 0.51    | 0.60 |
| Hormones        | 2  | 218.68                   | 0.74    | 0.47 |
| Race X Hormones | 4  | 105.97                   | 0.18    | 0.94 |

A further analysis was completed to examine the means and standard deviations in each hormone and race group. As can be observed in Table 9, the mean scores of the white and Hispanic women in this study were consistent with the published mean of the IPAT Anxiety Scale and the mean score of anxiety in the black women in this study fell slightly lower than the mean. However, as noted previously, there were no significant differences in the anxiety levels by race.

Table 9

Anxiety: Independent Variable  
Race and Hormone State

| Hormone State         |                 |                           |                            |                             |                          |
|-----------------------|-----------------|---------------------------|----------------------------|-----------------------------|--------------------------|
|                       | IPAT<br>Anxiety | Total<br>Sample<br>N = 90 | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 |
| Mean                  | 28.6            | 27.40                     | 29.53                      | 26.86                       | 25.83                    |
| Standard<br>Deviation | 11.3            | 11.7                      | 14.46                      | 10.08                       | 10.39                    |
| Race                  |                 |                           |                            |                             |                          |
|                       | IPAT<br>Anxiety | Total<br>Sample<br>N = 90 | Black<br>N = 30            | White<br>N = 30             | Hispanic<br>N = 30       |
| Mean                  | 28.6            | 27.40                     | 25.60                      | 28.53                       | 28.10                    |
| Standard<br>Deviation | 11.3            | 11.7                      | 12.21                      | 10.54                       | 12.67                    |

#### Results of the Ancillary Questions

The second part of the analysis dealt with relationships between the number of menopause symptoms and levels of depression and anxiety. Again, the subjects were divided into groups according to race and hormone state and then compared with respect to the number of menopause symptoms reported. A two way analysis of variance was used to assess differences. The analysis revealed a

significant difference for one factor, hormone state,  $F = 4.04$ ,  $p = 0.0212$  (see Table 10).

Table 10

Two Way Analysis of Variance of the Dependent Variable  
Number of Menopause Symptoms and Independent  
Variables Race and Hormone State

| Source          | Df | Sum of Squares | Mean Square | F     | P    |
|-----------------|----|----------------|-------------|-------|------|
| Model           | 8  | 364.75         | 45.59       | 1.834 | 0.08 |
| Error           | 81 | 2013.70        | 24.86       |       |      |
| Corrected Total | 89 | 2378.45        |             |       |      |

  

|                 | DF | Type I Sum of Squares | F value | P    |
|-----------------|----|-----------------------|---------|------|
| Race            | 2  | 76.28                 | 1.53    | 0.22 |
| Hormones        | 2  | 201.08                | 4.04    | 0.02 |
| Race X Hormones | 4  | 87.37                 | 0.88    | 0.48 |

A Ryan-Einot-Gabriel-Welsh Multiple Range Test for comparisons indicated postmenopausal women who were taking hormones differ significantly from postmenopausal women who never sought hormone therapy. Means for each are as follows: postmenopausal--taking hormones,  $M = 9.067$ ; postmenopausal--never sought hormones,  $M = 5.5$ .

The mean scores on Neugarten Symptoms Checklist are shown in Table 11. The mean for the sample was 7.75 with

a standard deviation of 5. As can be seen, the group that took hormones reported more menopause symptoms than did the group who did not seek hormone treatment.

Table 11  
Number of Menopause Symptoms  
Independent Variables: Race and Hormone State

| Hormone State         |                           |                            |                             |                          |
|-----------------------|---------------------------|----------------------------|-----------------------------|--------------------------|
| Menopause<br>Symptoms | Total<br>Sample<br>N = 90 | Take<br>Hormones<br>N = 30 | Tried<br>Hormones<br>N = 30 | No<br>Hormones<br>N = 30 |
| Mean                  | 7.75                      | 9.06                       | 8.00                        | 5.50                     |
| Standard<br>Deviation | 5.0                       | 5.13                       | 5.43                        | 4.36                     |
| Race                  |                           |                            |                             |                          |
| Menopause<br>Symptom  | Total<br>Sample<br>N = 90 | Black<br>N = 30            | White<br>N = 30             | Hispanics<br>N = 30      |
| Mean                  | 7.75                      | 7.10                       | 6.66                        | 8.80                     |
| Standard<br>Deviation | 5.0                       | 5.13                       | 4.62                        | 5.62                     |

Next a simple regression was computed using number of menopause symptoms as an independent variable with depression and anxiety as the dependent variables. The results indicated a positive correlation (.534) between depression and number of menopause symptoms. Additionally, a



positive correlation (.525) was found between anxiety and menopause symptoms. The results indicated a relationship between the postmenopausal women's number of menopause symptoms and their mental health.

The next part of this study investigated relationships between depression and anxiety in postmenopausal women and various demographic categories. The variables appraised were: age, educational status, employment status, family status, household status, health, weight, and sexual activity.

A one way analysis of variance (general linear models procedure) was used to investigate the relationships. Pairwise comparisons were made using the Bonferroni (Dunn) t Test. The confidence level was set at .95. Summary statistics were used to derive counts, means, and standard deviations. Additionally, Chi Square and regression analysis were used.

The first question addressed was: Is there a significant relationship between age and levels of anxiety, depression and menopause symptoms in postmenopausal women? In order to determine if they differ according to age, a statistical analysis using regression was computed. The results indicated that there is no significant difference in levels of depression with regard to the age of the women (see Table 12). These results indicate that for every year of age a woman's depression level increases

very imperceptably.

Table 12  
Age Used as Independent Variable With  
Depression and Anxiety

| Depression |    |                     |                |           |        |
|------------|----|---------------------|----------------|-----------|--------|
| Source     | Df | Sum of Squares      | Mean Square    | F         | P      |
| Model      | 1  | 1.41145092          | 1.41145092     | .014      | 0.9063 |
| Error      | 88 | 8919.57744          | 101.35882      |           |        |
| Total      | 89 | 8920.98889          |                |           |        |
| Variable   | Df | Parameter Estimates | Standard Error | T for Ho: | P      |
| Intercept  | 1  | 17.73426584         | 10.68473948    | 1.660     | 0.1005 |
| Age        | 1  | 0.02240398          | 0.18985548     | 0.118     | 0.9063 |
| Anxiety    |    |                     |                |           |        |
| Source     | Df | Sum of Squares      | Mean Square    | F         | P      |
| Model      | 1  | 104.46799           | 104.46799      | 0.750     | 0.3889 |
| Error      | 88 | 12263.32089         | 139.35592      |           |        |
| Variable   | Df | Parameter Estimates | Standard Error | T for Ho: | P      |
| Intercept  | 1  | 16.61737000         | 12.52840671    | 1.326     | 0.1881 |
| Age        | 1  | 0.19274538          | 0.22261532     | 0.866     | 0.3889 |

Additionally, regression was used to determine if there were any significant differences in levels of anxiety and number of menopause symptoms to age (see Table 12). There were no significant relationships found.

The second question addressed was: Is there a significant relationship between educational status and levels of anxiety, depression and menopause symptoms in postmenopausal women? A one way analysis of variance revealed significant differences in two areas. There was a significant difference in levels of anxiety ( $p = 0.0328$ ) and number of menopause symptoms ( $p = 0.0154$ ) with regard to education. Additionally, depression was very close to being significant ( $p = 0.0545$ ).

An analysis of the pairwise differences, however, finds no significant comparisons. The fact that this does not agree with the overall F tests may be because the Bonferroni (Dunn) t Test is conservative in protecting the error rate. An examination of the comparisons found that postmenopausal women who did not graduate from high school have a trend toward higher levels of anxiety and menopause symptoms and also with a trend toward higher levels of depression. There is a difference in levels of anxiety and menopause symptoms with regard to educational status and the trend seems to go in the direction of higher levels of anxiety, menopause symptoms, and depression in women who have not graduated from high school as compared

with college graduates. Table 13 summarizes the results.

Table 13  
Educational Status

|                  | Mean Scores |         |                              |
|------------------|-------------|---------|------------------------------|
|                  | Depression  | Anxiety | Number of Menopause Symptoms |
| Less than H.S.   | 21.32       | 27.60   | 9.4                          |
| H.S. Graduate    | 20.84       | 26.47   | 9.10                         |
| Some College     | 17.53       | 25.27   | 6.76                         |
| College Graduate | 14.21       | 23.64   | 4.78                         |
| Graduate School  | 14.50       | 22.33   | 4.33                         |

The next question addressed was: Is there a significant relationship between employment status and levels of anxiety, depression and menopause symptoms in postmenopausal women? The one way analysis of variance indicates that there is no significant difference between subdivisions in terms of employment and anxiety and depression. However, there is a significant difference in the mean score of the number of menopause symptoms when employment status is the independent variable ( $p = 0.0109$ ). A pairwise comparison with regard to number of menopause symptoms and employment status finds a significant difference between women who are unemployed as compared with women who are employed in a professional position.

Postmenopausal women who are unemployed report more menopause symptoms than women who work in a professional occupations (see Table 14).

The next question examined was: Is there a significant relationship between family status and levels of anxiety, depression and menopause symptoms in postmenopausal women? In order to determine if postmenopausal women's anxiety, depression, and menopause symptoms differed according to family status, a one way analysis of variance was performed. There was no significant difference in levels of anxiety, depression, and menopause symptoms when compared with family status.

Table 14  
Employment Status

|              | Mean Scores |         |                              |
|--------------|-------------|---------|------------------------------|
|              | Depression  | Anxiety | Number of Menopause Symptoms |
| Unemployed   | 21.91       | 28.79   | 9.58                         |
| Labor        | 20.77       | 30.16   | 8.38                         |
| Professional | 15.40       | 22.44   | 5.00                         |
| Retired      | 18.71       | 29.85   | 7.66                         |

The one way analysis of variance was computed in order to assess the question: Is there a significant relationship between household status (with whom the woman

lives) and levels of anxiety, depression and menopause symptoms in postmenopausal women? There were no significant differences found in anxiety and menopause symptoms. However, significant differences were noted in postmenopausal women with regard to depression and with whom they live ( $p = 0.0122$ ). The Bonferroni (Dunn) t Test shows a difference in women who live with their children as compared with women who live with a friend. In this sample, women who live with their children have significantly higher levels of depression than women who live with a friend (see Table 15).

Table 15  
Household Status

| Live With | Mean Scores |         |          |
|-----------|-------------|---------|----------|
|           | Depression  | Anxiety | Symptoms |
| Spouse    | 18.44       | 27.42   | 7.46     |
| Friend    | 8.80        | 20.00   | 6.60     |
| Children  | 26.55       | 30.00   | 8.66     |
| Alone     | 19.57       | 28.14   | 7.28     |

The next question addressed was: Is there a significant relationship between health and levels of anxiety, depression and menopause symptoms in postmenopausal women? The analysis of variance and Chi Square Test for

independence reveals significant differences in two areas. Depression and menopause symptoms levels are both related to how the women characterize their health. Women who report good health have lower levels of depression ( $M = 14.88$ ) and menopause symptoms ( $M = 5.27$ ) than women who report poor health (depression,  $M = 24.66$ ; menopause symptoms,  $M = 11.00$ ).

Another question addressed was: Is there a significant relationship between weight and levels of anxiety, depression and menopause symptoms in postmenopausal women? The analysis finds no significant differences at the .05 level.

The final question addressed was: Is there a significant relationship between sexual activity and levels of anxiety, depression and menopause symptoms in postmenopausal women? The results of the one way analysis of variance of this sample indicate no significant differences with regard to sexual activity in postmenopausal women.

#### Summary of Results

Results of this study of postmenopausal women show that depression and anxiety were not related to hormone state, race, age, weight, and sexual activity. The number of menopause symptoms a woman experiences, however, was significantly related to anxiety and depression.

Results of the study further show that depression and anxiety vary according to educational status. Additionally, there was a significant relationship between depression and poor health and between anxiety and unemployment. And, finally, levels of depression vary depending on household status (with whom the woman lives).



## CHAPTER V

### DISCUSSION AND CONCLUSIONS

The purpose of this study was to investigate and compare differences between depression and anxiety in postmenopausal women. Depression and anxiety were examined in four areas: (a) race, (b) hormone state, (c) menopausal symptoms, and (d) demographic data.

The study sample consisted of 90 women between the ages of 45 and 65. There were 30 subjects each from the following three race categories: black, white and Hispanic. On the basis of self reports, the subjects were assigned to one of the following three groups: women who took hormones, women who sought or tried to take hormones but were unable to take them, and, women who sought no hormone treatment. The race groups were balanced so they consisted of 10 women from each hormone state.

The measures used in obtaining the information were the Personal Assessment Inventory (IPAT Depression Scale), the Self Analysis Form (IPAT Anxiety Scale), and Neugarten's Menopause Symptoms Checklist.

#### Discussion

First, levels of depression for the postmenopausal women were studied and compared to race and hormone state.

There were no significant difference in levels of depression in the race groups. As a whole, this sample had lower depression means than IPAT's national mean score of 22.03. A further analysis showed white women scored the lowest in this sample with a mean of 17.83 and Hispanic women scored the highest with a mean of 20.60.

There were no significant differences in levels of depression in the hormone groups. However, when each group was studied separately, some slight tendencies occurred. Of some interest was the fact that two hormone groups were very similar in their responses. The group of postmenopausal women taking hormones had a raw score mean of 19.73 and a standard deviation of 10.13. The mean raw score of women who tried to take hormones, but could not was 19.53 with a slightly lower standard deviation of 9.39. In the group of women who sought no hormone treatment, the mean raw score was 17.70 which was a somewhat lower mean than the other two groups. These differences may reflect a slight tendency of lower depression in women who do not take the hormones, but, there was no statistical significance.

Secondly, anxiety was assessed with regard to levels according to race and hormone state. There were no significant differences found between the groups. However, as the tendency to have slightly higher levels of depression was evident in women who take hormones, also, this same

group had slightly higher levels of anxiety. This may be explained by the fact that as women are experiencing physiological problems, they may be more likely to take hormones. These physiological problems may be one of the main causes in the higher levels of depression and anxiety, rather than the hormones themselves. However, cause and effect relationship is purely speculative.

When comparisons were made using number of menopause symptoms with depression and anxiety, a significant difference was found. It appears that anxiety is related to the number of menopause symptoms a woman experiences. Again, the group of women who take hormones had more menopause symptoms and also experienced more anxiety than women who did not take hormones. This may add more credence to the physiological aspect of the anxiety. Women who do take hormones simply may be more worried about their bodies. The physiological changes brought on by the aging process and the psychological adjustments certainly will require more study in the years ahead. Additionally, it should be noted that even though the anxiety level was significant for women who report more symptoms, this anxiety level is close to the reported means on the IPAT scales. The women who were not taking hormones in this sample scored lower than the reported means.

In comparing the eight demographic variables, four of them were not significantly related to depression and

anxiety in postmenopausal women. The four were: age, family status, weight, and sexual activity. However, four other variables had a significant relationship to depression and/or anxiety: education, employment, with whom the woman lives, and health. The following discussion will explore the specific findings.

The results of the differences in levels of anxiety and depression with regard to education indicate a specific trend. It appears women who have less than a high school education have higher levels of both depression and anxiety as compared with women who have a college education. A percentage analysis in the category of less than a high school education shows: 64% Hispanic, 32% black, and 4% white. These percentages generally agree with U.S. Labor Department reports (Blau et al. 1978) which state three-fourths of all black women 45 years and older have not completed high school and 74 percent of all Mexican-American women have not completed high school. The lower level of education may be a contributing factor to a greater incidence of poverty which may, consequently, lead to greater anxiety levels. However, this relationship was not examined in the present research.

Employment was the next area studied. No significant differences were found between anxiety and depression and employment. However, a significant difference was found with regard to the number of menopausal symptoms

experienced by women who were unemployed as compared with women who are employed in a professional position. However, because this study did not analyze specific categories as to what constitutes unemployment, it is hard to draw any conclusions. Further questions that need to be asked are: Are these women unemployed because they are ill, or are they unemployed because they cannot find a job?

Household status or with whom the woman lives was, also, investigated in relationship to depression and anxiety. As contrasted to the popular belief that women have higher levels of depression when their children leave home, this sample of women report lower levels of depression if they did not live with their children. Apparently, the "empty nest" theory does not hold true for this sample. The "empty nest" theory states that women who have devoted their lives to caring for their families will find themselves facing new feelings of anxiety and depression with the loss of this major role. However, this sample of women had lower levels of depression when their children were no longer in the home. The implication may be women were relieved to be free of the responsibilities of raising a family.

Lastly, the postmenopausal woman's health was related to depression. If she was in good health, her depression levels were significantly lower than those women who

characterized their health as poor. Additionally, contrary to an image some people may have of postmenopausal women as hypochondriacal, 90% of the women in this sample characterized their health as average or good.

#### Limitations of the Study

This study used subjects from the West Michigan area and as a result, this discussion must point up the necessity for exercising caution in generalizing the results of this investigation beyond the geographic area in which it was obtained. Also, as in most research on human subjects, this study had to rely on the cooperation of volunteers. Using volunteers may influence the results in unknown ways.

In addition, it is understood that the instruments used in this study were self-descriptive in nature and, as a result, may raise questions of the distortion of responses in terms of social desirability and defensiveness.

This was a descriptive research project, where the investigator did not manipulate or intrude upon the processes being observed. Inferring causation from this passive observational data is limited. Additionally, in field research, it is expected that outside variables will always impinge on a dependent variable making the results sensitive to forces other than those in the explicit theoretical system.

### Suggestions for Future Research

The first suggestion for further research is to continue to examine issues related to race and postmenopausal women. Too often generalizations have been used to explain racial differences in postmenopausal women. It may be inappropriate to assume that the problems of one race should be dealt with in the same manner as with other races.

A second direction is to assess and define the healthy or "wellness" model for postmenopausal women. There are many studies on the pathological model, particularly as it relates to hormonal dysfunction, however, there is a shortage of information on the normality of this developmental stage of a woman's life. In the 1980s, with the "greying" of America, more emphasis is given toward helping older people to live more satisfying and richer lives. The responsibility may be on researchers to provide information to dispel antiquated beliefs about this developmental period of a woman's life.

### Summary and Conclusions of Study

The findings regarding depression and anxiety in postmenopausal women in this sample may be summarized as follows:

1. Hormone state was a non-differentiating factor in the levels of depression and anxiety in postmenopausal

women.

2. There was no difference in level of depression and anxiety with regard to race.

3. There was a pattern of association with menopause symptoms and women who are taking hormones. The group of women in this sample who take hormones reported more symptoms than other groups.

4. There were no differences in depression, anxiety, and menopause symptoms with regard to the subject's age, weight, and sexual activity.

5. Anxiety and menopause symptoms were related to the level of education. Postmenopausal women who did not graduate from high school had higher levels of anxiety and menopause symptoms and a trend toward higher levels of depression.

6. Postmenopausal women who were not employed reported more menopausal symptoms than women who worked in a professional occupation.

7. There were no differences in depression, anxiety, and menopause symptoms with regard to family status (if the woman was married, divorced, single, etc.). However, there was a significant difference in depression levels when compared with household status (with whom the woman lives). The women who lived with their children had significantly higher levels of depression than women who lived with a friend.



8. Lastly, women who reported good health have lower levels of depression and menopause symptoms than women who said their health is poor.

In conclusion, this study provided data indicating that, in this sample of postmenopausal women, depression and anxiety were not related to hormone state, race, age, weight, sexual activity, and family status. However, depression was related to menopause symptoms, education, with whom the woman lives, and health. Anxiety was related to menopause symptoms, education, and employment.

## **APPENDICES**

## **Appendix A**

### **Sources Canvassed for Participants**

## SOURCES CANVASED FOR PARTICIPANTS

American Business Women's Association  
Community Mental Health Services of Muskegon County  
El Centro Latino  
Every Woman's Place  
Greater Muskegon Women's Club  
Latin American Club  
Lebanon Lutheran Church  
Michigan Economics for Human Development  
Mission For Area People  
Muskegon Community College - Spanish-American Festival  
Muskegon Community College - Woman's Festival Day  
Older Women's League  
Urban League of Greater Muskegon  
West Michigan Migrant Health Services  
White Lake Business and Professional Women  
YFCA - Muskegon

Referrals also came from individuals interested in the research.

## **Appendix B**

### **Participant Information Letter**

## PARTICIPANT INFORMATION LETTER

Researcher: Patti Groessler, M.A.  
Address: 6934 South Shore Drive  
Whitehall, MI 49461  
Telephone: Home - (616) 893-2635  
Work - (616) 780-3200

Dear Volunteer Participant:

I am a psychologist completing my doctoral work at Western Michigan University. I am currently working on my dissertation which is a research study to assess postmenopausal women. I am making comparisons of anxiety and depression in women who are taking hormones with those who tried to take hormones but could not, and those women who do not take hormones. Additional comparisons are going to be made with women in three racial categories: blacks, whites, and Hispanics.

Enclosed you will find 4 questionnaires for this research. The total time required to complete this packet is approximately 1/2 hour to one hour. The sheets may be completed in any order.

When you complete all the forms, please place everything in the manila envelope and return to me. Confidentiality will be assured as no names will appear on any of the materials.

If you would like an analysis of the results of this research, please send the enclosed post card to me. To protect your confidentiality, please send the post card separate from the other materials. If you have any further questions about the study, please do not hesitate to contact me.

Thank you very much for your time and participation.

Sincerely,

Patti Groessler, M.A.

PG/ag  
Enclosures

## **Appendix C**

### **Request for Results of Research**

## REQUEST FOR RESULTS OF RESEARCH

I would like to receive information on the results of the research done by Patti Groessl, M. A. for her doctoral dissertation on postmenopausal women.

Name :

\_\_\_\_\_

Address :

\_\_\_\_\_

\_\_\_\_\_



## **Appendix D**

### **General Information Questionnaire**



Would you say your weight is

☐ Just right

☐ About 10 pounds overweight

☐ About 20 pounds overweight

☐ 25 or more pounds  
overweight

☐ Under weight

## **Appendix E**

### **Personal Assessment Inventory (IPAT Depression Scale)**

**PLEASE NOTE:**

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**These consist of pages:**

Appendix E Pages 71-73

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Appendix F Pages 75-78

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Appendix G Page 80

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**University  
Microfilms  
International**

300 N. ZEEB RD., ANN ARBOR, MI 48106 (313) 761-4700

## Appendix F

### Self Analysis Form (IPAT Anxiety Scale)

## **Appendix G**

### **Neugarten's Menopause Symptoms Checklist**

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