MSN Research Projects   **MSN Research**

8-1-1986

A Survey Of Menstrual Symptoms Of Obese Women

Ruthie Smith
Mississippi University for Women

Follow this and additional works at: https://athenacommons.muw.edu/msn-projects

Part of the Nursing Commons

A Survey of Menstrual Symptoms

of Obese Women

by

Ruthie Smith

A Thesis
Submitted to the Faculty of
Mississippi University for Women
in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Nursing
in the Division of Nursing
Mississippi University for Women

August, 1986

A Survey of Menstrual Symptoms

of Obese Women

by

Ruthie Smith

Mary Patricia Curtis
Assistant Professor of Nursing
Director of Thesis

Phyllis W. Werner
Professor of Nursing
Member of Committee

B. J. Landis
Assistant Professor of Nursing
Member of Committee

Ralph Hitt
Director of the Graduate School

Acknowledgements

I wish to extend my sincere appreciation to Dr. Phyllis Werner, Dean of the Graduate Program at Mississippi University for Women, Dr. Rayma Skinner, and especially to my advisor, Mary Pat Curtis for their constant guidance, patience, and encouragement to enable me to complete this thesis;

To my family for their understanding, love, and support while I was pursuing my graduate studies;

To Mrs. Betty Cobb, the Director of Nurses at Eliza Coffee Memorial Hospital, who always approved for me to reschedule my work hours to complete this program on time;

And most of all, to Dr. Harry Cosby for his constant encouragement to further my nursing education.

Abstract

A descriptive study was conducted to survey females who are obese and determine what problems they encounter with menses. The researcher hypothesized that when obese women are surveyed about menstrual problems and the degree of obesity is correlated to the presence of menstrual problems, there would be no significant correlation. In order to facilitate testing of this hypothesis, two operational hypotheses were drafted. The first operational hypothesis was that when the total number of menstrual problems was correlated with the degree of obesity there would be no significant correlation. The second operational hypothesis was that when menstrual problems were individually correlated to the degree of obesity, there will be no significant correlation.

Data were collected from 19 subjects. All subjects were administered the Menstrual Symptomatology Fact Sheet. The scores of the menstrual problems were then correlated to degree of obesity utilizing the Pearson r at the .05 level of significance.

A significant correlation between menstrual problems and degree of obesity which resulted in the researcher rejecting the first operational hypothesis. Additionally,

13 of the 19 menstrual problems correlated significantly with the degree of obesity. Therefore, the researcher rejected the second operational hypothesis. Thus, the researcher concluded that obese women do have significantly more menstrual problems.

Table of Contents

List of Tables

Chapter I

The Research Problem

There are 75 million women in the United States who
menstruate; almost half of these experience some type of
menstrual discomfort. Approximately 10% or 3.5 million of
these women are completely incapacitated for one to two days
each month due to menstrual pain. Therefore, each year
there is an estimated 140 million working hours at a cost of
billions of dollars lost because of menstrual discomfort
(Weiss, 1984). With more women joining the work force this
loss will be greater in the future. Unfortunately, the data
concerning the effect of menstrual discomfort on the role of
women who are housewives and mothers is unknown. Little
attention has been given by the medical or nursing profes-
sions to the impact of menstrual disorders on the individual
woman's growth and developmental experiences within her
stages of life.

According to Law's (1977) model (cited in Fogel &
Woods, 1981), one area for female development is sexual
identity. Law's model consists of six stages. The two
stages that can be most affected by menstrual problems are
stages four (intimacy) and five (fertility and parenthood).
These stages have different tasks to be accomplished and

1

roles to be fulfilled. Problems with menstruation can interfere with the ability of the woman to complete these two stages. For example, the problem of amenorrhea can lead to infertility and thus prohibit the woman from the task of conception and the role of mother. Other problems like headaches, fatigue, and emotional mood swings can create frigidity and interfere with the woman's ability to establish intimacy. Thus, menstrual problems can lead to a lack of sexual identity and to role conflict. The impact of this on a woman's life can only be imagined (Fogel & Woods, 1981).

Areas of menstruate problems which have been researched include hormonal imbalances and menstrual irregularities. Women who are obese usually have irregular menses and other menstrual problems (Bierman & Hirsch, 1981; Cunningham, Loughlin, Culliton, & McKenna, 1985). The extent of the relationship between weight and menstrual disturbances is yet to be explored.

In America today obesity is the most common chronic illness among women. Obesity is defined as at least 20% above described weight for age, height, and bone structure using a standardized weight table. Two out of every three women in this country are considered obese. As many as 30% become overweight during childbearing years, often the result of pregnancy (Bierman & Hirsch, 1981).

Hormonal imbalances in overweight women may affect the reproductive system (Lauersen & Stukane, 1983). It is postulated that the percentage of adipose tissue affects hypothalamic functioning and causes significant changes in overall hormonal metabolism (Lubin, Ruder, Wax, & Modan, 1985). The obese woman has a high concentration of androstenedione, a biological inactive male hormone and estrogen precursor. It is possible that the surplus adipose tissue enhances the conversion of androstenedione to estrogen. Thus, estrogen could be manufactured from body tissue as well as from the ovaries (Lauersen & Stukane, 1983).

A recent study has shown androstenedione levels to be normal, but the conversion of androstenedione to oestrone is enhanced in overweight females. This finding was thought to be due to an increased availability of aromatose in adipose tissue. With the elevated levels of oestrone associated with enhanced luteinizing hormone (LH) and follicle stimulating hormone (FSH), suppression of menstrual function results in menstrual disturbances, such as amenorrhea (Cunningham et al., 1985). There is additional estrogen production in the obese female because of the high cholesterol levels in adipose tissue. Within cholesterol there is another estrogen precursor known as estrone which would add to the estrogen produced by the ovaries (Lauersen & Stukane, 1983). The extraovarian estrogen production may

lead to increased amounts, or changed levels of sex-related hormones such as estrone, estradiol, estriols, prolactin, progesterone, and other hormones. For example, in the massive obese women, 100% greater than the ideal weight, the regulation of prolactin and the growth hormone secretion are impaired (Demarest, 1984; Lubin et al., 1985).

The cited hormonal changes in the obese female could affect the menstrual cycle and slow or speed the age of onset at which menarche or menopause begins. Hormonal changes also could precipitate health problems such as carcinoma (Demarest, 1984; Lubin et al., 1985). In addition, the obese woman could experience menstrual problems such as dysmenorrhea, bleeding variations, and premenstrual syndrome (Fogel & Woods, 1981).

Although there is evidence of hormonal changes in obese women, there is little research concerning obesity and menstrual disturbances. There have been no studies reported identifying the type of menstrual problems experienced by the obese woman.

Menstrual discomfort experienced by obese women is of much interest to this researcher due to her strong advocation of women's health. The recognition by health care providers of menstrual problems of obese women could lead to a higher standard of excellence in the health of women. The aim is to not only achieve excellence, but to maintain a secure balance between mental and physical health. This

researcher sees obesity as a possible occupational hazard and a serious health risk.

Family Nurse Clinicians (FNCs) are currently active in the field of health care for women. FNCs are developing independent practices focusing on women's health, staffing, and managing women's health centers, and consulting with business and industry about women's health needs (Jacobson, 1982). Now that the FNC is aware of the menstrual problems experienced by obese women, then the FNC can intervene and educate women about ways of preventing or managing these problems. This information can be used in reproductive counseling to decrease discomfort, pain, and increase the ability for childbearing, thus improving women's health status.

The purpose of this research is to survey females who are obese and determine what problems they encounter with menses. The question this research was seeking to answer was: What are the most common menstrual problems in the obese female?

Chapter II

Theoretical Basis of Study

The theoretical framework for this study about obese
women and menstruation problems was Orem's self-care deficit
model. Orem's theory of nursing emphasizes the need for
self-care in order to sustain life and health, recover from
disease or injuries, and to cope effectively. Self-care is
a requisite for all individuals. When self-care cannot be
maintained by the individual, illness, disease, and possibly
death may be experienced and the individual is in need of
nursing (Foster, Janssens, & Orem, 1980). The goals of
nursing care are to assist the individual to overcome
deficits and achieve health and well-being (Gordon, 1982).

Orem classifies self-care actions into three cate-
gories: universal self-care requisites, developmental self-
care requisites, and health-deviation self-care requisites.
Universal self-care requisites focus on meeting basic
requirements such as air, food, and water. All human beings
have these requirements during all stages of their life
cycle. These requirements deal with the person's life
processes and the maintenance of the integrity of the
person's structure and function (Orem, 1980).

Developmental self-care requisites focus on the living conditions, developmental processes, and events beginning from birth through adulthood (Orem, 1980; Walton, 1985). These self-care requisites "are either specialized expressions of universal self-care requisites or they are new requisites derived from a condition (e.g. pregnancy) or associated with an event (e.g. loss of a spouse)" (Orem, 1980, p. 47).

Health-deviation self-care requisites are associated with events of illness, injury, or disease. These changes include human structure, physical functioning, behavior, and habits of daily living (Calley, Dirksen, Engalla, & Hennrick, 1984).

Orem identifies three systems of nursing activities which are designed to meet the individual's self-care requisites at the level of disruption of self-care action. The three nursing systems are wholly compensatory, partly compensatory, and supportive-educative (Orem, 1985). In Orem's wholly compensatory system the individual is unable to engage in his/her self-care actions and depends on others for continued existence and well-being. In this system the nurse performs all the self-care demands for the individual (Orem, 1985).

In a partly compensatory system the nursing action varies according to the individual's physical or mental limitation, his knowledge, his skills, and his psychological

readiness to perform or learn such activities. The nurse or individual or both may be involved in accomplishing self-care demands (Orem, 1985).

In the supportive-educative system the individual is able to perform or is learning to perform required measures to accomplish his or her self-care demands. However, the individual needs nursing assistance to make decisions, control behavior, and acquire knowledge and skills (Orem, 1985).

Each individual with self-care deficits has specific needs for nursing assistance. The Family Nurse Clinician (FNC) determines the type of nursing system to be used by examining information about the individual's self-care abilities and limitations (Orem, 1980) and devises a plan of care using one or a combination of the three nursing systems.

Hormonal alterations occurring because of the physiological impact of excess fat have been related to problems with menstruation. The changes excess fat create in universal self-care requisites, developmental self-care requisites, and health deviation self-care requisites can lead to other self-care deficits, such as menstrual problems. The researcher hoped to identify how frequently obese women experience self-care deficits with menstruation. The self-care deficits created by obesity when compounded with menstrual self-care deficits prevent a woman from

having a sense of well-being and from maximizing her potential. The FNC can assist a woman experiencing self-care deficits from the combination of obesity and menstrual problems by selecting the appropriate nursing system or combination of systems to promote self-care.

Chapter III

Hypothesis

Theoretical Null Hypothesis

When <u>obese women</u> are <u>surveyed</u> about <u>menstrual problems</u> and the <u>degree of obesity</u> is <u>correlated</u> to the presence of menstrual problems, there will be <u>no significant correlation</u>.

Definition of Terms

<u>Obese women</u>: females at least 20% over their ideal weight.

<u>Surveyed</u>: administered the Menstrual Symptomatology Fact Sheet.

<u>Menstrual problems</u>: including 20 more commonly reported problems with menses, such as bleeding irregularities, headache, fatigue, leg aches.

<u>Degree of obesity</u>: percent to which the person exceeds their ideal weight.

<u>Correlated</u>: using the Pearson <u>r</u>.

<u>No significant correlation</u>: at the .05 level of significance.

Operational Hypotheses

1. When women who are 20% over their ideal weight are surveyed using the Menstrual Symptomatology Fact Sheet about menstrual problems and the total number of menstrual problems are correlated to the degree of obesity using the Pearson r, there will be no significant correlation at the .05 level.

2. When women who are 20% over their ideal weight are surveyed using the Menstrual Symptomatology Fact Sheet about menstrual problems and each problem is individually correlated to the degree of obesity, there will be no significant correlations.

Chapter IV

Review of Literature

Although much has been written about the hormone alter-
ations of menses in obese women, the majority of this
literature relates to physiology and pathophysiology. The
researcher was unable to locate specific studies that
examined identified alterations of menses as related to
symptoms expressed or endured by obese women. So the
following review of the literature consists of reported
symptoms by women with menstrual disorders, and obesity as
it impacts on hormone production.

In the United States alone 50 to 75% of the 75 million
adult women report menstrual disorders. Their symptoms vary
in severity, recurrence, and duration. Thirty percent of
the women spend their life in misery with no known medical
relief (Weiss, 1984).

It is believed that the menstrual cycle exerts a pro-
found effect upon the lives and moods of most women. The
usual implications of these effects are negative. It is
hypothesized that the psychological and behavioral changes
accompanying menses are the direct effects of the hormonal
variations of the menstrual cycle. These hormonal varia-
tions, physical changes of the body, in turn may be affected

by psychologic reactions such as anxiety and stress, thus
actually producing physical symptoms (Fogel & Woods, 1981).

The woman usually experiences some somatic symptoms and
mood fluctuations associated with her menstrual cycle.
Almost all women are aware of normal alterations in their
physical and emotional state that cause little or no discom-
fort. There are some women in whom these changes are more
uncomfortable and disruptive. The major portion of women's
health care needs is the result of menstrual problems during
the reproductive years. Most of the problems encountered
are dysmenorrhea, variations in bleeding, and premenstrual
tension syndrome characterized by tension (physical and
mental), depression, irritability, fatigue, aching, migraine
headache, cycle irregulation, and profuse bleeding.

Roger and Mitchell in 1952 worked with overweight women
who experienced amenorrhea 4-5 times greater than regularly
cycling individuals (Zhang, Stern, & Rebar, 1984). However,
no certain percentage of adipose tissue will induce
amenorrhea in every woman since each woman may possess a
different oligoamenorrhea threshold (Dale, Gerlach, &
Wilhite, 1979).

The increase in percentage of adipose tissue as related
to excessive body mass could influence the hypothalamic
function and cause significant changes in overall hormone
metabolism. Whereas, extraovarian estrogen production by
the adipose tissue could lead to an increase in the absolute

amounts, or to a change in the relative portions in the circulation, of estrone, estradiol, estriols, prolactin, progesterone, and other sex-related hormones. In addition, these changes could affect hormone-related cycles, retarding or accelerating the ages at which menarche or menopause begins (Lubin et al. 1985).

Zhang et al. (1984) reported that a central and/or peripheral defect, resulting in overproduction of androgen, may exist and lead to anovulation in overweight amenorrheic females. Their sample consisted of 5 obese women with regular menstrual cycles, 6 obese amenorrheic women, and 5 normally cycling non-overweight women. All of the females in the sample were admitted to a medical research center in California, where blood samples were drawn at 20-minute intervals during a 24-hour period. The serum was checked for each hormone. The researchers concluded that while overweight is not a primary factor causing chronic anovulation; overweight may aggravate an already existing subtle defect in some women and result in amenorrhea.

Hartz, Barboriak, Wong, Katayama, and Rimm (1979) presented a study concerning the association between obesity and menstrual abnormalities, including evidence of infertility. The sample consisted of volunteers from the membership of a nonprofit organization concerned with weight control. The total number of women in the study was 26,638, and the age range was from 20-44. The age range was divided

into two age groups (20-34 years and 35-44 years). Those
who were pregnant, menopausal, diabetic, outside the age
range of 20-44, or taking birth control pills were excluded
from the analysis. The study showed a frequency of oligo-
menorrhea with overweight individuals. Although to a lesser
degree, the frequency of menorrhagia and polymenorrhea also
increased with overweight.

Cunningham et al. (1985) reported menstrual
disturbances occur more commonly in overweight women than
in those of normal weight. The sample consisted of 8 obese
oligomenorrheic patients between 20-29 years of age and
approximately 200% of ideal body weight, 64 hirsute
patients between 20-26 years; and 42 normal women between
19-26 years who were menstruating regularly. They reported
androstenedione levels to be normal but oestrone level to be
markedly elevated in the 8 obese oligomenorrheic patients.
This suggested excessive conversion rather than excess
precursor. However, the mechanism underlying the suppres-
sion of plasma SHBG (sex hormone-binding globulin) levels
was not known. The elevated oestrone level enhanced LH
(luteinizing hormone) and suppressed the FSH (follicle
stimulating hormone) secretion which would cause menstrual
disturbances. The oestrone was derived from the conversion
of androstenedione which occurred under the influence of the
enzyme aromatose, in adipose tissue. The hirsute women had
an increase in androgen level and normal oestrone level,

whereas individuals with hirsutism and menstrual disturbances had an elevation of both androgen and oestrone.

A study conducted by Mattsson, Silfverstolpe, and Samsiole (1984) reported the effect of lipid composition of serum lipoprotein in relation to gonadal hormone during the normal menstrual cycle. The subjects consisted of 22 normally menstruating women. Findings were that the SHBG and HDL (high-density lipoproteins) cholesterol concentrations were elevated and the LDL (low-density lipoproteins) cholesterol was suppressed during the luteal compared to the follicular phase as a result of increased estrogen level.

Plymate, Fariss, Bassett, and Matej (1981) studied 55 women who showed evidence of oligo or anovulation. All participants were 90% over their ideal body weight. The sample was divided according to body weight. Those who were 145% over their ideal body weight were considered to be overweight and those less than 120% were considered to be within normal weight. Their serum was measured for sex steroid binding globulin (SSBG), testosterone (T), prolactin (PRL), LH, FSH, and estradiol (E$_2$). They found that elevated levels of free T associated with increased body fat caused a direct effect on the ovary. The free T increased the estrone level which in turn increased LH secretion and suppressed FSH secretion. This type of ratio between FSH and LH is a characteristic of the polycystic ovary (PCO) syndrome. Also with elevated free T there is a depressed

level of SSBG in overweight women which appears to be an additional factor in developing polycystic ovary syndrome.

Forney et al. (1981) studied the relationship between extraglandular estrogen formation due to the clinical parameter of age, weight, and endometrial neoplasia. They measured the rate of estrogen formation from the androgen precursors in human tissues of 48 women's abdominal walls. Seventeen women had endometrial neoplasia. They found higher levels of estrone production in the adipose tissues. However, those women with endometrial hyperplasia or carcinoma had an even greater mean capacity for estrone production per unit mass of adipose tissue than did the other subjects. They suspected obesity alone did not wholly explain the increase. However, they do conclude that obese women will be more likely to have adipose tissue with increased individual cell capability for estrone production.

This review of the literature included studies that examine hormonal levels in relation to adipose tissue in obese women. The results of the studies revealed that obese women have menstrual problems such as amenorrhea. However, specific problems accompanying alteration in menses in obese women needs to be explored.

Chapter V

Research Design and Methodology

Research Approach

The research design used in this study of menstrual symptoms of obese women was descriptive. According to Waltz and Bausell (1981) descriptive research is used when the investigator "wishes to obtain information in areas in which little previous investigation has occurred and/or to construct a picture or account of events as they exist naturally" (p. 6).

Variables

The dependent variable in this study was the subject's identified menstrual problems as reported in the Menstrual Symptomatology Fact Sheet. The controlled variables included age, sex, and weight. The intervening variables included: truthfulness in answering the self-report, the physical state of the respondent at the time of testing, and the presence of menstrual problems due to unknown medical conditions.

Setting, Population, and Sample

The setting for this study was a university town adjacent to three other towns known as the Quad Cities area

with an overall population of 135,065 in 1983 (U.S. Depart-
ment of Commerce, 1983). Within this population there are
12.4% black, 86.7% white, 52.1% females, and 47.9% male.
The average age range is between 18 years old and 64 years
old (U.S. Department of Labor, 1980).

Within this area there are six ongoing weight reduction
programs. One is the Diet Center, which furnished the
population for this study. This center employs 6 staff
members who are certified Diet Center counselors with 20-30
hours of nutrition training at the Diet Center home office
in Rexburg, Idaho. All are required by the Diet Center
Certification Board to attend two seminars per year.

The Diet Center utilizes a comprehensive five-phase
program. This is designed to guide overweight and obese
individuals through all the necessary stages of weight
reduction and the teaching of ideal weight maintenance.
The phases include conditioning, reducing, stabilization,
maintenance, and nutrition/behavior modification.

At present the center is treating approximately 75
to 80 individuals, 98% of whom are females. The age for men
and women ranges from 10 to 75 years while the weight ranges
from 93 to 353 pounds. Within these groups 60% are
considered obese and 19% are considered morbidly obese.

The population for this study consisted of women
between the ages of 20-40 years who were at least 20 pounds
over their ideal weight according to the Metropolitan Life

Insurance Scale and who were clients of the Diet Center during the period of data collection. The sample consisted of all clients who met the criteria, were willing to participate, and who were present on the days of data collection.

Data Gathering Process

Initially, the researcher contacted the diet counselor of the Diet Center to explain the study and obtain permission to use the facility (Appendix A). On selected days the researcher approached perspective participants to determine eligibility, to explain the study (Appendix B), and to have the informed consent sheet signed (Appendix C). Next, the researcher recorded the height and weight of each participant. The participant was then given the Symptomatology Fact Sheet to complete. The researcher was available for any participant's questions.

Instrumentation

The Menstrual Symptomatology Fact Sheet was a researcher-designed tool (Appendix D). The tool consisted of two sections. Part I was demographic information. It included such data as age, marital status, education, ethnic background, sexual activity, present contraception, menstrual history, such as infertility, number of pregnancies and children.

Part II included information by participant including
the 19 most commonly occurring menstrual symptoms of women
as identified in the review of literature. The items were
rated by self-report according to severity on a scale of 0
to 3; 0 indicated none, 1 indicated mild, 2 indicated
moderate, and 3 indicated severe. The higher the score was
the greater the number of menstrual symptoms identified.
The minimum score a woman could obtain was 0 and a maximum
score of 57.

The tool had no established reliability or validity but
was assumed to have face validity within the context of this
study. The tool had been designed from the review of
literature and by a panel of experts. The questionnaire was
pretested by three obese women for content and clarity.
These subjects did not participate in the study.

Statistical Analysis

The statistical analysis implemented on the collected
data was the Pearson r. The Pearson r was selected because
of its appropriateness for correlating interval-interval
data.

Assumptions

1. Obesity is a major health problem for women.

2. Obese women will participate in the study.

3. The participants will truthfully answer the
questionnaire.

4.   Degree of obesity and menstrual problems can be measured.

5.   The tool used to measure menstrual symptomatology is valid and reliable within the confines of this study.

Limitations

1.   Limitation of the sample to one geographic area prevents generalization to other areas of the company.

2.   Limitation of the sample to women participating in a weight control program prevents generalization to the general population.

3.   Limitation of the sample age of subjects to between 20-40 years of age prevents generalization to those younger or older.

4.   Limitation of the sample to obese women prevents generalization to normal weight or overweight women.

Chapter VI

Analysis of Data

The purpose of this study was to survey females who are obese and determine what problems they encounter with menses. Data were collected from subjects who completed the Menstrual Symptomatology Fact Sheet that consisted of a demographic information section and 19 most commonly occurring menstrual symptoms in women.

A total of 19 subjects were included in the study. Three (15.8%) were between the ages of 20-25, 7 (36.8%) were between 26-30, 4 (21%) between 31-35, and 5 (26.3) between 36-40. The racial distribution was 18 (94.7%) whites and 1 (5.3%) black. Of these, 14 (73.7%) were married, 3 (5.3%) divorced or separated, 1 (5.3%) widowed; and 3 (15.8) single. The level of education ranged from 9 years to 17 years, a mean of 13.974 years. Present weight ranged from 124 to 247 pounds with a mean of 170.347 pounds. The amount of overweight ranged from 4 to 127 pounds with a mean of 42. Height ranged from 51 inches to 60 inches with a mean of 54.737 inches. Scores on the Menstrual Symptomatology Fact Sheet ranged from 1 to 44 with a mean of 23.1% (Table 1).

Table 1

Raw Subject Data Including Age Range, Marital Status, Educational
Level, Race, Number of Pregancies, Menstrual Problem Scores,
Present Weight, Ideal Weight, and Amount Overweight

Subject	Age Range	M.S.	Ed (Yrs)	Race	# of Preg.	Menstrual Problems Scores	P.W.	I.W.	O.W.
S_1	26–30	M	14.0	W	0	20	140.5	125.0	15.0
S_2	31–35	M	13.5	W	1	30	166.0	120.0	46.0
S_3	20–25	S	16.0	W	0	22	185.0	128.0	57.0
S_4	26–30	M	12.0	W	1	21	131.5	122.5	9.0
S_5	36–40	M	17.0	W	4	12	134.0	117.5	12.5
S_6	26–30	M	15.0	W	0	25	135.0	123.5	12.5
S_7	20–25	S	14.0	W	0	5	124.0	120.0	4.0
S_8	31–35	M	12.0	W	3	34	157.0	114.5	13.5
S_9	36–40	M	17.0	W	2	24	141.0	129.0	12.0
S_{10}	26–30	M	13.0	W	0	30	247.0	120.0	127.0
S_{11}	36–40	M	16.0	W	2	7	131.5	122.5	9.0
S_{12}	31–35	M	13.0	W	4	44	208.5	135.0	73.5
S_{13}	26–30	M	16.0	W	1	13	156.0	143.0	13.0
S_{14}	31–35	M	14.0	W	1	23	196.0	125.0	71.0
S_{15}	20–25	S	16.0	W	0	17	182.0	120.0	62.0
S_{16}	36–40	M	14.0	W	3	28	209.5	135.0	74.0
S_{17}	26–30	M	11.0	W	2	52	215.0	137.0	78.0
S_{18}	26–30	D/S	9.0	B	3	32	192.0	112.0	80.0
S_{19}	36–40	W	14.0	W	2	1	185.0	160.0	25.0

Note. S = subject. M.S. = marital status. Ed = grade completed. # of
Preg. = number of pregnancies. P.W. = present weight. I.W. = ideal
weight. O.W. = amount overweight.

Hypothesis

The researcher hypothesized that when obese women are surveyed about menstrual problems and the degree of obesity is correlated to the presence of menstrual problems, there would be no significant correlation. To facilitate testing of this hypothesis, two operational hypotheses were drafted. The first operational hypothesis was that when the total number of menstrual problems was correlated with the degree of obesity, there would be no significant correlation. To test this hypothesis, the researcher subjected the data to the Pearson r at the .05 level of significance. When analysis was completed an r value of .6284 was obtained which was significant at the .002 level. Thus, the researcher rejected the first operational hypothesis.

The second operational hypothesis was that when each menstrual problem was individually correlated with the degree of obesity, there will be no significant correlation. To test this hypothesis, the researcher subjected the data to the Pearson r at the .05 level of significance. This analysis revealed that 13 of the menstrual problems significantly correlated with the degree of obesity. These were as follows: (a) scanty bleeding, r = .4621; (b) passing clots, r = .4017; (c) irritability, r = .5345; (d) swelling of extremities, fingers, feet, r = .7236; (e) abdominal bloating, r = .6175; (f) headache, r = .4799; (g) depression, r = .4969; (h) insomnia or difficulty sleeping, r =

.5286; (i) abdominal cramps, r = .4893; (j) leg aches, r = .6181; (k) backache, r = .4540; (l) unusual breast tenderness, r = .5170; and (m) weakness, r = .4773. This led the researcher to reject the second operational hypothesis. These data can be found in Table 2.

Additional Findings

The researcher collected data that were not directly related to the hypothesis but believed to be of interest. These additional data are presented in the following section and Table 3.

Demographic variables were correlated with weight and total menstrual symptoms using the Pearson r. Analysis revealed that education correlated negatively with total menstrual symptoms (r = -.3509) which meant that the higher the level of education the fewer menstrual problem experience. Also correlating significantly with total menstrual symptoms was the number of stillbirths (r = .0217) indicating that the greater the number of menstrual problems the more likely the woman was to have had a stillborn infant. Another variable was the length of days between periods (r = -.1182) indicating the longer between periods the greater the total number of menstrual symptoms. Furthermore, there was a marginal correlation with age at menarche and obesity (r = -.3736, p = .066) indicating the greater the weight the lower the age of menarche.

Table 2

Correlation of Degree of Obesity With Menstrual Problem

Problems	$\underline{N}$	$\underline{r}$
Excessive bleeding	19	.3317
Scanty bleeding	19	.4621*
Passing excessive clots	19	.4017*
Irritability	19	.5345*
Swelling of extremities, fingers, feet	19	.7236*
Abdominal bloating	19	.6175*
Headache	19	.4799*
Dizzy spells or fainting	19	.2151
Depression	19	.4969*
Insomnia or difficulty sleeping	19	.5286*
Abdominal cramps	19	.4893*
Nausea and vomiting	19	-.0480
Fatigue	19	.3335
Leg aches	19	.6181*
Excessive hair growth	19	.1618
Anxiety	19	.3039
Backache	19	.4540*
Unusual breast tenderness	19	.5170*
Weakness	19	.4773*

*$\underline{p} \leq .05$.

Table 3

Correlation of Total Menstrual Symptomatology with

Education, Number of Stillbirths, Time Between Period,

Menarche, and Overweight Scores Using the Pearson r

Measure	N	r
Ed/MSTOT	19	-.3509*
NSB/MSTOT	18	.0217*
TBP/MSTOT	18	.1182
MENA/OVWT	18	-.3736*

Note. Ed = grade. NSB = number of stillbirths. TBP = time

between periods. MENA = menarche age. MSTOT = menstrual

symptom total score. OVWT = amount overweight.

*$p \leq .05$.

During administration of the tool the researcher was
frequently asked for clarification of "Other." Also, in the
data analysis the researcher found that the age category did
not lend itself to variance exact analysis.

Chapter VII

Summary, Conclusion, Implications,

and Recommendations

Summary

A descriptive study was conducted to survey females who are obese and determine what problems they encounter with menses. The researcher hypothesized that when obese women are surveyed about menstrual problems and the degree of obesity is correlated to the presence of menstrual problems, there would be no significant correlation. In order to facilitate testing of this hypothesis, two operational hypotheses were drafted. The first operational hypothesis was that when the total number of menstrual problems was correlated with the degree of obesity there would be no significant correlation. The second operational hypothesis was that when menstrual problems were individually correlated to the degree of obesity, there will be no significant correlation.

Data were collected from 19 subjects. All subjects were administered the Menstrual Symptomatology Fact Sheet. The scores of the menstrual problems were then correlated to degree of obesity utilizing the Pearson r at the .05 level of significance.

A significant correlation between menstrual problems and degree of obesity which resulted in the researcher rejecting the first operational hypothesis. Additionally, 13 of the 19 menstrual problems correlated significantly with the degree of obesity. Therefore, the researcher rejected the second operational hypothesis. Thus, the researcher concluded that obese women do have significantly more menstrual problems.

Conclusion and Implications

The data from this study indicate a significant correlation between degree of obesity and the presence of menstrual problems. These findings support the review of the literature concluding that obesity is a health problem for women. Cunningham, Loughlin, Culliton, and McKenna (1985) found menstrual disturbances occurred more commonly in overweight women. The researcher would like to note that the findings from this study should be interpreted in light of the small sample size and the fact that the sample was taken at a diet center where subjects were undergoing modifications in diet and exercise. This suggests a need for further research with the general population in order to validate the findings from the study.

Since the data indicate obese women to be at a greater risk for menstrual problems, this suggests a need for the Family Nurse Clinician (FNC) to intervene and educate obese women about ways of preventing or managing menstrual

problems. This could be through measures as exercise programs, modification in dieting, and a regimen for handling menstrual symptoms. Furthermore, this provides additional support for the need for obese women to lose weight. The FNC should counsel women with obesity and at the right time develop an individualized weight loss regimen.

Additionally, the data revealed specific menstrual problems correlated with the degree of obesity, such as: excessive bleeding; scanty bleeding; passing clots; irritability; swelling of extremities, fingers, and feet; abdominal bloating; headache; dizzy spells or fainting; depression; insomnia or difficulty sleeping; abdominal cramps; nausea and vomiting; and fatigue. This cannot be supported in the literature since more studies have examined hormone levels in relation to adipose tissue in obesity and not to specific menstrual symptomatology accompanying obesity. This indicates the need for more research to be explored concerning the specific menstrual symptomatology accompanying obese women.

The FNC recognizing the specific menstrual problems of bloating/swelling in obese women could intervene by instructing in the modification of diets to avoid or to limit daily amounts of caffeine and sodium. For the problems of clotting, headaches, and cramping, the FNC could recommend aspirin or other antiprostaglandin drugs

premenstrually. Next, the FNC could recommend relaxation techniques for problems of irritability, depression, insomnia, or difficulty with sleeping.

Furthermore, the FNC should be aware of the data that menstrual problems decrease with higher levels of education. The relationship here is unclear and needs further research. However, it does indicate that the lower the level of the women's education the more at risk she is for developing menstrual problems. Thus, education should be a part of every health history, and the women with less education should be targeted as a high risk group for menstrual problems. They should receive additional assessment and teaching in this area to prevent or alleviate menstrual problems.

Recommendations

Based upon the findings of this study, the following recommendations are made:

Nursing

1. Develop an individualized weight loss regime for any woman indicating a desire to lose weight.

2. Intervene by instructing in modification of diets to avoid or limit caffeine and sodium in order to decrease bloating and swelling.

3. Recommend aspirin or other antiprostaglandin to reduce clotting, headaches, and cramps.

4. Recommend relaxation techniques for irritability, depression, and/or insomnia.

5. Include the demographic variables of education level in all oriented health histories.

6. Provide additional assessment and education in the area of menstrual problems to obese women in order to prevent or alleviate these problems.

Research

1. Replicate this study using a large sample size.

2. Replicate this study utilizing the general population as the target.

3. Revise the tool to clarify the terminology "other" and to add the variable of exact age in years.

4. Conduct a study to examine the relationship of weight to specific menstrual problems.

5. Conduct a longitudinal study to see if menstrual problems decrease as a woman loses weight.

Appendix A

Memorandum of Agreement

_____
Name of Agency

_____
Title

The nature and the purpose of this study was explained to me. I agreed to:

1.   Introduce the client to the Study Information Sheet.

2.   Have the client sign an informed consent sheet if she is willing to participate.

3.   Have the client complete a questionnaire.

I understand that each participant will place her questionnaire in a sealed envelope and be left in my care to be picked up weekly by the investigator.

_____
Signature of Representative

_____
Signature of Researcher

_____
Date

Appendix B

Study Information Sheet

(Participants)

My name is Ruthie I. Smith. I am a registered nurse and a graduate student in nursing at Mississippi University for Women in Columbus, Mississippi. I am conducting a study to describe menstruation problems in overweight women. This study will provide additional information to be used as a basis for improved health care to women. I would appreciate your assistance in this study.

If you decide to participate, you will be asked to complete one short questionnaire including some demographic information and some history of menstruation cycles and associated symptoms. This will take about 15 minutes to complete. After you have completed the questionnaire, place in a sealed envelope and leave with your diet counselor.

Your name will not appear on any form. All information will be confidential and the results written for a master's thesis. The data will be analyzed as a group and anonymity will be maintained. You may withdraw from this study at any time prior to data analysis. A summary of the findings will be available to each participant if requested.

Thank you for your cooperation and I appreciate your assistance. If you have any further questions, please call me at (205) 764-3626.

Thank you,

Ruthie I. Smith, RN

Appendix C

Individual Consent Form

I understand that Ruthie I. Smith, a graduate student in nursing at Mississippi University for Women in Columbus, Mississippi, is conducting a research study about menstruation problems in overweight women. The purpose of this study is to identify the most common symptoms experienced in an effort to improve the health care of women and to advance nursing science.

I have read the Study Information Sheet and understand the nature and purpose of this study. I further understand what I am expected to do as a participant.

All information obtained will be confidential and my identity will not be revealed. I fully understand that at any time within the study up to data analysis, I may withdraw as a participant.

_____
Participant's Name

_____
Date

Fill in only if you want findings of study:

_____
Participant's Address

_____
(City, State, Zip Code)

Appendix D

Present Weight: _____
Ideal Weight: _____
Height: _____

Menstrual Symptomatology Fact Sheet

Part I.   Demographics

Directions: Please answer all the following questions by placing a ( ) in the appropriate blank or writing in your answer as designated. Do not put your name on this questionnaire.

1. Age: 20-25 _____ 26-30 _____ 31-35 _____ 36-40 _____

2. Education Level: Last grade completed _____

3. Occupation: Type of job held: _____

4. Ethnic background:
   Black _____ Caucasian _____ Other (specify) _____

5. Marital Status: S _____ M _____ D/S _____ W _____

6. Are you sexually active: Yes _____ No _____

7. Present contraception:
   Pill _____ IUD _____ None _____ Other (specify)_____

8. Number of pregnancies: _____

9. Number of abortions: _____

10. Number of stillbirths: _____

11. Number of children: _____

12. Have you ever experienced menstrual problems (Examples: infertility, excessive bleeding, spotting)?
    Yes _____ No _____

    If yes, please tell what problem(s): _____

    _____

    How are/were you treated? _____

    _____

13. How long have you had this menstrual problem? _____

14. Do you have a regular gynecology (female) checkup?
    Yes _____ No _____ How often? _____

15. Menstrual history (write in your answer):
    Age started: _____
    Is your menstrual cycle regular? Yes _____ No _____
    Time between period? _____
    How long does it last? _____

Part II.   Symptomatology

A variety of symptoms are identified below which you may or may not experience. Please indicate by checking (   ) the appropriate column of your choice.

Explanation of columns is as follows:

None
(0)

Mild: Present but does not interfere with
(1)   activities of daily living.

Moderate: Present and interferes with activities of
(2)   daily living. Example: Housework or job
             duties.

Severe: Disabling. Unable to function. Example:
(3)   Housework or job duties.

Symptoms	None (0)	Mild (1)	Moderate (2)	Severe (3)
1. Excessive bleeding.	_____	_____	_____	_____
2. Scanty bleeding.	_____	_____	_____	_____
3. Passing excessive clots.	_____	_____	_____	_____
4. Irritability.	_____	_____	_____	_____
5. Swelling of extremities, fingers, feet.	_____	_____	_____	_____
6. Abdominal bloating.	_____	_____	_____	_____
7. Headache.	_____	_____	_____	_____
8. Dizzy spells or fainting.	_____	_____	_____	_____
9. Depression.	_____	_____	_____	_____
10. Insomnia or difficulty sleeping.	_____	_____	_____	_____
11. Abdominal cramps.	_____	_____	_____	_____
12. Nausea and vomiting.	_____	_____	_____	_____
13. Fatigue.	_____	_____	_____	_____
14. Leg aches.	_____	_____	_____	_____
15. Excessive hair growth.	_____	_____	_____	_____
16. Anxiety.	_____	_____	_____	_____
17. Backache.	_____	_____	_____	_____
18. Unusual breast tenderness.	_____	_____	_____	_____
19. Weakness.	_____	_____	_____	_____
20. Other.	_____	_____	_____	_____

References

Bierman, E. L., & Hirsch, J. (1981). Obesity: Textbook
of endocrinology (6th ed.) (pp. 904-916). Philadelphia:
W. B. Saunders.

Calley, J. M., Dirksen, M., Engalla, M., & Hennrick, M. L.
(1984). The Orem self-care nursing model. In B. J.
Stevens (Ed.), Nursing Theory (pp. 302-314). Boston:
Little Brown, and Company.

Cunningham, S. K., Loughlin, T., Culliton, M., & McKenna,
T. J. (1985). The role of sex steroids and sex hormone
binding globulin in hirsutism and/or oligomenorrhoea in
obese and normal weight women. Irish Medical Journal,
78(8), 208-212.

Dale, E., Gerlach, D., & Wilhite, A. (1979). Menstrual
dysfunction in distance runners. Obstetrics and
Gynecology, 54(1), 47-53.

Demarest, C. B. (1984, December). Managing abnormal menses
in the adult. Patient Care, 63-78.

Fogel, C. I., & Woods, N. F. (1981). Health care of women:
A nursing perspective. St. Louis: C. V. Mosby.

Forney, J. P., Milewich, L., Chen, G. T., Garlock, J. L.,
Schwarz, B. E., Edman, C. D., & MacDonald, P. C. (1981).
Aromatization of androstenedione to oestrone by human

adipose tissue in vitro. Correlation with adipose tissue mass, age and endometrial neoplasia. <u>Journal of Clinical Endocrinology Metabolism</u>, <u>53</u>, 192-199.

Foster, P. C., Janssens, N. P., & Orem, D. E. (1980). <u>Nursing theories: The base for professional nursing practice</u>. Englewood Cliffs, NJ: Prentice-Hall.

Gordon, M. (1982). <u>Nursing diagnosis process and application</u>. New York: McGraw-Hill.

Hartz, A. J., Barboriak, P. N., Wong, A., Katayama, K. P. & Rimm, A. A. (1979). The association of obesity with infertility and related menstrual abnormalities in women. <u>Internal Journal of Obesity</u>, <u>3</u>, 53-57.

Jacobson, S. F. (1982). Psychosocial stresses of working women. <u>Nursing Clinics of North America</u>, <u>17</u>(1), 143.

Lauersen, N., & Stukane, E. (1983). <u>PMS, premenstrual syndrome and you; next month can be different</u> (pp. 59-60). New York: Simon & Schuster.

Lubin, F., Ruder, A., Wax, Y., & Modan, B. (1985). Overweight and changes in weight throughout adult life in breast cancer etiology. <u>American Journal of Epidemiology</u>, <u>122</u>(4), 579-587.

Mattsson, L., Silfverstolpe, G., & Samsioe, G. (1984). Lipid composition of serum lipoproteins in relation to gonadal hormones during the normal menstrual cycle. <u>Obstetrics & Gynecology Reproduction Biology</u>, <u>17</u>, 327-335.

Orem, D. E. (1980). Concepts of practice (2nd ed.). New York: McGraw-Hill.

Orem, D. E. (1985). Nursing concepts of practice (3rd ed). New York: McGraw-Hill.

Plymate, S. R., Fariss, B. L., Bassett, M. L., & Matej, L. (1981). Obesity and its role in polycystic ovary syndrome. Journal of Clinical Endocrinology Metabolism, 52, 1246-1248.

U.S. Department of Commerce. (1983). Economic figures. Washington, DC: Bureau of Economic Analysis.

U.S. Department of Labor. (1980). Florence MSA manpower information for affirmative programs. Montgomery, AL: Alabama State Employment Service.

Walton, J. (1985). Orem's self-care deficit theory of nursing. Focus on Critical Care, 12(1), 54-58.

Waltz, C., & Bausell, R. B. (1981). Nursing research: Design, statistics and computer analysis. Philadelphia: F. A. Davis.

Weiss, K. (1984). Women's health care: A guide to alternatives. Reston, VA: Reston.

Zhang, Y., Stern, B., & Rebar, R. W. (1984). Endocrine comparison of obese menstruating and amenorrheic women. Journal of Clinical Endocrinology and Metabolism, 58(6), 1077-1083.