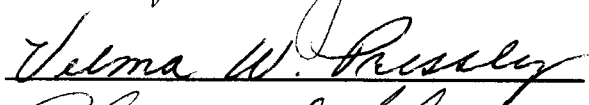
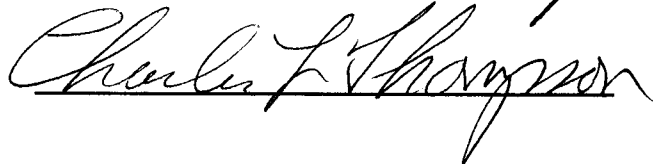


To the Graduate Council:

I am submitting herewith a dissertation written by Lori Lynn Dewald entitled **"Attitudes of Mothers and Daughters Regarding the Female Menstrual Cycle."** I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.


Gene A. Hayes, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:


Vice Provost and
Dean of The Graduate School

ATTITUDES OF MOTHERS AND DAUGHTERS REGARDING
THE FEMALE MENSTRUAL CYCLE

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville

Lori Lynn Dewald

December 1989

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DEDICATION

This dissertation is dedicated:

to my friends who have been influential in my life for short or long periods of time.

to my parents, Arden and Marilyn Dewald, who gave me wings to fly to new horizons.

to my grandparents, Arnold and Leontine Dewald, and who lived to see this accomplished.

to my grandparents, Erling and Wilma Johnson, who did not live to see this accomplished, yet are here in spirit.

to my brother, Steve, in hopes that he may soar to new heights.

to Lydia "Goldie" Anderson, for always believing in me and allowing me to explore as a child, adolescent, and adult.

and finally, to my Lord, who is always there for me even when I haven't been.

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The staff of East Tennessee Orthopaedic Center that also provided enjoyable employment.

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I am most grateful to each of you for having had such a significant impact on my life. I have been eternally blessed!

ABSTRACT

Myths, confusion, and misconceptions have surrounded the female menstrual cycle for generations. Some researchers have suggested that a young girl's preparation for, initial experience of menarche, and attitudes can be influenced by the role modeling her mother portrays during adolescence. In recent years as females have increased their participation in exercise and athletics, abnormalities in menstrual cycles have become more common in active women.

The purpose of this study was to study mothers and daughters for similarities in menstrual cycle knowledge, physical characteristics of the cycles, product usage, and attitudes.

Seventy-seven college-age women volunteered to participate in this study. The mothers of these students were contacted through the mail. Sixty responded to the survey for a 77.92% response rate.

The daughters and mothers were surveyed using the Menstrual Attitude Questionnaire (MAQ) developed by Jeanne Brooks-Gunn and Diane Ruble in 1977 and a personal menstrual history questionnaire devised by this researcher.

The data were categorized into two groups (1) daughters and (2) mothers. The MAQ questions were combined into the five pre-established dimensions recommended by Brook-Gunn

and Ruble: Dimension I - menstruation as a psychological and physically debilitating event, Dimension II - menstruation as a bothersome event, Dimension III - menstruation as a natural event, Dimension IV - menstruation as an anticipatory and predictable event, and Dimension V - denial of any effect of menstruation.

Analysis of variance was performed on the dimensions with the .05 level of significance. The personal menstrual data were calculated with simple frequencies and percentages.

The results were that daughters and mothers were similar in menstrual data, and in dimensions IV and V. Daughters and mothers were found to be different in dimensions I, II, and III.

TABLE OF CONTENTS

CHAPTER	PAGE
I. STUDY INTRODUCTION	1
Introduction	1
Need for the Study	2
Problem Statement	2
Research Questions	3
Limitations	4
Delimitations	5
Definition of Terms	6
Summary	7
II. REVIEW OF RELATED LITERATURE	8
Introduction	8
The Menstrual Cycle	9
Menstrual Cycle Phases	11
Menstrual Cycle Changes	11
Menstrual Cycle Symptoms	14
Psychological	15
Attitudes	16
Positive Attitudes	16
Negative Attitudes	18
Heredity Influences	21
Socioeconomic Status	22
Menstrual Disorders in College Populations	22
Accuracy of Recall	23

CHAPTER	PAGE
Adolescent Preparation	23
Menstrual Perceptions	24
Age of Menarche	24
Studies Related in Methodology	25
Menstrual Protection Research	30
Age of Initial Use of Tampons	30
Educational Problems	31
Summary	32
III. METHODOLOGY	33
Introduction	33
Instrumentation	33
Menstrual Attitude Questionnaire	33
Personal Data	35
Selection of Subjects	36
Procedures	37
Cover Letter	37
Informed Consent	38
Mothers Surveys	38
Survey Considerations	39
Tabulations of Data	40
Summary	41
IV. ANALYSIS OF THE DATA	42
Introduction	42
Demographic Data of Daughters and Mothers	43
Analysis of the Research Questions	44

CHAPTER	PAGE
Research Question A	44
Research Question B	49
Research Question C	50
Research Question D	53
Daughters	53
Mothers	53
Daughters and Mothers	54
Summary	57
V. FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS	58
Introduction	58
Findings	58
Conclusions	60
Recommendations	61
Recommendations Based Upon the Results of the Study	61
Recommendations for Future Research	62
REFERENCES	64
APPENDIXES	70
APPENDIX A	71
APPENDIX B	73
APPENDIX C	78
APPENDIX D	81
APPENDIX E	83
APPENDIX F	85
APPENDIX G	87
APPENDIX H	89

CHAPTER	PAGE
APPENDIX I	91
VITA	93

LIST OF TABLES

TABLE	PAGE
1. Frequency & Percentage of First Significant Person Told	45
2. Frequency & Percentage of Who Explained the Menstrual Cycle	47
3. Frequency & Percentage of When the Menstrual Cycle was Explained	48
4. Frequency & Percentage of Security in Menarcheal Knowledge	48
5. Frequency & Percentage of Recalled Age at Menarche	49
6. Frequency & Percentage of Seeking of a Yearly Physical Exam	50
7. Frequency & Percentage of First Hygiene Product Used	51
8. Frequency & Percentage of Current Hygiene Product Used	52
9. Mean and Standard Deviations of the Daughters' MAQ Dimensions	53
10. Mean and Standard Deviations of the Mothers' MAQ Dimensions	55
11. Analysis of Variance, Sum of Squares, Mean, F-value, & Probability of MAQ Dimensions	55

CHAPTER I

STUDY INTRODUCTION

Introduction

Many myths have surrounded the female menstrual cycle. Among the most popular of ancient myths was the idea of menstruation's being a form of illness or a physical defect. Another myth assumed that menstruation occurred for pregnancy, and thus as soon as one began menses, it was time to become impregnated regardless of age, sexual maturity, or knowledge of the individual partner. Women were also warned by mythology not to bathe at this time. One of the more recent fictitious thoughts was the assumption that women should not train or compete in activities during the menstrual period (Weideger, 1974).

Female participation in exercise and sport has been rapidly increasing each year. In earlier years, women's only socially acceptable physical activities were the "feminine sports" of ballet, gymnastics, and ice skating. Today, the sports are unlimited with girls participating earlier in life, and at higher competition levels than did their forerunners. Young girls, teenagers, and adult women have become more physically and professionally active, but old

and new questions have been and are being raised, leading to more investigations into the menstrual cycle.

Indeed, various abnormalities have continued to be found within the menstrual cycle. Some of the irregularities have been cited due to endocrine profiles, loss of body weight/fat, training regimen, psychological stresses, and competition (Albohm, 1976; Gendel, 1976; Malina, Spirduso, Tate, & Baylor, 1978; Warren, 1980; Webb & Proctor, 1983).

At least three studies have suggested that familial influence may be a contributory factor in one's perceptions, experiences, and menstrual irregularities (Schick, 1980; Menke, 1979; Cain, 1980).

Need for the Study

A young girl's preparation for, and initial experience of, menarche can influence the attitudes she maintains into adulthood. The mother has a direct bearing on her daughters' attitudes toward menstruation by the influence put forth through the role modeling identity she is for her child. The information gained through the study would be especially significant in providing new and updated research regarding menses that has been relatively ignored.

Problem Statement

Menke (1979), Cain (1980), and Schick (1980) have studied menstrual attitudes with various population samples.

However, these three researchers report that we need additional research with larger sample size of mothers and daughters of different age groups. Therefore, the purpose of this study was to compare mothers and daughters for similarities in menstrual cycle knowledge, attitudes, product usage, and physical characteristics of their cycles.

Research Questions

(A) What is the menstrual cycle self-reported knowledge of mothers and daughters?

- (1) Who did the mothers and daughters first tell about their menstrual cycle?
- (2) Who explained the menstrual cycle to the mothers and daughters?
- (3) When was the menstrual cycle explained to mothers and daughters?
- (4) Are mothers and daughters secure in their knowledge of menstruation?

(B) What are the physical characteristics of the menstrual cycles of mothers and daughters?

- (1) At what age did the mothers and daughters first experience menses?
- (2) Do the mothers and daughters have a yearly physical examination?

(C) What are the menstrual product purchasing habits of mothers and daughters?

- (1) What hygiene product was first used for menstruation?
 - (2) What hygiene product is currently being used?
 - (D) What are the attitudes of mothers and daughters regarding the menstrual cycle?
- (1) Do mothers and daughters view menstruation as a psychological and physically debilitating event?
 - (2) Do mothers and daughters view menstruation as a bothersome event?
 - (3) Do mothers and daughters view menstruation as a natural event?
 - (4) Do mothers and daughters view menstruation as a anticipatory and predictable event?
 - (5) Do mothers and daughters deny any effects of menstruation?

Limitations

The limitations of this study were:

- (1) Difficulties in obtaining honest and candid responses from the subjects in answering the questionnaire.
- (2) The accuracy of the subjects' recall of dates, years, experiences, and events.
- (3) Problems in obtaining the full participation of university age co-eds and their mothers.

(4) Overcoming the reluctance to give the necessary attitudes of openness to the researcher so that a true sharing of information could occur.

Delimitations

The delimitations of the study were found to be:

(1) Seventy-seven female college students and 60 mothers of these subjects.

(2) The age of the daughters were limited to 17-24 years, which are the average ages of female college students from entering freshman to seniors upon graduation. An additional year was added to the college senior's age to provide for the inclusion of any female who (for whatever reason) did not begin college in the year immediately following high school graduation.

(3) The age of the mothers was limited to 39 years after menarche as suggested by Damon and Bakema (1974).

(4) Only subjects born in the United States were allowed to participate in the study.

(5) If either the daughter or mother was excluded for any reason (e.g. serious illness or death), both subjects were excluded from the study.

(6) The geographical residence of the participants was limited to the continental United States of America.

Definitions of Terms

The rationale for the comprehensive inclusion of the following definitions of terms is to familiarize the reader with the terminology associated with the menstrual cycle; to clarify words found in the literature; and finally, to provide an interpretation of the conditions as recognized for this study.

AMENORRHEA. Amenorrhea refers to the absence or abnormal stoppage of the menses. (Dorland, 1983).

PRIMARY AMENORRHEA. If failure of menstruation occurs at puberty it is referred to as primary amenorrhea. (Dorland, 1983).

SECONDARY AMENORRHEA. The cessation of menstruation after it has once been established at puberty is known as secondary amenorrhea. (Dorland, 1983).

DYSMENORRHEA. Painful menstruation, commonly referred to as "cramps", as experienced by some women. (Dorland, 1983).

MENARCHE/MENARCHIAL. The establishment of or beginning of menstrual function. (Dorland, 1983).

MENSES/MENSTRUAL. The monthly flow of blood from the genital tract of women. It is also commonly referred to as "period." (Dorland, 1983).

MENSTRUAL PRODUCTS. Are limited to tampons and pad/napkins for this study.

(a) tampons - absorbent materials tightly wound that expand radially, longitudinally, and a combination of these

two, when inserted into the vagina with either a plastic, paper, or stick applicator.

(b) pad/napkins - cotton absorbent layered material positioned in the crotch piece of the underwear by adhesive strips.

MENSTRUATE. To discharge blood from the genital tract at monthly intervals. This is also termed "flow". (Dorland, 1983).

OLIGOMENORRHEA. Oligomenorrhea is the abnormally infrequent or scanty menstruation. (Dorland, 1983).

POLYMENORRHEA. Abnormally frequent menstruation is given this term. (Dorland, 1983).

Summary

This chapter detailed the importance of research regarding attitudes towards the female menstrual cycle. Other research endeavors used small samples, while only three have used mothers and daughters. This study enlarged the number of subjects to seventy-seven mothers and daughters and the use of a previously established Menstrual Attitude Questionnaire to gather the data.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

Female participation in exercise and sport is rapidly increasing each year. Girls are participating earlier in life and at higher competition levels than did their forerunners. As all women, young girls, teenagers, and adults have become more active, old and new questions have been asked, leading to more investigations into the menstrual cycle. Researchers have studied everything from the age at menarche, the environment, family heredity, nutritional habits, body weight and fat percentage, emotional stress, the consequences that specific sports have on the reproductive cycle, as well as the possibilities that early sports involvement or athletic orientation might contribute to menstrual regularities or irregularities.

Some areas of menstruation have been either unexamined by researchers or in some instances just taken for granted. The theoretical concepts of biology, anthropology, sociology, and psychology need to be considered in future examinations.

The literature has been searched via the computer capabilities afforded by the University of Tennessee Library

and by Mr. David Gillikin, Assistant Professor of Library Reference Services. The searches included: ERIC, Psychological Literature, Sociological Literature, and Medline. In addition, some literature sources were found by utilizing the references of other researchers and in speaking with colleagues from various locations across the United States. And finally, this researcher contacted the Melpomene Institute in Minneapolis, Minnesota (whose sole interest is in menstrual cycle research) and utilized their extensive files of menstrual research to aid in the study.

This review of literature details the menstruation related subjects of: cycle phases, cycle changes, cycle symptoms, psychological effects, cycle attitudes, heredity influences, socioeconomic status, disorders in the college population, accuracy of recall, adolescent preparation, perceptions, age at menarche, product usage, and sources of educational problems. Also, a section on studies related to methodology is included to strengthen the literature review. This literature will discuss these categories in detail.

A review of the female's biological system has also been provided to familiarize the reader with the recognized menstrual cycle process (as used by this researcher).

The Menstrual Cycle

The menstrual cycle is initiated when the hypothalamus secretes gonadotropin-releasing factors, which then

stimulates the anterior pituitary gland to secrete follicle-stimulating hormone and luteinizing hormone. The follicle-stimulating hormone acts upon the ovary to initiate the maturation of a follicle. As this follicle develops, the follicle cells secrete an increasing amount of estrogen. Estrogen causes the uterine lining to thicken, and is also responsible for the development of secondary sex characteristics. The anterior pituitary gland secretes a relatively large amount of luteinizing hormone, which stimulates ovulation. The stimulation of the follicular cells increases the estrogen and progesterone secretions. The estrogen continues to stimulate the uterine lining to become more glandular and vascular. The presence of estrogen and progesterone inhibit the secretions of follicle-stimulating hormone and luteinizing hormone. If the egg cell is not fertilized by sperm, the egg cell degenerates and there is no longer a secretion of estrogen and progesterone. As the level of these two hormones decline, the blood vessels in the uterine lining constrict. The uterine lining then disintegrates and sloughs away, producing the menstrual flow. The anterior pituitary gland (which is no longer inhibited) again secretes follicle-stimulating hormone and the cycle is repeated. Menstrual flow usually begins about the 28th day of the cycle and continues for 3-7 days. The beginning of the menstrual flow marks the end of one menstrual cycle and the start of a new one.

Menstrual Cycle Phases

Albohm (1976) divided the menstrual cycle into three phases for ease of understanding:

The first phase is the dismantling or period of menses during which a reduction of the existing estrogen and progesterone in the blood occurs. Second is the follicular or estrogen phase which occurs after the fourth day of menstruation. At this time the blood estrogen level rises until approximately the fourteenth day when ovulation occurs. The final phase is the luteal or progesterone phase. (As the progesterone is secreted in preparation for fertilization.) If fertilization does not occur, further secretion is inhibited and the corpus luteum begins its degeneration, a process of approximately 10 days.

Menstrual Cycle Changes

Albohm (1976) suggested there are changes due to hormonal levels. Higher blood pressure in the first two days of menstruation, an increase in heart rate just prior to menses and a hemoglobin count which is higher at the end of the estrogen phase. In addition, water retention is caused by sodium and chloride retention which is in turn influenced by the estrogen. This water retention increases until the second day of menstruation and then decreases until the eighth day at which time it levels off. Less noticeable changes include increased body temperature, metabolism,

cardiac contractile force, glucose and higher arousal threshold levels. Higher arousal levels have also been found to be conducive to keener sensory perception due to pupil dilation.

Schwartz, et al. (1981) approached the subject in a slightly different manner by examining three types of female subjects in regard to their hormone levels, emotional stability, body build, and food intake to find a difference between subjects and proneness to amenorrhea. The average age of menarche was 12.8 years and menstrual cycle length 29.0 days. Average amenorrhea length was 17.5 months (1 and 1/2 years). Menstrual changes were: a decrease in premenstrual symptoms, a shorter bleeding time, and a reduction in menstrual flow. Active participants consume larger amounts of calories than the non-active subjects. No detrimental changes were noted in the psychological profiles in the group.

The age at which a female begins athletic competition was studied by Frisch, et al. (1981) as it related to the time that a woman experienced menstrual changes. The results showed the average age at menarche for the athletes (swimmers and runners) was later (13.9 years) than for the non-athletes (12.7 years) and the general population (12.8 years).

An increased incidence of oligomenorrhea or amenorrhea was found in both premenarche and postmenarche trained

women. The menstrual cycle length was greater for the premenarche trained group, but the number of cycles was lower. The premenarche trained athletes ate fewer daily calories in all food groups.

A specific explanation for menstrual irregularity among endocrinological profiles, anxiety, emotional stress, loss of body weight/body fat or training regimens was attempted by Webb and Proctor (1983). Questions asked the participants for physical/biological data, training data, competitive data, gynecological history and menstrual information. The results found the two most important conditions affecting the regulation of the menstrual cycle to be reduction of total body weight, and lower body fat. Warren (1980) studied ballet dancers to find if an increased energy drain in adolescent females caused detrimental effects in physical composition and body weight. The findings concluded the dancers had a slower growth in height, they had a longer arm span than the control group, the dancers also displayed a significant breast delay, and the chance of amenorrhea increased with the level of training.

Delayed menarche and amenorrhea of ballet dancers was studied by Frisch, Wyshak, and Vincent (1980). The purpose was to determine the physical differences, incidences of amenorrhea, irregularity of cycles, and delayed menarche. It was decided that the intense training and reduced calorie consumption can cause delay in puberty and excessive

thinness, thus a greater chance of secondary amenorrhea and irregularity of cycle.

Sanborn, Martin, and Wagner (1982) sought to determine whether amenorrhea was more prominent in runners than in swimmers or cyclists, and secondly, if a reduction in body weight was a major cause of amenorrhea in female athletes. The conclusion was that females who ran intensely developed amenorrhea at a higher rate than swimmers or cyclists.

Menstrual Cycle Symptoms

Gendel (1976) has grouped menstrual symptoms into four general categories. Group I, females with no symptoms related to the menstrual cycle. Group II, females with little or no symptomatology, but who, because of cultural and societal conditioning expect difficulties and who will often blame a poor performance in anything to their menstrual cycle. Group III, females who are resentful of what they consider an unfair biological burden exclusively for women. Group IV, females with a spectrum of complaints and symptoms ranging from pelvic discomfort to extreme nausea. Other complaints may be dizziness, headaches, cramping, anxiety, and depression, sometimes to the point of incapacitation. This problem is known as dysmenorrhea, and will vary with each person.

A diminished amount of dysmenorrhea appears to be associated with athletic, professional, and active women as

indicated by Shangold (1980). It had been theorized that it is, in part, due to the pain tolerance or self discipline in training regimens which have enabled the person to tolerate more pain. Another suggestion is that the athlete's innate resistance to pain enables them to be more active. The final theory is that the distraction of other activities reduces their awareness of pain.

Psychological

As early as 1944, the suggestion was made that the achievement of menarche has critical effects on a young girl's psychological development and the possibility of long range consequences into adulthood (Deutsch, 1944).

Kertenberg (1967) followed up on Deutsch's suggestion and added that the psychological correlates have been often ignored in favor of the physical changes of menarche.

Ruble, Brooks-Gunn, and Clarke (1980) commented that "even if psychological stress and physiological mechanisms can be clearly linked, the direction of the relationship still needs to be specified." (p. 232)

A biopsychosocial approach was suggested by Peterson (1983) for further "study of the various interactions among biological, socio-cultural, and psychological processes." (p. 63)

Gendel (1976) reported that psychological factors could have a detrimental effect on the menstrual cycle, and

specified three types of pressures: anxiety, chronic worry, and lifestyle.

Women's psychosocial development was correlated with hygiene product usage in a study by Maidman (1984). Results mimicked earlier studies by Whisnant and Zegans, et.al. Maidman, found the the use of tampon rather than a sanitary napkin may serve an important role in female psychosocial development. Unfortunately, no data was presented to back up this finding.

Attitudes

Beliefs about menstruation fluctuate from positive to negative. It is recognized that the beliefs, attitudes, and feelings are acquired at an early age and usually reflect the general cultural stereotypes about menstruation. These stereotypes are quite often negative, with the negativity often reflected in the word choice used to describe the menstrual cycle (i.e. "period," "plug") or the symptoms experienced (i.e. "cramps," "bloated").

Positive Attitudes

Brooks-Gunn, Ruble, and Clark (1977) in an early study examined college women's expectations, attitudes, and knowledge regarding changes experienced with menstruation. The specific items explored were: (1) expectations related to cyclic changes in symptoms; (2) the nature of menstrual

attitudes and coping styles relevant to menstruation; and (3) relationships relevant to attitudes and expectations that were possibly associated with individual differences. Undergraduate women (191) were surveyed using the Moos Menstrual Distress questionnaire, the Menstrual Attitude questionnaire, an open listing of female organs, and personal questions related to contraceptive use and the length of menstrual cycle and flow. The results found:

(1) College women experienced more severe symptoms in the premenstrual than the intermenstrual phase and expected the most severe symptoms to be water retention, negative affect, and pain. Also, the actual cycle phase was not related to expected symptoms.

(2) The attitudes toward menstruation as a positive dimension found 77% agreement.

(3) The women accepted menstruation routinely and were not likely to deny its effect.

(4) Attitude dimensions related to expected cycle changes differently than the attitudes about debilitation and prediction relating to premenstrual symptoms. While positive bothersome attitudes were not relating to these symptoms.

(5) The results suggest women's experiences of menstruation have been limited by the dependence on symptom scales for information and have been somewhat misleading.

(p. 295)

Negative Attitudes

Brooks-Gunn and Ruble (1980b) later found that the menstrual attitudes and symptoms experienced by women were related and most were of a negative opinion.

Parlee, like Brooks-Gunn and Ruble, found that, "Indications of negative feelings surrounding the topic can be inferred from the number and variety of slang expressions used to refer to menstruation and from the general tone of advertisements for tampons and for female hygiene products." (Parlee, 1974, p. 128)

Ruble, Brooks-Gunn, and Clarke (1980) found that adolescent girls rated menstruation more unfavorably on a semantic differential scale, while adult women in another study reacted favorably to the suggestion of total elimination of the menstrual period.

Parlee (1983) utilized the menstrual questionnaire of five attitude dimensions developed by Brooks-Gunn and Ruble (1980a). The five dimensions were: (1) menstruation as a psychological and physically debilitating event; (2) menstruation as a positive event; (3) menstruation as a bothersome event; (4) menstruation as an event whose onset can be predicted and anticipated; and (5) menstruation as an event that does not and should not affect one's behavior. The results found significantly higher symptom ratings in women who believed that menstruation was debilitating and predictable, than in women who felt it was less debilitating

and predictable. It was also found that expected changes were not related to the denial of the effects of menstruation. The conclusions drawn by Parlee on attitude dimensions found: "women may conceptualize the experience of menstruation along a number of dimensions and not just on an evaluative one...In short, the experience of menstruation (as reported in the literature) may have overemphasized the negative and debilitating aspects." (p. 286)

Fugate-Woods, Dery, and Most (1982) have suggested that "if negative menarchial experiences have important effects on women's menstrual experiences, than we would anticipate a strong association between women's recollections of menarche and their current menstrual attitudes." (p. 292)

Chernovetz, Jones and Hansson (1979) examined the importance of predictability, expectations, attentional focus, and gender role identification on the experience of menstrual distress. They found that greater predictability of onset was associated with more positive feelings about menstruation. Women who felt they had feminine traits reported more distress, while women with more masculine traits reported less discomfort.

The relationships between characteristics of women's menarche, their adult attitudes towards menstruation, and current experiences of perimenstrual symptoms were explored by Fugate-Woods, Dery, and Most (1982). Attitudes were measured using the Menstrual Attitude Questionnaire (MAQ).

It was found that negative recollections of the subjects first menstruation had little effect on current menstrual attitudes. Current menstrual attitudes were strongly associated with the subjects current menstrual symptoms. According to Fugate-Woods, et al., "The results did not support the theory that menarcheal experiences have a profound effect on subsequent menstrual attitudes or symptoms." (p. 293).

Brooks-Gunn, and Ruble in 1986 studied the nature of differences and similarities in menstrual-related belief systems in 83 men and 156 women. The subjects completed questionnaires on expectations of menstrual and premenstrual symptoms, attitudes about menstruation, sources of menstrual-related information, and effects of menstruation on daily activities. The results indicated:

(1) both the male and females felt that women have symptoms related to their cycles. However, females reported more severe menstrual and premenstrual symptoms, while males believed that women experience more severe menstrual than premenstrual symptoms.

(2) males rated their sources of information as more negative than the females and learned less from the major sources of information.

(3) males felt that menstruation had an effect on women's moods and was more debilitating.

(4) menstruation was more bothersome in the women's views than it was in the men's views.

(5) menstrual symptoms (of one's mother) were isolated by men to be "irritability and moodiness" while females rated "swelling" to be the symptom experienced by their mothers. (p. 287)

Hereditry Influences

Family influence and susceptibility were investigated with a positive correlation emerging. A similarity in menstrual responses to training, likeness of menstrual characteristics, and the factors associated with the initiation of menstrual disturbances were nearly the same with each group of five sister pairs, according to Carlberg, Peake, and Buckman (1983). The authors still question the genetic, cultural, or family upbringing influences on the menstrual cycle.

Genetic factors underlie some variation in age at menarche as the relationship between age at menarche in mothers and daughters, siblings, and twins (Kantero & Widhom, 1971).

The effect of ethnic group membership has never been successfully separated from nutritional, economical, and social class consideration for adequate interpretation. Garrison (1975) stated that minority American children did not mature earlier on the average than white children of the

same chronological age, but followed this with no factual information.

Socioeconomic Status

One of the most significant influences upon the age of menarche has been socioeconomic status. Economic situations have an affect on nutrition, environment, and social class. Girls in low economic conditions tend to reach menarche later than girls from higher economic classes (Johnston, 1974, pp. 159-171).

Menstrual Disorders in College Populations

Bachman and Kenman (1982) found menstrual disorders higher in the college population than in the general population. The causes they found were college related: stress, strenuous exercise, and calorie-restricted diets. The prevalence of amenorrhea was found to be 2.6% of the 1,420 college women and oligomenorrhea 11.3% of the same group.

Menstrual disorders were present in 14.6% of the college students seen at college health centers (Singh, 1981). Oligomenorrhea and/or secondary amenorrhea was found in 72.5% of the students, but it must be remembered that this was only a population that was seeking medical care and not necessarily the entire collegiate female student body.

Accuracy of Recall

An area of considerable disagreement is the accuracy of recall in answering the question of age at menarche. Damon, et al. (1969) have reported errors of .17 years (two months) in accuracy of recalled age at menarche after 19 years. The authors also suggested that the menarchial age might be genetically related, yet cautioned:

Participation in a longitudinal growth study involves self-selection of intelligent and ambitious mothers willing to put up with considerable inconvenience for their children's sake. One index of this familial environment is upward social mobility, shown by four types of comparisons: Mothers' to daughters' education; fathers' to husbands' occupations and education; and occupation of the male subjects in the longitudinal study compared with those of their fathers. (p. 168).

Adolescent Preparation

Suggestions have been made to prepare adolescent girls socially, culturally, and psychologically for the onset and occurrence of menses. Whisnant and Zegans (1975) have said this is necessary due to: (a) lack of adequate education concerning the female body, menstruation, and sanitary products; (b) the anatomy of and functions of their reproductive system; (c) the secretiveness of announcing the first period to mothers or friends; and (d) the mother often does not respond to the daughters' need(s) for working through the experience.

Clarke and Ruble (1978) found that young adolescents associate menstruation with mostly negative expectations and

attitudes, as well as physical discomforts, increased emotionality, mood changes, activity disruptions, and social interactions. A girl enters menarche with a clear set of expectations, many of which are quite negative; and most of her peers, both male and female, hold similar expectations. Her experience of menstruation is, therefore, primed to be a self-fulfilling prophecy. Suggestions include that specific aspects of the role of socialization processes in the menstrual experience, such as the nature and timing of information received from others, must be carefully considered in future research.

Menstrual Perceptions

Perceptions about menstrual flow and regularity were related to symptom reports and menstrual-related beliefs. Perceptions seem to be more important than measures such as length of flow or cycle. Worthy of further investigation would be whether or not links to menstrual beliefs could be found with other objective measures such as number of tampons used or actual cycle lengths over a number of cycles has yet to be determined. (Brooks-Gunn, 1985)

Age of Menarche

Malina, Harper, Avent, and Cambell (1973) studied the age at menarche between track and field athletes and non-athletes. The athletes reached initial menses at a later age

(13.58 years) than did the non-athletes (12.23 years). The results of this study were in agreement with explorations prior to 1972 on the subject of age at menarche and also with the more recent studies after 1973. It was concluded that female athletes were more prone to a later menarchial age than non-athletes.

In a study of the 1976 Olympics, a further report on the age of menarche was presented by Malina, Bouchard, Shoup, Demirjian, and Lariviere (1979). In this study a number of other factors were examined including country, family size, and type of sport. His investigations found that in all of the countries studied, the age of menarche of the athletes were later than the age of menarche of the population as a whole. In addition, Malina, et.al. noted that the larger family the more likely the girls would have a later menarche. It was also reported that runners and gymnasts had a later menarche than swimmers.

Studies Related in Methodology

Loucks, Horvath, and Freedson (1984) have listed the following limitations on menstrual research: (1) the state of knowledge about the female reproductive system; (2) it is an interdisciplinary problem; (3) subject availability and cooperation; (4) the human subjects committees tend to regard the menstrual cycle with private regards; and (5)

political concerns of women who have been struggling for decades.

Judy Mahle Lutter (1984) of the Melpomene Institute has evaluated menstrual cycle studies in terms of methodology. She concluded that the lowest prevalence is in questionnaire studies. "Questionnaire studies are open to criticism because they rely on a women's recollection of her menstrual cycle (p. 30)." She suggested new studies centering on team approaches using experts from medical, physiological, nutritional, psychological, and statistical specialities.

Delaney, Lupton, and Toth (1976) questioned sixty women and "had a good response." Their results found that the menstrual flow is almost universally perceived as negative and is considered unclean and perhaps even dangerous in many societies . . . even when medical knowledge/information is given to the contrary.

Brooks-Gunn and Ruble (1982b) studied menstrual-related beliefs and behaviors in 639 girls in grades 5-6, 7-8, and 11-12. They were surveyed premenstrual and postmenstrual regarding symptomatology, menstrual-related attitudes, and potential information sources. The data gathering techniques of the Menstrual Distress Questionnaire (MDQ), the Menstrual Attitude Questionnaire, and a fifteen item "sources of information" sheet were utilized. The results found: (1) girls, as early as fifth grade, had clear expectations regarding menstrual symptoms; (2) girls who had begun to

menstruate reported experiencing less severe menstrual distress than the premenstrual comparison group expected to experience; and (3) there are few changes in the amount learned from various sources as a function of menarchial status.

Jeanne Brooks-Gunn (1985) utilized the questionnaire method in gathering data from college females on five menstrual cycle measures. The five measures were: (1) menstrual characteristics; (2) menstrual distress; (3) menstrual related attitudes; (4) effects of menstruation; and (5) menarchial experience.

Menstrual characteristics were determined by questions related to menstrual flow and the overall menstrual cycle. Flow items included intensity of flow and the average length of the cycle. Questions relating to menstrual distress were taken from the Moos Menstrual Distress Questionnaire and were symptomatology in nature (i.e. negative effects, water retention, and pain). Menstrual-related attitudes were gathered by the Adolescent Menstrual Attitude Scale and the Menstrual Attitude Questionnaire. Physical side effects of menstruation and common activities such as being tired, moody, sports, and school were rank ordered for importance. Menstrual experiences in the preparation, timing of the cycle, and age of menarche recollections were found in the last measure. The results by Brooks-Gunn found women's perceptions of menstrual characteristics were related to

menstrual-related beliefs and religious group membership mediates such perceptions, as do more individual contextual features, such as importance of religion regardless of group membership. (p.370)

Schick (1980) studied the differences and similarities of 15 pairs of mothers and daughters regarding beliefs and experiences of their menstrual cycles. The methodologies employed included: the Menstrual Attitude Questionnaire (MAQ) developed by Brooks, Ruble, and Clark (1980a); the Moos Menstrual Distress Questionnaire (MDQ) (1968); and an interview of the mother and daughter pairs. Both the MAQ and MDQ are well documented. The interview data gathered was developed by Edna Menke (1979) of Ohio State University but has not been empirically tested. The information sought through the interview included: personal and social characteristics, menstrual cycle history, and menstrual beliefs.

Results found no significant differences between mothers and daughters beliefs regarding menstruation. Neither mothers nor daughters reported difficulties with menstruation. Mothers were the primary source of menstrual knowledge. Finally, interpersonal feelings when discussing the menstrual cycle varied between the groups.

Cain (1980) also studied fifteen mother-daughter pairs for menstrual beliefs and experiences, using the MAQ, the MDQ, the Tennessee Self-Concept Scale, and an interview.

Data collected included: age range of mothers and daughter, religious reference, employment status, occupation, level of education, number of children in the family, health problems, length of flow, cultural background, attitudes and beliefs, responsibility to education, and feelings regarding the discussion of menstruation. Results found included: (1) mothers and daughters hold similar beliefs about menstruation; (2) mothers and daughters from different cultural background still hold the same beliefs; (3) mothers and daughters have similar experiences with the menstrual cycle; (4) cultural experiences are different in mother and daughter pairs from different cultural backgrounds; (5) there was no significant difference between mothers and daughters on the Tennessee Self-Concept scale; (6) there was no significant difference between the Tennessee Self-Concept Scale and the cultural backgrounds.

Lei, Knight, Llewellyn, and Abraham (1987) studied mothers and daughter for knowledge and attitudes towards menstruation and the menstrual cycles. The data from the 53 mother-daughter pairs found that mothers had a greater knowledge of menstrual cycle related matters, but the knowledge of both mothers and their daughters was still poor overall. Daughters were found to have similar attitudes to their mothers, but mothers and daughters differed markedly in their menstrual cycle related symptoms.

Menstrual Protection Research

Australian women between the ages of 14-19 were studied by Abraham, et.al. (1985, pp. 247-251) using a questionnaire designed to assess information regarding the knowledge, practices, and attitudes of hygiene product protection. Of the 1,377 women, 97% had reached menarche, 94% had used pads for their first periods, and (at the time of the study) 34% were using tampons regularly. Sixty-four percent had tried tampons, but found them too difficult to insert and had stopped using them. Mothers were found to be the first source of information about menstrual protection. Toxic shock syndrome had no effect on the use of tampons.

Age of Initial Use of Tampons

Very little information is available concerning adolescent use of menstrual products. Brooks-Gunn and Ruble (1982a) tried to determine if tampon use may be related to ethnic background, menstrual age, family attitudes about menstruation and sexuality, religion, and mother's use of menstrual products. They found the following results:

(1) Menstrual product use changes with age. In elementary and junior high school only 1/4 of the menstruating females used tampons, but by the time they reached senior high, 3/4 were using tampons.

(2) Girls who used tampons and those who did not, vary in a number of ways:

- (a) Tampon users are less self-conscious and more comfortable talking to family and friends about menstruation.
- (b) They are not as concerned about menstrual accidents and are less likely to be concerned about acting normal during their periods.
- (3) Girls differ as to where they learned about tampons. Family and friends are the prime source, with health professionals only explaining products to 15% or less of adolescent girls. Furthermore, according to Brooks-Gunn and Ruble (1982a), girls who learned about tampons from their mothers reported a more positive family atmosphere with regard to menstruation and menarche than did girls who learned from other sources. (p. 965)

Osterholm, et.al. (1982) found that younger women are less likely to change their tampon habits than older females. "The mean age of controls who changed to full-time napkin use from full-time or part-time tampon use or who originally reported full-time napkin use was 27.0 years." (p. 956)

Educational Problems

Vera Milow (1983) a representative of the Tampax Corporation noted that three problems exist in the development of educational materials for the menstrual cycle. They are (1) to identify what attitudes and

information levels exist about menstruation among different groups; (2) to reach those different groups, and (3) to defeat the stigma that a commercial company is involved in the educational process. (p.127)

Peterson (1983) related that in her study "it was found that school was still the primary source of menstrual information (66%) with books or other media being reported by only 21% of the girls." (p.74)

Summary

This literature review summarized the extensive research potential that the female reproductive system offers the investigator as it relates to the present study. The spectrum could range from: hygiene product development to the associated alterations that can take place with the varying influences of the physical, psychological, sociological, and biological strains have on the female body. These stresses are just a smattering of the distinct differences between men and women. Items of importance to the female in this study include: the menstrual cycle, its potential for disorders, menstrual information transmission across generations, and the possible associations between these distinct entities to determine correlations or similarities common to the participants.

CHAPTER III

METHODOLOGY

Introduction

The purpose of this study was to investigate mothers and daughters for similarities in menstrual cycle self-reported knowledge, physical characteristics of the cycles, product usage, and attitudes. Seventy-seven daughters and 60 of their mothers were surveyed using two instruments to obtain this information.

Instrumentation

Menstrual Attitude Questionnaire

The Menstrual Attitude Questionnaire (MAQ) developed and tested for reliability and validity by Brooks-Gunn and Ruble (1977) was used to gather data regarding attitudes towards the menstrual cycle. Permission to use this instrument was obtained from the developers (Brooks-Gunn and Ruble) through the copyright owner Psychosomatic Medicine Journal published by Williams and Wilkins of Baltimore, Maryland. The official permission can be found in Appendix A. The MAQ measures a subject's beliefs through 35 items in the following five menstrual dimensions:

(1) Menstruation as a psychological and physically debilitating event. (questions 1-12)

(2) Menstruation as a bothersome event.
(questions 13-18)

(3) Menstruation as a natural event. (questions 19-23)

(4) Anticipation and prediction of the onset of menstruation. (questions 24-28)

(5) Denial of any effect of menstruation.
(questions 29-35)

Each question within the dimensions was rated on a scale from strongly agree to strongly disagree. A copy of the questionnaire can be found in Appendix B.

The MAQ was developed using the following four subject groups: (1) 191 undergraduate women from a private university; (2) 154 undergraduate women from state universities; (3) 82 college men from state universities; and (4) 72 adolescent girls in the sixth and seventh grades.

The reliability and validity was established with these four groups and the statistical analysis of the instrument is as follows:

The items were analyzed using a "Varimax" rotation. Replicability and internal consistency of the factors were determined by giving the questionnaire to the second sample (154 undergraduate women). The congruence coefficients of the five dimensions were high (0.77 to 0.91) for the similar

factors and low 0.46 or less for difference factors.

Homogeneity ranged from 0.95 to 0.97.

Recommendations and additional uses from the authors included:

(1) Using the MAQ within and among a subsample in a culture.

(2) Menstrual expectations can be indirectly related to attitudes.

(3) Menstrual-related phenomenon can be better understood through an individualized approach using the MAQ.

Personal Data

Personal information was obtained through the attachment of a separate information sheet devised by this researcher. The information included: personal history, hygiene product usage, and menses information. This information was used to compare the physical characteristics between the groups and product usage trends. The personal information statements were arranged in logical order with each one as simple and understandable as possible. A list of term definitions was also included in the packet to assist the respondent in understanding any potentially confusing terms. A copy of this data gathering sheet can be found in Appendix C.

Selection of Subjects

Seventy-seven female students from a major university volunteered to be surveyed for this project. The students were obtained in undergraduate classes within the College of Education. Permission to study the females was obtained from the Committee on Research Participation at the University of Tennessee. Appropriate forms were completed and permission was obtained from the professors teaching the relevant courses so that the study population could be questioned during class time. Students meeting the parameters outlined below were asked for voluntary participation in the study.

The geographical location of the subjects was limited to the continental United States. The age range of the university women was limited to 17-24 years of age. This was based on the average age of female college freshman (17.9 years) to the college senior's average of 22.6 years of age upon graduation. An additional year was added to the college senior's age to provide for the inclusion of any female who did not begin college in the year immediately following high school graduation. This group was given the title of "daughters" throughout the study. "Mothers" for the project were either the biological, adoptive, or significant mother figure that the daughter listed or to the person to whom the daughter addressed the envelope. The mothers' ages were limited to 39 years post initial menses according to research standards established by Damon and Bakema (1974).

Procedures

The students were assembled, instructed in the importance of the study, and their role in the project. The subjects were then briefed regarding the study, the parameters of subject requirements, and the necessary need for their mothers' participation. They were asked to address a stamped envelope and postcard to their "mothers." The envelopes and postcards were gathered and later used to mail the mothers questionnaire and subsequent follow-up reminders.

The daughters then completed the informed consent form (Appendix D), personal data sheet (Appendix C), and finally answered the MAQ (Appendix B) in the presence of the researcher. The instruments were collected upon completion. They were then reminded of the importance of their and their mothers' participation and asked to mention this to their "mothers" in future communications. A copy of the mothers' cover letter (Appendix E) was available for the students' viewing if requested.

Cover Letter

The cover letter included a brief introduction of the researcher, the purpose of the study, and the participant's importance to the project. A copy of the cover letter can be found in Appendix E.

Informed Consent

The informed consent statement met with university guidelines for confidentiality. The researcher's name, department affiliation, address, and telephone number were provided for the participant. Completion of the informed consent gave the researcher permission to use the data. A copy of the informed consent can be found in Appendix D.

Mothers Surveys

The mothers' packets included the cover letter (Appendix E), an informed consent statement (Appendix D), the personal data sheet (Appendix C), the survey (Appendix B) and a stamped envelope. The questionnaires were mailed using first class United States postage at the postal rate of \$0.45 per packet. The mothers' questionnaires were numerically coded in the upper left hand corner to match the daughters' response surveys.

Follow-up postcards were sent to the mothers one week after the initial mailing to remind them of the survey. Two weeks beyond the initial mailing, a final request, second questionnaire packet, and self-addressed stamped envelope were mailed in the event that the first survey had been misplaced. The mothers were then allowed an additional two weeks to mail the questionnaire to the researcher. A cut off date of four weeks from the date of the initial mailing was thus established.

Survey Considerations

The questionnaire was carefully constructed with consideration given to appearance, neatness, and spatial arrangement. Adequate space was allowed for answers so that essential data might be elicited with the shortest questionnaire possible. Instructions were included on the personal data and menstrual attitude questionnaire to assist in its thorough completion. A cover letter accompanied the mothers' questionnaires outlining the study and their importance to the project. The daughters' importance to the study was verbally explained at the meeting in which they completed the surveys.

The questionnaires were coded in the upper left hand corner with a numeric identifying the daughter and mother pair and also with two colors of paper. Canary yellow paper was chosen for identifying the female students. Carnation pink paper was chosen to represent the mothers' responses. Matching colored envelopes were used to identify the mothers' responses when received in the mail. Color coding the personal information data sheets also made for ease in distinguishing the different response groups.

The overall materials required by this study were paper, pencil, envelopes, first-class postage stamps, and the Statistical Analysis System.

Tabulations of Data

The data gathered from the mothers and daughters were separated into the two groups (mothers and daughters). Each question from the personal data sheet was tallied on a master survey. The tallied results of the MAQ tabulation were entered into the computer memory of an IBM PC using the SAS program and then transferred to the university's mainframe for computation.

First, frequencies and percentages were computed on each question of the menstrual attitude questionnaire. The detailed breakdown of the frequencies and percentages for the daughters' group responses can be found in Appendix F. The breakdown of frequencies and percentages of the mothers' group responses for each question are found in Appendix G. Secondly, the statistical analysis was run on each question. The means and standard deviations for each question of the daughters' menstrual attitude questionnaire are found in Appendix H. The means and standard deviations for the mothers' responses to each question of the menstrual attitude questionnaire are found in Appendix I. Finally, the questions and their results were combined into the five pre-established dimensions of:

(1) Menstruation as a psychological and physically debilitating event. (questions 1-12)

(2) Menstruation as a bothersome event. (questions 13-18)

- (3) Menstruation as a natural event. (questions 19-23)
- (4) Anticipation and prediction of the onset of menstruation. (questions 24-28)
- (5) Denial of any effect of menstruation. (questions 29-35)

Analysis of variance was then run on the five dimensions. The level of significance chosen to accept or reject the research questions was at the .05 level of significance. Accepting or rejecting the research questions was then done. Percentage statistics were calculated for the "personal history" section found on the data sheet. Frequency statistics were calculated for the "menses information" found on the personal data sheet. All of the results, analysis of the research questions, and detailed tables are presented in Chapter Four and can be found there.

Summary

The questionnaire method of data collection required research in the academic areas of health, education, biology, sociology, psychology, and counseling. This chapter outlined the instrumentation, procedures, selection of subjects, data gathering techniques, and tabulation of the data for this study. The results of this survey, along with specific recommendations, are found in the forthcoming chapter.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

This chapter presents and analyzes the data collected by the Personal Data and Menstrual Attitude Questionnaires. As previously discussed in Chapter I, the purpose of this study was to compare mothers and daughters for similarities in menstrual cycle knowledge, physical characteristics of their cycles, product usage, and attitudes.

The data were collected from 77 daughters and 60 of their mothers using a personal data sheet and a menstrual attitude questionnaire. The personal data sheet elicited information regarding: (I) personal history; (II) hygiene product information; and (III) menses information. The menstrual attitude questionnaire consisted of 35 items which were grouped into one of five dimensions: (I) menstruation as a psychological and physically debilitating event; (II) menstruation as a bothersome event; (III) menstruation as a natural event; (IV) anticipation and prediction of the onset of menstruation; or (V) denial of any effect of menstruation.

The data were coded and entered into the Statistical Analysis System with an IBM Personal Computer. The data were

next transferred from the IBM PC to the mainframe computer, and the analysis then completed with assistance from the University of Tennessee Computer Center. The statistical analysis included: Frequency, Percentage, Mean, Median, Standard Deviation, and Analysis of Variance. The level of significance chosen to determine the acceptance or rejection of the research questions was at the .05 level. The participants were 77 college women and a total of 60 of their mothers. Questionnaires were mailed to the mothers of the co-eds. Sixty mothers responded to the questionnaire after two requests, producing a 77.92% response rate.

Demographic Data of Daughters and Mothers

Seventy-seven college age females participated in this study. The ages of the daughters' group ranged from 17 to 24 years. The race of the co-ed participants was 98.7% white and 1.3% non-white. The religious affiliation of the daughters was found to be 46.7% Catholics, 50.6% Protestants, 0% Jewish, 1.3 None, and 1.3% gave no response. The marital status of the daughters found 88.3% were single, while 11.7% were married. Questions regarding educational level were not expected to elicit much information from the college women, for it was expected that the students would fall into the "some college" category. Of interest though, was the fact that one respondent had a vocational degree and then entered a university; one completed a junior college

education before entering the four year institution; and one student had completed a four year education at a private college before enrolling at the four year public university to earn a teaching certificate.

Sixty mothers responded to the mailing, constituting a return rate of 77.92 percent. The ages of the mothers ranged from 36 to 65 years. The mean age was 46.8 years. Of the mothers responding to the survey, the race was 100% white. The religious affiliation of the mothers was 40.0% Catholics, 58.3% Protestants, and 1.7% were Jewish. The marital status of the mothers was found to be 86.7% married and 13.3% divorced. The question concerning the educational level of attainment for the mothers elicited a range from eighth grade to graduate degree. An eighth grade education was completed by 1.7%, while 36.7% completed high school, 16.7% completed vocational school, 8.3% completed junior college, 21.7% completed some college, 11.7% completed a college education, and 1.7% completed a graduate degree.

Analysis of the Research Questions

The following data are presented to provide answers to the research questions as stated in Chapter One.

Research Question

(A) What is the menstrual cycle self-reported knowledge of mothers and daughters?

(1) Who did the mothers and daughters first tell about their menstrual cycle?

Mothers were found to be the overwhelming choice of the daughters' group to tell first about one's menarche (83.11%). Other relatives were told by 6.49% of the college women and friends were chosen by 10.38%. No responses were given for the selections of teacher or counselor.

Mothers were also found to be the choice of the mothers group to tell initially about one's menarche at 70.0%. Other Relatives were told by 15.0% of the mothers, and Friends were told by 8.3%. Teacher and School Counselor were told by 3.3% and 1.7% respectively, while 1.7% did not answer the question. This information is detailed in Table 1.

Table 1 Frequency & Percentage of First Significant Person Told				
Person	Frequency		Percentage	
	D	M	D	M
Mother	64	42	83.1	70.0
Other relative	5	9	6.5	15.0
Friend	8	5	10.4	8.3
Teacher	0	2	0.0	3.3
School counselor	0	1	0.0	1.7
No answer	0	1	0.0	1.7
Total	77	60	100.0	100.0
D=daughters		M=mothers		

(2) Who explained the menstrual cycle to the mothers and daughters?

Despite the fact that the mothers were the first significant person told about the menstrual occurrence, teachers primarily explained the cycle to the daughters group (40.3%). Mothers, though, did explain the cycle to 35.0% of their daughters, and counselors explained it to 7.8% of the students. Other relative and friend constituted 3.9% and 1.3% respectively. It should be noted that ten participants chose dual responses. Mother and teacher combined were chosen by 9.1% and mother and counselor by 2.6%.

Mothers primarily explained the cycle to the mothers' group (46.7%). Other Relative explained it to 16.7% of the mothers. Friend and Teacher constituted 6.7% and 18.2% respectively. Counselor was reported by 1.7%. Two did not respond for 3.3%. Combinations of the choices were given to Mother and Other Relative (3.3%), Mother and Friend (1.7%), Mother and Teacher (1.7%) and no answer was given by 3.3%. Table 2 describes this information.

(3) When was the menstrual cycle explained to the mothers and daughters?

Corresponding with the teachers' explanation is that 84.4% of the daughters had the cycle explained to them before its occurrence, 10.4% had the cycle explained after the event, and 5.2% never had it explained.

Table 2 Frequency & Percentage of Who Explained the Menstrual Cycle				
Person	Frequency		Percentage	
	D	M	D	M
Mother	27	28	35.0	46.7
Other relative	3	10	3.9	16.7
Friend	1	4	1.3	6.7
Teacher	31	11	40.3	18.2
School counselor	6	1	7.8	1.7
Mother & Teacher	7	1	9.1	1.7
Mother & Counselor	2	0	2.6	0.0
Mother & Relative	0	2	0.0	3.3
Mother & Friend	0	1	0.0	1.7
No answer	0	2	0.0	3.3
Total	77	60	100.0	100.0
D=daughters		M=mothers		

The mothers reported that 65.0% had the cycle explained to them before its occurrence, 18.3% had the cycle explained after the event, and 16.7% never had it explained. This information is detailed in Table 3.

(4) Are mothers and daughters secure in their knowledge about menstruation?

Ninety percent of the daughters felt secure in their knowledge of the menstrual cycle while 9.09% did not feel secure.

Ninety-eight percent of the mothers felt secure in their knowledge of the menstrual cycle. One respondent did not feel secure. The data are detailed in Table 4.

Table 3 Frequency & Percentage of When the Menstrual Cycle was Explained				
Time of Explanation	Frequency		Percentage	
	D	M	D	M
Before	65	39	84.4	65.0
After	8	11	10.4	18.3
Not at all	4	10	5.2	16.7
Total	77	60	100.0	100.0
D=daughters		M=mothers		

Table 4 Frequency & Percentage of Security in Menarcheal Knowledge				
Secure	Frequency		Percentage	
	D	M	D	M
Yes	70	59	90.9	98.3
No	7	1	9.1	1.7
Total	77	60	100.0	100.0
D=daughters		M=mothers		

Research Question

(B) What are the physical characteristics of the menstrual cycles of mothers and daughters?

(1) At what age did the mothers and daughters first experience menses?

The age at which the young co-eds reached menarche ranged from 10 to 17 years. The mean age was 13 years and 1 month.

The age at which the mothers recalled achieving menarche as a young girl ranged from 9 to 16 years of age. The mean age was 12 years and 3 months. This information is presented in Table 5 and is shown in years and months.

Table 5 Frequency & Percentage of Recalled Age at Menarche				
Age	Frequency		Percentage	
	D	M	D	M
9.0--9.11	0	3	0.0	5.0
10.0-10.11	1	3	1.3	5.0
11.0-11.11	7	8	9.1	13.3
12.0-12.11	25	14	32.5	23.4
13.0-13.11	24	15	31.2	25.1
14.0-14.11	8	7	10.4	11.6
15.0-15.11	6	6	7.8	10.0
16.0-16.11	4	2	5.1	3.3
17.0-17.11	1	0	1.3	0.0
No answer	1	2	1.3	3.3
Total	77	60	100.0	100.0
D=daughters M=mothers				

It is interesting to note that the mothers recall achieving menarche earlier (mean 12 years 3 months) than the daughters (mean 13 years 1 month).

(2) Do the mothers and daughters have a yearly physical examination?

The seeking of a yearly physical exam by the daughters found 63.6% of the college-aged women seeking one and 36.4% not seeking medical attention.

The seeking of a yearly physical exam found 58.3% of the mothers seeking a yearly physical exam and 40.0% not seeking medical attention. Table 6 represents this information.

Table 6 Frequency & Percentage of Seeking of a Yearly Physical Exam				
Seeking	Frequency		Percentage	
	D	M	D	M
Yes	49	35	63.6	58.3
No	28	24	36.4	40.0
No answer	0	1	0.0	1.7
Total	77	60	100.0	100.0
D=daughters M=mothers				

Research Question

(C) What are the menstrual product purchasing habits of mothers and daughters?

(1) What hygiene product was first used for menstruation?

An 87.0% usage of napkins/pads by the daughters for their first menstrual experience was found, while 13.0% reported using tampons for their first menses.

The first hygiene product reportedly used by the mothers found 91.7% using napkins/pads, 1.7% using tampons, and 6.6% using neither. Of interest, four women wrote the words "old rags" next to the neither selection. A summary of the data for this question can be found in Table 7.

Table 7 Frequency & Percentage of First Hygiene Product Used				
Product	Frequency		Percentage	
	D	M	D	M
Sanitary napkin/pad	67	55	87.0	91.7
Tampon	10	1	13.0	1.7
Neither	0	4	0.0	6.6
Total	77	60	100.0	100.0
D=daughters		M=mothers		

(2) What hygiene product is currently being used?

A product usage change took place when the daughters' initial choices were compared to their current choices.

Currently, 24.68% are now using napkin/pads, while 59.74% are now using tampons. Napkin/pads and tampon responses were both chosen by 15.58% of the daughters, producing an unexpected response. The change from napkin/pad (initially) to tampons (currently) mimics research findings of others.

A change took place in the product usage of the mothers from initial menses until the present time. Currently, 33.3% use tampons, 11.7% use napkins/pads, 10% chose both tampons and napkin/pad, and 45.0% are no longer using a product. Each mother that chose the neither selection wrote in the margin that she was no longer having a period, had had a hysterectomy, etc. These data are summarized and presented in Table 8.

Table 8 Frequency & Percentage of Current Hygiene Product Used				
Product	Frequency		Percentage	
	D	M	D	M
Sanitary Napkin/Pad	19	20	24.68	33.3
Tampon	46	7	59.74	11.7
Neither	0	27	0.0	45.0
Both	12	6	15.58	10.0
Total	77	60	100.0	100.0
D=daughters		M=mothers		

Research Question

(D) What are the attitudes of mothers and daughters regarding the menstrual cycle?

Daughters

The cumulative frequencies and percentages for the daughters' group of responses for each question of the menstrual attitude questionnaire are found in Appendix F, the means and standard deviations for the menstrual attitude questionnaire are found in Appendix G, and the overall means and standard deviations for the five dimensions are shown in Table 9.

Table 9 Mean and Standard Deviations of the Daughters' MAQ Dimensions		
Dimension	Mean	Standard Deviation
Debilitating	28.45	3.21
Bothersome	16.70	2.23
Natural	15.08	2.75
Predictable	14.62	1.81
Denial	13.94	3.17

Mothers

The total frequencies and percentages of the mothers' group responses for each question of the menstrual attitude questionnaire are found in Appendix H, the means and

standard deviations for the menstrual attitude questionnaire are found in Appendix I, and the overall means and standard deviations for the five dimensions are presented in Table 10.

Daughters and Mothers

The analysis of variance (ANOVA) statistic was run on the combined means of the daughter and mother menstrual attitude questionnaire dimensions. The level of significance chosen to accept or reject the research questions was .05. The Analysis of Variance results are found in Table 11.

(1) Do mothers and daughters view menstruation as a psychological and physically debilitating event?

The debilitation sum of squares was 53.72. The mean was 29.01, the F-value was 4.75, and the probability value was found to be .0310. Based upon the .05 level of significance, the research question that mothers and daughters would be significantly different in the dimension that menstruation was a psychological and physically debilitating event is supported by the data. See Table 11.

(2) Do mothers and daughters view menstruation as a bothersome event?

The analysis of variance for the second dimension that menstruation is a bothersome event found a sum of square score of 23.49. The mean was 16.34, the F-value was 4.12,

Table 10 Mean and Standard Deviations of the Mothers' MAQ Dimensions		
Dimension	Mean	Standard Deviation
Debilitating	29.71	3.54
Bothersome	15.87	2.58
Natural	13.50	3.64
Predictable	14.80	2.43
Denial	14.30	3.67

Table 11 Analysis of Variance, Sum of Squares, Mean, F-value, & Probability of MAQ Dimensions				
Dimension	SS	Mean	F-value	Probability
Debilitating	53.72	29.01	4.75	.0310
Bothersome	23.49	16.34	4.12	.0443
Natural	83.96	14.39	8.34	.0045
Predictable	1.05	14.70	.24	.6267
Denial	4.49	14.09	.39	.5337

and the probability of the F was .0443. Based upon the .05 level of significance, the research question that mothers and daughters would be significantly different in the dimension that menstruation was a bothersome event is supported by the data. See Table 11.

(3) Do mothers and daughters view menstruation as a natural event?

The analysis of variance for the third dimension that menstruation is a natural event found a sum of square score of 83.96. The mean was 14.39, the F-value was 8.34, and the probability of the F value was .0045. Based upon the .05 level of significance, the research question that mothers and daughters would be significantly different in the dimension that menstruation was a natural event is supported by the data. See Table 11.

(4) Do mothers and daughters view menstruation as an anticipatory and predictable event?

The analysis for the fourth dimension that the onset of menstruation is anticipatory and predictable found a sum of square score of 1.05. The mean was 14.70, the F-value was .24 and the probability of the F value was .6267. Based upon the .05 level of significance, the research question that mothers and daughters would be significantly different in the dimension that menstruation is an anticipatory and predictable event is not supported by the data. See Table 11.

(5) Do mothers and daughters deny any effects of menstruation?

The analysis of variance for the fifth dimension that women deny any effect of menstruation found a sum of square score of 4.49. The mean was 14.09, the F-value was .39, the probability level .5337. Based upon the .05 level of significance, the research question that mothers and daughters would be significantly different in the dimension that they deny any effect of menstruation is not supported by the data. See Table 11.

Summary

This chapter presented the data analysis and interpretation. The data were gathered through two questionnaires (A personal data sheet and a Menstrual Attitude Questionnaire). The data were coded and entered into SAS and analyzed. The participants were 77 daughters and 60 of their mothers. The level of significance chosen to determine acceptance or rejection was the .05 level.

CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to describe mothers and daughters for similarities in menstrual cycle knowledge, physical characteristics of their cycles, product usage, and attitudes. The research questions and findings relate to each research question as presented below.

Findings

The findings are presented based upon each of the research questions as found through the personal data and menstrual attitude questionnaires.

The personal data and menstrual attitude questionnaire was given to 77 college-age women and an identical questionnaire was mailed to their mothers. A response rate of 77.92% was received from the mothers group.

Frequencies, percentages, mean, standard deviation, and analysis of variance were the statistical methods used. The .05 level of significance was used to analyze the results.

The following findings are based upon the analysis of data.

1. Mothers and daughters did not differ in who they chose to tell about the initial onset of menses, as both chose to tell their "mothers".

2. Mothers and daughters differed in who explained the menstrual cycle to each, as the daughters primarily had it explained to them by teachers, while the mothers had it explained to them by their own mothers.

3. Mothers and daughters did not differ in the time at which the cycle was explained to them, as both groups had the cycle explained to them prior to its onset.

4. Both mothers and daughters reported feeling secure in their knowledge of their menstrual cycle.

5. The daughters reached menarche an average of nine months later than their mothers did. This finding conflicts with previous research that has found women to be reaching menses at earlier ages than in the past.

6. The majority of both mothers and daughters sought a yearly physical exam.

7. Both mothers and daughters chose to use sanitary napkins/pads for their initial menses.

8. Both mothers and daughters reported having changed their menstrual products from sanitary napkins/pads to tampons since the initiation of the menstrual cycle.

9. The data supported differences between mothers and daughters in the dimension regarding their views of

menstruation as a psychological and physically debilitating event.

10. The data supported differences between mothers and daughters on the dimension that menstruation was a bothersome event.

11. The data supported differences between mothers and daughters on the dimension that menstruation was a natural event.

12. The data did not support differences between mothers and daughters on their views of menstruation as an anticipatory and predictable event.

13. The data did not support differences between mothers and daughters on the dimension that women denied menstrual effects.

Conclusions

The following conclusions are based upon the findings of this study.

1. Similarities exist between generations of women in the same families.

2. Few changes have taken place from when the "mothers" first reached menses until the time their "daughters" initial menses occurred.

3. Some differences do exist between the attitudes of mothers and daughters.

4. Secrecy still abounds surrounding the onset of menses in a woman's life.

5. Numerous people are involved in the education for menses and the possibility for mixed opinions to be shared exists.

Recommendations

The following recommendations are based upon the review of literature, the findings, and conclusions of this study.

Recommendations Based Upon the Results of the Study

(1) Education is still needed so that all girls are prepared for the onset of menses before it occurs, so that no one has to learn about it after the fact, and so that no woman has to go through childhood, adolescence, or adulthood without an indepth knowledge of her monthly menstrual cycle.

(2) Further research needs to focus on the extent of women's knowledge regarding the hygiene products they purchase and use (i.e. tampons and sanitary napkins/pads.)

(3) Current medical recommendations say that women over the age of 35 should have at least yearly exams, but only half of the women in this study have yearly exams. More education needs to take place so that all women have yearly exams and doctors are uniform in their recommendations for at least one yearly exam.

(4) The barriers that hinder mother-daughter communication need to be broken down and communication improved between the generations. Only when this is accomplished will women no longer be confused with their menstrual cycle or the products they use and then, just maybe, the myths will no longer abound and women can feel good about the monthly occurrence that they experience for over half of their lives.

(5) Improvements in women's feelings and attitudes towards menstruation is still needed.

Recommendations for Future Research

(1) Future research should focus on non-white mothers and daughters.

(2) More research needs to address what teachers are, indeed, teaching students about menstruation.

(3) Future research should focus on men's views toward menstruation.

(4) Comparison studies of male-female attitudes, mother-son attitudes, and father-daughter attitudes regarding the menstrual cycle should be examined.

(5) The impact of the media's promotion of premenstrual and menstrual symptoms should be investigated.

(6) Similar research should be done with girls prior to menses and then after menses to distinguish if their attitudes change.

(7) Additional research should investigate if changes occur in womens' attitudes after they reach menopause.

(8) There is a wide range of educational materials available geared toward teaching young girls about menstruation, however, no standards are available and in some instances the subject is delivered rather primitively. The development and delivery of the menstrual cycle within these educational materials must be brought up to current levels of understanding.

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APPENDIXES

APPENDIX A

Lori Dewald, ATC
304 West End Lane
Knoxville, Tennessee 37919
April 6, 1989

Debbie Moody
Williams & Wilkins
428 E. Preston Street
Baltimore, MD 21202

RE: Recent telephone call requesting to use the Menstrual Attitude Questionnaire by Brooks-Gunn and Ruble as found in Psychosomatic Medicine Volume 42, Number 5, September 1980, pages 503-512. I would like to use this questionnaire as part of a data gathering technique in my dissertation on the female menstrual cycle and mother-daughter attitudes of it. Your expedient reply is greatly appreciated.

Sincerely,

Lori Dewald, ATC
Doctoral candidate
University of Tennessee

April 11, 1989
approved,
Debbie Moody

APPENDIX B

Menstrual Attitude Questionnaire

Please circle the answer that best represents your feelings to each of the statements below.

CA = completely agree

CD = completely disagree

MA = mostly agree

MD = mostly disagree

1. A woman's performance in sports is affected negatively by menstruation.

CA MA MD CD

2. Women are more tired than usual when they are menstruating.

CA MA MD CD

3. I expect extra consideration from my friends when I am menstruating.

CA MA MD CD

4. The physiological effects of menstruation are normally no greater than other usual fluctuations in physical state.

CA MA MD CD

5. Menstruation can adversely affect my performance in sports.

CA MA MD CD

6. I feel as fit during menstruation as I do during any other time of the month.

CA MA MD CD

7. I don't allow the fact that I'm menstruating to interfere with my usual activities.

CA MA MD CD

8. Avoiding certain activities during menstruation is often very wise.

CA MA MD CD

9. I am more easily upset during my premenstrual or menstrual periods than at other times of the month.

CA MA MD CD

10. I don't believe my menstrual period affects how well I do on intellectual tasks.

CA MA MD CD

11. I realize that I cannot expect as much of myself during menstruation compared to the rest of the month.

CA MA MD CD

12. Women just have to accept the fact that they may not perform as well when they are menstruating.

CA MA MD CD

13. Menstruating is something I just have to put up with.

CA MA MD CD

14. In some ways I enjoy my menstrual periods.

CA MA MD CD

15. Men have a real advantage in not having the monthly interruption of a menstrual period.

CA MA MD CD

16. I hope it will be possible someday to get a menstrual period over within a few minutes.

CA MA MD CD

17. The only thing menstruation is good for is to let me know I'm not pregnant.

CA MA MD CD

18. Menstruation provides a way for me to keep in touch with my body.

CA MA MD CD

19. Menstruation is a reoccurring affirmation of womanhood.

CA MA MD CD

20. Menstruation allows women to be more aware of their bodies.

CA MA MD CD

21. Menstruation provides a way for me to keep in touch with my body.

CA MA MD CD

22. Menstruation is an obvious example of the rhythmicity which pervades all of life.

CA MA MD CD

23. The recurrent monthly flow of menstruation is an external indication of a woman's general good health.

CA MA MD CD

24. I can tell my period is approaching because of breast tenderness, backaches, cramps, or other physical signs.

CA MA MD CD

25. I have learned to anticipate my menstrual period by the mood changes which precede it.

CA MA MD CD

26. My own moods are not influenced in any major way by the phase of my menstrual cycle.

CA MA MD CD

27. I am more easily upset during my premenstrual or menstrual periods than at other times of the month.

CA MA MD CD

28. Most women show a weight gain just before or during menstruation.

CA MA MD CD

29. Others should not be critical of a woman who is easily upset before or during her menstrual period.

CA MA MD CD

30. Cramps are bothersome only if one pays attention to them.

CA MA MD CD

31. A woman who attributes her irritability to her approaching menstrual period is neurotic.

CA MA MD CD

32. I barely notice the minor physiological effects of my menstrual periods.

CA MA MD CD

33. Women who complain of menstrual distress are just using that as an excuse.

CA MA MD CD

34. Premenstrual tension/irritability is all in a woman's head.

CA MA MD CD

35. Most women make too much of the minor physiological effects of menstruation.

CA MA MD CD

APPENDIX C

Please complete the following information regarding your personal history, hygiene product information, and menses information.

I. PERSONAL HISTORY

1. Age of participant at last birthday: _____
2. Race: (circle) (a) White (b) Non-white
3. Religious affiliation: (circle)
 (a) Catholic (b) Protestant (c) Jewish (d) None
4. Marital status: (circle)
 (a) single (b) widowed (c) divorced (d) married
5. Education: (circle)
 (a) K-8 (b) 9-12 (c) vocational (d) junior college
 (e) some college (f) college degree (g) graduate

II. HYGIENE PRODUCT INFORMATION

6. What female hygiene product did you first use upon menses? (circle)
 (a) sanitary napkin/pad (b) tampon (c) neither
7. What product are you currently using? (circle)
 (a) sanitary napkin/pad (b) tampon (c) neither

III. MENSES INFORMATION

8. Who did you tell initially about your first menses? (circle)
 (a) mother (b) other relative (c) friend
 (d) teacher (e) school counselor
9. Who explained the menstrual cycle to you? (circle)
 (a) mother (b) other relative (c) friend
 (d) teacher (e) school counselor
10. Was menstruation explained before, after, or not at all for your first menses? (circle)
 (a) before (b) after (c) not at all

11. If menstruation was explained to you, how was it done?
(circle)

(a) books (b) pictures (c) movie (d) lecture
(e) doctor (f) school (g) at home (h) discussion

12. Do you have a yearly physical exam? (a) Yes (b) No

13. What was your age at first menses? (years and months)

14. Do you feel secure in your knowledge of menstruation?

(a) Yes (b) No

APPENDIX D

INFORMED CONSENT STATEMENT

I, the below signed, understand that the purpose of this study is to gather information on the menstrual cycles of mothers and daughters. I understand that I will be asked to fill out a demographic data sheet and menstrual attitude questionnaire about my personal experiences with menstruation. I have been informed that I am not required to sign my name to any of the data collection sheets. I also understand that my responses will be held in the strictest of confidence and that I can withdraw from participation at any time. Also, if I have any questions regarding my participation in this study, that I will have an opportunity to contact the researcher at the address and telephone number listed below.

Name _____

Date _____

Researcher:

Lori Dewald, ATC
Doctoral Candidate - UTK
Department of Health, Leisure, and Safety
University of Tennessee - Knoxville

Mailing address:

304 West End Lane
Knoxville, Tennessee 37919
(615) 558-9001

APPENDIX E

Lori Dewald
304 West End Lane
Knoxville, Tennessee
37919

May 1, 1989

Dear _____:

Hi, my name is Lori Dewald. I am a Freeman, South Dakota native and a 1982 Mankato State graduate. I am currently completing my doctorate at the University of Tennessee and one of the requirements is that of a research project otherwise known as a dissertation. This is where your importance lies.

My research is with mother and daughter attitudes regarding the menstrual cycle. Your daughter has agreed to participate in this study and has completed her questionnaire. Now, I would kindly ask the same of you. Your responses will be kept confidential and in no way will anyone be identified. Completing this survey will take a few minutes, while the information will be a valuable asset to the topic of menstruation. I would like to suggest that you answer the questionnaire independently and then discuss the topic with your daughter.

I am enclosing a self-addressed stamped envelope, so you will not incur any costs. Also, if you would like to see the results of my research place a "yes" at the top of your survey. I sincerely thank you for your participation.

Yours truly,

Lori Dewald

APPENDIX F

Frequency & Percentage of Daughters MAQ Likert Scale

Question	NA	CA	%	MA	%	MD	%	CD	%
1	0	3	3.9	21	27.3	38	49.4	15	19.5
2	0	15	19.5	28	36.4	28	36.4	6	7.8
3	0	2	2.6	10	13.0	25	32.5	40	51.9
4	1	3	3.9	24	31.2	34	44.2	15	19.5
5	0	3	3.9	28	36.4	32	41.6	14	18.2
6	0	5	6.5	23	29.9	34	44.2	15	19.5
7	0	23	29.9	46	59.7	7	9.1	1	1.3
8	0	1	1.3	14	18.2	35	45.5	27	35.1
9	0	33	42.9	26	33.8	14	18.2	4	5.2
10	0	27	35.1	34	44.2	16	20.8	0	0.0
11	0	3	3.9	19	24.7	33	42.9	22	28.6
12	0	3	3.9	17	22.1	29	37.7	28	36.4
13	0	36	46.8	32	41.6	8	10.4	1	1.3
14	0	2	2.6	7	9.1	24	31.2	44	57.1
15	0	41	53.2	29	37.7	4	5.2	3	3.9
16	1	31	40.3	26	33.8	16	20.8	3	3.9
17	0	15	19.5	27	35.1	17	22.1	17	22.1
18	0	11	14.3	46	59.7	14	18.2	6	7.8
19	0	16	20.8	46	59.7	10	13.0	5	6.5
20	0	19	24.7	48	62.3	7	9.1	3	3.9
21	0	14	18.2	49	63.6	10	13.0	4	5.2
22	0	18	23.4	50	64.9	7	9.1	2	2.6
23	0	13	16.9	54	70.1	8	10.4	2	2.6
24	0	53	68.8	16	20.8	6	7.8	2	2.6
25	0	22	28.6	28	36.4	24	31.2	3	3.9
26	0	8	10.4	19	24.7	30	39.0	20	26.0
27	0	26	33.8	30	39.0	17	22.1	4	5.2
28	0	15	19.5	46	59.7	15	19.5	1	1.3
29	0	20	26.0	44	57.1	10	13.0	3	3.9
30	0	3	3.9	20	26.0	26	33.8	28	36.4
31	0	7	9.1	34	44.2	35	45.5	1	1.3
32	1	6	7.8	30	39.0	23	29.9	17	22.1
33	1	8	10.4	39	50.6	0	0.0	29	37.7
34	1	2	2.6	25	32.5	0	0.0	49	63.6
35	1	1	1.3	16	20.8	38	49.4	21	27.8

APPENDIX G

Means and Standard Deviations of the Daughters MAQ

Question	Mean	Response	Standard Deviation
1	2.16	MD	.78
2	2.68	MD	.88
3	1.66	CD	.80
4	2.17	MD	.83
5	2.26	MD	.80
6	2.23	MD	.84
7	3.18	MA	.64
8	1.86	CD	.74
9	3.14	MA	.90
10	3.14	MA	.74
11	2.04	MD	.83
12	1.94	CD	.86
13	3.34	MA	.72
14	1.57	CD	.77
15	3.40	MA	.77
16	3.08	MA	.94
17	2.51	MD	1.06
18	2.81	MD	.78
19	2.95	MD	.78
20	3.08	MA	.70
21	2.95	MD	.72
22	3.09	MA	.65
23	3.01	MA	.62
24	3.56	MA	.75
25	2.90	MD	.87
26	2.20	MD	.95
27	3.01	MA	.88
28	2.96	MD	.72
29	3.05	MA	.74
30	1.97	CD	.89
31	1.61	CD	.67
32	2.30	MD	.95
33	1.70	CD	.67
34	1.36	CD	.56
35	1.94	CD	.77

APPENDIX H

Frequency & Percentage of Mothers MAQ Likert Scale

Question	NA	CA	%	MA	%	MD	%	CD	%
1	0	3	5.0	24	40.0	23	38.3	10	16.7
2	0	14	23.3	25	41.7	14	23.3	7	11.7
3	0	1	1.7	5	8.3	20	33.3	34	56.7
4	0	8	13.3	32	53.3	14	23.3	6	10.0
5	0	4	6.7	21	35.0	24	40.0	11	18.3
6	0	7	11.7	21	35.0	21	35.0	11	18.3
7	0	25	41.7	27	45.0	6	10.0	2	3.3
8	0	4	6.7	17	28.3	22	36.7	17	28.3
9	0	23	38.3	23	38.3	12	20.0	2	3.3
10	0	21	35.0	25	41.7	9	15.0	5	8.3
11	0	5	8.3	17	28.3	19	31.7	19	31.7
12	1	3	5.0	17	28.3	18	30.0	21	35.0
13	2	29	48.3	25	41.7	4	6.7	0	0.0
14	0	0	0.0	3	5.0	15	25.0	42	70.0
15	0	34	56.7	17	28.3	5	8.3	4	6.7
16	0	23	38.3	15	25.0	12	20.0	10	16.7
17	0	12	20.0	15	25.0	17	28.3	16	26.7
18	0	10	16.7	29	48.3	9	15.0	12	20.0
19	0	14	23.3	26	43.3	9	15.0	11	18.3
20	0	10	16.7	25	41.7	13	21.7	12	20.0
21	1	8	13.3	25	41.7	14	23.3	12	20.0
22	1	18	30.0	33	55.0	5	8.3	3	5.0
23	1	12	20.0	28	46.7	12	20.0	7	11.7
24	1	38	63.3	16	26.7	4	6.7	1	1.7
25	1	17	28.3	22	36.7	15	25.0	5	8.3
26	1	5	8.3	21	35.0	17	28.3	16	26.7
27	1	20	33.3	26	43.3	10	16.7	3	5.0
28	0	20	33.3	36	60.0	4	6.7	0	0.0
29	0	15	25.0	32	53.3	9	15.0	4	6.7
30	0	5	8.3	14	23.3	21	35.0	20	33.3
31	0	2	3.3	4	6.7	23	38.3	31	51.7
32	0	4	6.7	26	43.3	19	31.7	11	18.3
33	0	1	1.7	8	13.3	27	45.0	24	40.0
34	0	2	3.3	1	1.7	17	28.3	40	66.7
35	0	2	3.3	18	30.0	23	38.3	17	28.3

APPENDIX I

Means and Standard Deviations of the Mothers MAQ

Question	Mean	Response	Standard Deviation
1	2.33	MD	.82
2	2.77	MD	.95
3	1.55	CD	.72
4	2.70	MD	.83
5	2.30	MD	.85
6	2.40	MD	.92
7	3.25	MA	.77
8	2.13	MD	.91
9	3.12	MA	.85
10	3.03	MA	.92
11	2.13	MD	.96
12	2.00	MD	.96
13	3.12	MA	.87
14	1.35	CD	.58
15	3.35	MA	.90
16	2.85	MD	1.12
17	2.38	MD	1.09
18	2.62	MD	.99
19	2.72	MD	1.03
20	2.55	MD	1.00
21	2.45	MD	1.02
22	3.07	MA	.86
23	2.72	MD	.98
24	3.48	MA	.83
25	2.82	MD	1.00
26	2.23	MD	.99
27	3.02	MA	.93
28	3.27	MA	.58
29	2.97	MD	.82
30	2.07	MD	.95
31	1.62	CD	.76
32	2.38	MD	.87
33	1.77	CD	.74
34	1.42	CD	.70
35	2.08	MD	.85

VITA

Lori Lynn Dewald was born in Freeman, South Dakota on September 6th, 1959. Elementary through high school was in the Freeman Public School District and graduation took place in May of 1977. Numerous high school activities included athletic and musical extra-curricular involvements.

A bachelor of science degree followed four years of various athletic participation at South Dakota State University in May of 1981. Her majors were in Health and Physical Education with minors in Athletic Training and Coaching. Teaching qualification was limited to secondary education and with her special interest being in elementary children she attended Mankato (Minnesota) State University for the 1981-1982 school year where she completed a bachelor of science degree with an Elementary Education major and a minor in Music Performance. Graduation concluded the year in June of 1982.

Teaching opportunities from 1982-1984 were at Yankton and Lennox, South Dakota in Elementary Physical Education and Reading. Coaching assignments were in tennis, basketball, and volleyball.

Graduate school and a graduate assistantship in teaching provided Lori's next educational pursuit at Northern Illinois University for 1984-1985. Prior to the completion of a masters in physical education, she accepted

an offer to be a graduate assistant in Athletic Training for the Lady Vols at the University of Tennessee in 1985-86. A masters degree in Health Education with a concentration in Public Health was completed in December of 1986. She continued towards a doctorate in education at the University of Tennessee in the Department of Health, Leisure, and Safety with a collateral in Educational Counseling and Psychology, completing it in December of 1989.

In August of 1989 she accepted a position at Indiana University-Bloomington as the Assistant Curriculum Director of Athletic Training within the Department of Physical Education. Her duties include teaching two courses in Athletic Training, advising students majoring in Athletic Training, serving on academic committees, and coordinating the medical coverage for women's softball and swimming.