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PREMENSTRUAL SYNDROME:
SELF REPORTED SYMPTOMS AND SEVERITY IN YOUNG ADULTS

By

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ABSTRACT

PMS: SELF REPORTED SYMPTOMS AND
SEVERITY IN YOUNG ADULT FEMALES

By

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A descriptive study of 100 young adult females ages 18 to 25 was undertaken to answer two questions. 1. What physical, affective, or behavioral symptoms are most commonly self-reported retrospectively by this sample of women during the premenstrual phase of the menstrual cycle? 2. What symptoms are reported as being most severe during the premenstrual phase of the menstrual cycle?

The Moos (1985) Menstrual Distress Questionnaire was utilized to collect data about symptoms. The results indicated that the majority of the women completing the MDQ (Moos, 1985) suffered from some symptomatology preceding menses. Very few women, however, suffered from severe symptoms.

It was decided that, based upon the results, that the tool was an adequate screening device. It was also decided that the MDQ (Moos, 1985) was not adequate to be used alone as a conclusive device for assessing symptoms of PMS. Implications for research and clinical practice are outlined.

ABSTRACT

Moos, R. (1985). Premenstrual symptoms: A mannual and overview of research with the menstrual distress questionnaire. California: Standford University.

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CHAPTER I

THE PROBLEM

Introduction

Since its first appearance in the literature some fifty years ago, Premenstrual Syndrome (PMS) and its symptoms have been increasingly discussed and studied by both the lay and health care worlds (Frank, 1931; Greene & Dalton, 1953; Steiner & Carroll, 1977; Gonzalez, 1981; Abraham, 1983; Rock, 1984; Laurensen, 1985; Frank, 1986). Despite this attention, there is little conclusive data related to symptomatology, severity, population of sufferers, or treatment modalities for PMS (Laurensen, 1985).

There is little agreement in the literature regarding the number of women PMS affects. It is estimated that between 15% and 100% of women (Woods, Most, & Dery, 1982) will report symptoms attributable to PMS during their adult lives. Shaver and Woods (1985) note that beside the presence of symptoms of PMS, an important consideration is how bothersome or disruptive the symptoms are to the woman. Symptoms reported may vary from present but not disruptive of activities of daily living to disabling. Two to three percent of women report PMS symptoms which are disabling to them (Hopson & Rosenfeld, 1984).

The literature to date does not contain a precise definition of premenstrual syndrome. As a result of the inability to define and agree upon one definition or etiology, varying types of treatment plans have been developed and utilized with inconsistent rates of success (Abraham, 1983; Dalton, 1977; Laurensen, 1985). Due to

the broadness of the syndrome, treatment is quite diverse, including diet therapy, vitamin supplements, exercise, relaxation, counseling, and education in self-care (Frank, 1986). One approach that has proven effective for many women with PMS has been education. Programs which include information about the syndrome, dietary changes, vitamin supplements, exercise, and stress reduction techniques have had some success (Laurensen, 1985). Most authors report a reduction of symptoms and an improved well-being of the woman with a combination of the above listed interventions (Abraham, 1980; Frank, 1986; Laurensen, 1985).

Regardless of the etiology of the cyclic symptoms of PMS, the fact remains that for some women symptoms of PMS are severe enough to disrupt normal activities of daily living. This disruption is stressful for these women (Levitt, Freeman, Soundheimer & Rickels, 1986). Stressful life events have been documented as being important factors related to both physical and mental disorders (Selye, 1956). The young adult female is at a point in her life where one or more stressful life events are occurring (leaving home, starting college, getting married, giving birth to the first child, launching a career and so on). When the stress produced by the cyclic reccurence of PMS symptomatology is added to these developmental stresses, the potential for a reduction in ability and energy for developmental task accomplishment is greatly reduced.

The Clinical Nurse Specialist (CNS) has an important role through education, research, and clinical practice in significantly

contributing to the elimination or reduction of the impact of PMS. The CNS with psycho-social-physio-environmental knowledge, as well as background in teaching and learning theory, is well equipped to assist women suffering from PMS.

Purpose of this Study

Research regarding premenstrual symptoms has been the focus of increased attention during the past 50 years. Premenstrual symptoms which have been most commonly reported include: abdominal bloating, breast tenderness, edema of extremities, headache, backache, dizziness, joint pain, appetite changes with cravings, acne, anxiety, depression, mood swings, irritability, confusion, fatigue, tension, and crying spells (Dalton, 1977; Laurensen, 1985; Moos, 1968; Moos, 1985; Abraham, 1982).

There is disagreement in the literature concerning the number of women who are affected by PMS or symptoms premenstrually. The prevalance of PMS symptoms reported ranges from 15 to 100 percent of all women (Woods, Most, & Dery, 1982). There is also no consensus as to which symptoms are most commonly reported. The above mentioned core of symptoms is becoming more accepted, however the actual number of symptoms is still under scrutiny (Moos, 1968; Abraham, 1983; Wood, Most, & Dery, 1982; Laurensen, 1985). Despite disagreement about the number or types of symptoms reported, many researchers are in agreement that most symptoms will be reported during the menstrual or premenstrual phases of the cycle (Moos,

1968; Moos, 1985; Abraham, 1982; Wood, Most, & Dery, 1982; Shaver & Woods, 1985). Which symptoms or how severe they will be for each phase is an area requiring clarification.

Researchers who have used the Menstrual Distress Questionnaire (MDQ) (Moos, 1968) and have analyzed symptoms across phases of the menstrual cycle have obtained differing results. Woods, Most, and Dery (1982) found a substantial and statistically significant difference in the severity of symptom ratings between the menstrual phase and the remainder of the cycle, and the premenstrual phase and the remainder of the cycle for 16 of the MDQ items. Shaver and Woods (1985) studied a group of women for two cycles using the MDQ and an open ended diary. Shaver and Woods (1985) found that, in general, symptoms reported for the menstrum and premenstrum were fairly prevalent during the remainder of the month. Hargrove and Abraham (1981) utilized the Menstrual Symptom Questionnaire (MSQ) (Abraham, 1980) and found that 702 subjects suffered from at least one category of premenstrual symptomatology during the week preceding menses. Hargrove and Abraham (1981), however, utilized only two divisions for the cycle, one week preceding and one week after menses. No symptoms were measured for the menstrual phase. In the research which has been conducted to date, there is disagreement about the number of symptoms reported for any specific menstrual phase, as well as the severity levels for symptoms reported in each phase.

Most studies dealing with the identification of symptoms also

attempt to measure the severity of reported symptoms. Severity is a measure of the degree of disruption of normal activities caused by symptoms. One study used 6 points of sensitivity to determine severity (Moos, 1968), another used 4 (Abraham, 1983) and still others have used 3 (Kingsbury, 1985; Mackay, 1985). The varying sensitivities of the severity scales has made it difficult to compare results of these studies. The research findings provide information leading to an agreement that symptom severity is highest during the premenstrual and menstrual phases of the menstrual cycle, as compared to the remainder of the month (Moos, 1968; Moos, 1985; Woods, Most, & Dery, 1982; Abraham, 1983).

Without an understanding of severity, prevalence, or common types of symptoms as a base, it is virtually impossible to plan effective nursing interventions. This study will focus on a relatively homogenous, healthy group of young women ages 18 to 25, a sample very much like that of Moos' (1968). It is hoped that a comparable study estimating the type and severity of different menstrual cycle symptoms will provide other investigators with an increased understanding of PMS to serve as a basis for formulating timely clinical interventions.

The purpose of this study specifically is to: 1. Identify symptoms reported most often by a sample of women 18 to 25 years of age during the seven days prior to menses (premenstrual phase) as compared to the week of menses, and the remainder of the month; 2. Determine to what degree symptoms reported interfere with activities

of daily living (severity) during the seven days prior to menses compared to the week of mensus, and the remainder of the month.

Research Questions

1. What physical, affective, or behavioral symptoms are most commonly self-reported retrospectively by this sample of women 18 to 25 years of age during the premenstrual phase of the menstrual cycle?
2. What symptoms are reported as being most severe during the premenstrual phase of the menstrual cycle?

Definition of Concepts

PMS

As previously stated, PMS has been discussed in the literature since Frank's initial description (Frank, 1931). Frank (1931) used the term Premenstrual Tension Syndrome to describe conditions suffered by women characterized by nervousness, weight gain, swelling of face, hands, and feet, painful engorgement of the breasts, and headaches premenstrually.

In 1982, Abraham, utilizing the same term as Frank (1931), described the phenomenon as a symptom complex occurring seven to ten days before menses, becoming progressively worse, and improving with menses. Dalton (1977) states that PMS is the wide variety of symptoms which occur regularly in the same phase of each menstrual cycle, followed by a symptom free time in each cycle. Moos (1968)

definied PMS as the clustering of symptoms during the week preceding menses. Halbreich, Endicott, Schacht, and Nee (1982) stated symptom clustering must occur during the 1 to 14 days preceding onset of menses to be considered a premenstrual symptom.

The complexity of this syndrome and its variety of manifestations has not allowed for an easy or simple definition. There are, however, some characteristics repeated in most definitions. Common characteristics among definitions include: the cyclic nature of occurrence of the symptoms, the presence of a symptom free time, and the grouping or clustering of symptoms. For this study, the term PMS, coined by Dalton (1964), rather than PMTS (premenstrual tension syndrome, Frank, 1931), will be used. PMS will be defined as the cluster of symptoms including physical, behavioral, or affective manifestations that occur during the week preceding menses with cessation upon onset of menses. Based on a review of the literature the following symptoms are most commonly reported as clustering during the premenstrual phase of the cycle: abdominal bloating, breast tenderness, edema of extremities, headache, backache, dizziness, joint pain, appetite changes with cravings, acne, anxiety, depression, mood swings, irritability, confusion, fatigue, tension, and crying spells (Laurensen, 1985; Moos, 1985; Abraham, 1982).

Symptoms

Symptoms of PMS are numerous. Proposed etiologies are equally plentiful. Dalton (1977) works from the premise of hormonal imbalances. Goie and Abraham (1983) have studied vitamin deficiencies. Laurensen (1985) in a review of the literature concerning PMS, cites prolactin as a possible cause of some of the symptoms. Efforts to divide and group symptoms to facilitate study of the etiology of PMS have been made by individual researchers (Moos, 1968; Dalton, 1964; Woods, Most, & Dery, 1982; Abraham, 1980). Moos (1968, 1985) utilized eight groupings of symptoms. Moos' (1968, 1985) list (Table 1) includes symptoms he found women report across the entire menstrual cycle, not just symptoms reported for the premenstrum. Note that one symptom, changes in appetite, is not included in a subscale. Women frequently report a change in appetite or cravings. The symptom, however, does not consistently factor into any of the subscales (Moos, 1968, 1977, 1985). Using Moos' (1968, 1985) scale, PMS is the cluster of symptoms present the week before menses and absent during any other phase of the menstrual cycle. For this study, a single premenstrual symptom will be any physical, behavioral, or affective symptom occurring during the week preceding menses with cessation upon onset of menses. A single symptom meeting the above criterion will be considered a premenstrual symptom worthy of intervention, but will not indicate PMS. PMS refers to the cluster of symptoms, indicating the presence of more than one symptom.

TABLE 1. Moos (1968, 1985) Eight Subscales of the MDQ.

PAIN	WATER RETENTION
Muscle stiffness	Weight gain
Headaches	Skin disorders
Cramps	Painful breasts
Fatigue	Swelling
General aches and pains	
Backache	
CONCENTRATION	NEGATIVE AFFECT
Insomnia	Crying
Forgetfulness	Loneliness
Confusion	Anxiety
Lowered judgement	Restless
Difficulty concentrating	Irritability
Distractible	Mood swings
Accidents	Depression
Lowered motor coordination	Tension
BEHAVIOR CHANGES	AROUSAL
Lowered school/work performance	Affectionate
Take naps, stay in bed	Orderliness
Stay at home	Excitement
Avoid social activities	Feeling of well-being
Decreased efficiency	Bursts of energy
AUTONOMIC REACTIONS	CONTROL
Dizziness/faintness	Feeling of suffocation
Cold sweats	Chest pain
Nausea, vomiting	Ringing in ears
Hot flashes	Heart pounding
	Numbness, tingling
	Blind spots, fuzzy vision
Changes in Appetite	

Severity

The concept of severity has been discussed by many researchers (Abraham, 1980; Woods, 1985; Moos, 1968; Woods, Most, & Dery, 1982; Kingsbury, 1985). Moos (1968) described a six point scale ranging from: "did not experience at all" to "present and disabling" to determine severity of symptoms. Moos (1985) later reduced the severity scale to a four point scale ranging from "did not experience" to "present disabling", the two moderate scales were combined. In 1983, severity was defined by Abraham using a numerical scale ranging from "no symptoms" to "keeps me home in bed" (severe). The four point scale used by Abrahan (1983) was a revision of the scale originated by Moos (1968). Dalton (1980) described a three point scale ranging from "aware of menses coming" (mild) to "life threatening with potential for suicide, or symptoms that interfere with employment or relationship stability" (severe). The common underpinning of all the severity scales mentioned is the attempt to determine the degree to which symptoms reported in relation to the menstrual cycle disrupt the woman's activities of daily living. Thus, severity is a subjective measure indicating how the individual perceives her life disrupted by the symptom(s) during the phases of the menstrual cycle.

Phases of the Menstrual Cycle

The menstrual cycle has two divisions: The follicular and the luteal. The follicular part is approximately the first half of the

menstrual cycle and is characterized by the development of the graafian follicle from a number of growing follicles. The luteal part occurs as a result of a surge in gonadotropin secretion and ovulation. The graafian follicle becomes a corpus luteum which secretes estradiol and progesterone. PMS symptoms occur late in the luteal phase (Linkie, 1982).

Moos (1968) divided the two parts of the menstrual cycle into three phases in the development of the Menstrual Distress Questionnaire. Since that time, other studies (Wood, Most & Dery, 1982; Kingsbury, 1985) have utilized the three phases as a more accurate way of determining the presence of symptoms of PMS and the symptom free time required to diagnose PMS. The use of phases as a method of dividing the menstrual cycle into units of time allows women to differentiate between their experience of different symptoms and severity in terms of different times during the cycle. Research has attempted to establish three phases (Kingsbury, 1985; Moos, 1968, 1985; Shaver & Woods, 1985) based on clustering of symptoms or the absence of symptoms in relation to menses.

Phases, for the purpose of this study, will be units of time developed to identify what symptoms are present, when symptoms are present, and when symptoms are most severe in relation to menstrual blood flow. The phases utilized will be: (1) seven days preceding menstrual flow, (2) time during menstrual blood loss, (3) remainder of month not covered by the other two phases (Moos, 1968). It is important to determine when symptoms occur and when they are most

severe by comparing the phases in order to identify symptoms that fulfill the definitions of PMS and premenstrual symptoms.

Young Adult

Another concept requiring definition is that of the young adult female (women aged 18 to 25 years). The young adult years are a period of transition from dependence upon parents to that of autonomy and interdependence. According to Chickering (1969), as one enters the "young adult years" life phase there is a central developmental task that must be accomplished, the "establishing of identity". Chickering (1969) postulates six vectors to understanding identity development in young adulthood. Chickering (1969) suggests vectors rather than stages, as vectors connote both magnitude and direction.

The vectors are not linear in progression. The first three vectors, developing competence, managing emotions, and developing autonomy provide the foundation for the last three, freeing interpersonal relationships, clarifying purpose, and developing integrity. All six vectors are required if identity is to be established (Figure 1, Chapter II).

The process of "establishing identity" (Chickering, 1969) is one that requires major emotional and psychological changes to occur in the young adult female. Chickering (1969) states that "the individual must develop a view of self suggesting that one is capable, in control, and independant before considering how to define self" (p.80). In essence, Chickering (1969) suggests that the

individual must first be assured that he/she can contend with an environment before an identity can be created.

The task of "establishing identity" can be even more complicated for the young woman dealing with PMS. The physical discomforts combined with decreased ability to control oneself may contribute to confusion and retardation of the establishing identity process.

Extraneous Variables

Any factor which is not included in the study design that may influence the variables under study is classified as an extraneous variable. History of menstruation, age, state of health, nutritional status, and activity level are variables of this nature which have been measured in this study. Numerous other extraneous variables, such as cultural beliefs, current mood state, and personality type are beyond the scope of this study and were not measured.

Assumptions of the study

1. All answers were given in an honest and accurate manner.
2. The symptoms which are indicative of PMS were included in the tool.
3. If symptoms are reported as occurring during the premenstrual phase of the menstrual cycle and not during the other two phases, they may be indicative of PMS.

Limitations of the study

1. This questionnaire is a retrospective symptom survey requiring self-reporting. This type of reporting can lead to error in reporting of symptoms. The trend for this type of questionnaire has been toward over reporting (Ruble, 1977). Rose and Abplanalp (1983) found high concordance between reported symptoms and severity in patients with the most severe symptoms.
2. Generalizability is limited to 18 to 25 year old women enrolled at the institution where data were collected.
3. The woman's perceptions of menstruation and her earlier experiences observing her mother's menstruation may bias reporting of symptoms. Shaver and Woods (1985) found that the woman's beliefs and attitudes toward menstruation can affect the symptoms and severity reported by women.
4. Volunteers often possess characteristics not found in the general population. The volunteer phenomenon will reduce generalizability of results.
5. Only one cycle is assessed and no other means of validating the self-report is used.
6. To date, few reliability or validity studies have been conducted on the entire MDQ, form C.

Overview of chapters

This study is presented in six chapters. Chapter I contains an introduction, statement of purpose, research questions, definitions

of variables, assumptions, and limitations of the study. Chapter II contains the conceptual framework. In Chapter III, a review of the literature is provided. The research design and methodology are included in Chapter IV. Chapter V contains the findings of this study and the data analysis. Finally, Chapter VI is a summary of the study's findings, conclusions, recommendations for future research, and implications for nursing practice and education.

CHAPTER II

CONCEPTUAL FRAMEWORK

In this chapter, the conceptual framework used to guide this study will be described. Chickering's (1969) developmental theory and Rogers' (1985) theoretical basis for nursing will be utilized as models for this framework. Chickering (1969) views the development of humans across the life cycle as a process of accomplishing developmental tasks. Concepts from Chickering's (1969) theory that will be presented include young adulthood, as a stage in the life cycle of man, and task accomplishment.

Rogers' (1985) uses the principles of resonancy, helicy, and integrality to define the nature and direction of change in man and his environment. Concepts presented from Rogers' (1985) theory will include man, the environment, health, and nursing. The term man, though awkward, will be utilized within the discussion of Rogers' (1985) theory, as this is terminology taken directly from the theory.

Finally, the integrated conceptual framework will be presented. It is within the integration of the theories of Rogers (1985) and Chickering (1969) that the interconnectedness of the concepts of young adulthood, as a phase in the life cycle of man, the environment, PMS, and nursing are discussed.

Rogers' (1985) theory of nursing was selected as a framework for the study for two reasons. The first reason is the emphasis of the

theory on man as a unified whole and more than the sum of his parts. Rogers (1985) clearly states that man can not be broken into elements or separated from his environment to study or predict behaviors. The second reason for the selection is related to Rogers' (1985) view of universal man's ability to choose components from an environment that is all around him and a part of him to create a harmonious life pattern.

Chickering's (1969) developmental theory was selected because the framework acknowledges the impact of the internal and external environments on the human being. Within this theory the elements of emotional growth, cognitive development, physical skills acquisition, and human interaction are addressed. Chickering (1969), like Rogers (1985), views the human as more than the sum of the psycho-socio-biological parts.

The Young Adult

The young adult is usually considered as one between the ages of 18 to 25. This span of years is a period of transition from dependence upon parents to that of autonomy and interdependence. According to Chickering's Psychosocial Developmental Model (1969), the central developmental task of young adulthood is "establishing identity". Chickering (1969) postulates that identity development is composed of six vectors (Figure 1). As mentioned in chapter I, Chickering (1969) suggests vectors rather than stages, as vectors connote both magnitude and direction while stages usually connote

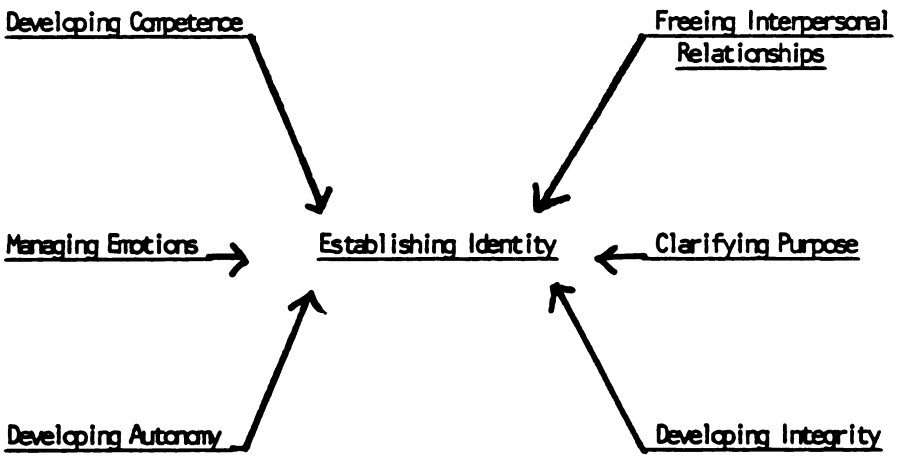


FIGURE 1. Chickering's Psychosocial Developmental Model.

time. Establishing identity is the single major task for young adults. Chickering (1969) defines identity as a solid sense of self that assumes form as the developmental tasks are undertaken with some success. The sense of identity provides a framework for interpersonal relationships, purpose, and integrity in adult life. The six vectors are as follows (Chickering, 1969):

1. Developing competence: A sense of competence is defined as the "confidence one has in his ability to cope with what comes and to achieve successfully what he sets out to do" (Chickering, 1969, p.9). Chickering (1969) suggests three areas of ability which one must achieve competence: intellectual skills, physical and manual skills, and social skills.
2. Managing Emotions: Individuals must become aware of their

emotions and recognize them for what they are. In addition, they must manage and control emotions as they are integrated into decisions and behavior. Sex and aggression are two major areas of concern that one learns to control or manage within relationships (Chickering, 1969).

3. Developing autonomy: Chickering (1969) defines autonomy as the "independence of maturity" and views maturely autonomous persons as secure and stable, capable of coordinating behaviors to personal and social ends. Emotional independence or autonomy involves freedom from the pressing need for reassurance, affection or approval. As people become emotionally autonomous, they discover and accept the "capstone of autonomy" which is interdependence with family, peers, and society (Delworth & Hanson, 1980).

4. Freeing Interpersonal Relations: This task involves developing a tolerance for a wide range of ideological and individual differences. Recognizing differences, tolerating them, and finally beginning to appreciate the differences in interpersonal relationships is reflected as one develops mature and intimate relationships (Chickering, 1969).

5. Clarifying Purpose: The young adult must develop plans and priorities for life and begin to integrate vocational interests with vocational plans and lifestyle considerations. This integration provides both direction and purpose to life.

6. Developing integrity: Integrity involves three steps:

humanizing values or recognizing the differences between absolutist rules of life and more relativistic perceptions of life, i.e., the letter of the law vs. the spirit of the law, personalizing of values or accepting and affirming one's own value system and acting according to it, and developing concurrence between one's value system and actions (Chickering, 1969).

In essence, Chickering (1969) is stating that the individual must develop a view of self that suggests competence, personal control, and independance before considering how to define self. The individual must be assured that they can contend with an environment before an identity can be created. This idea of self concept or identity development and environmental influence is significant to this research and will be further developed within the final section of this chapter where the theories of Rogers (1985) and Chickering (1969) are integrated to form one conceptual framework for research.

Rogers' Theory

Unitary Man (Human Being)

Rogers (1985) views nursing from a universal perspective. The broad scope of Rogers' theory makes it readily useful to all aspects of nursing practice. Rogers' (1985) theory is based upon assumptions about human beings, beliefs about nursing, and four conceptual building blocks of the theory. The assumptions at the

foundation of Rogers' theory are about human beings: Rogers states, "People are at the center of nursing's purpose" (1985, viii). The assumptions are listed below.

Roger's Assumptions about Man

1. The human being is a unified whole possessing his own integrity, and manifesting characteristics that are more than and different from the sum of his parts (Rogers, 1985)
2. The human being and the environment are constantly exchanging energy with one another (Rogers, 1985).
3. The life process evolves irreversibly and unidirectionally along the space-time continuum (Rogers, 1985).
4. Pattern and organization identify the person and reflect his innovative wholeness (Rogers, 1985).
5. The human being is characterized by the capacity for abstraction and imagery, sensation and emotion, and language and thought (Rogers, 1985).

Rogers' (1985) assumptions about man lead into the next section of this chapter, the discussion of individual concepts of the theory. The first concept described will be the the concept of man (human being).

Man

Rogers' (1985) framework is concerned with two energy fields: the human field and the environmental field. The human energy field, viewed as a whole, is the person. Persons are identified

by pattern and organization which is changed by interaction with the environment as each individual moves through life. Pattern and organization are characterized by the individual's capacity for abstraction and imagery, sensation and emotion, and language and thought (Rogers, 1985). Figure 2 depicts Rogers' (1985) spiral of life. The slinky, with the differential spacing of loops, depicts helicy. Helicy is the continuous, innovative, probabilistic increasing in diversity of human and environmental field patterns characterized by non-repeating rhythmicities. The changing size of the slinky loops depicts resonancy, the continuous change from lower to higher frequency wave patterns in human environmental fields. The slinky over time depicts the continuous mutual human and environmental field process. Thus, the spiral is a pictorial of man's development and interactions with the environment over time. This evolution implies an increasingly complex thought pattern in man over time. The person's ability to think implies an ability to make decisions, which in turn provides for choices in selecting components of the environment. By making choices, individuals influence their pattern and re-pattern to produce a harmonious life experience (Rogers, 1985). The individual's ability to influence patterning and re-patterning is significant for this study. It implies that the woman can make changes in an effort to obtain her maximum health potential via knowledge about PMS, the kinds of symptoms found, and the factors that may influence the symptoms.

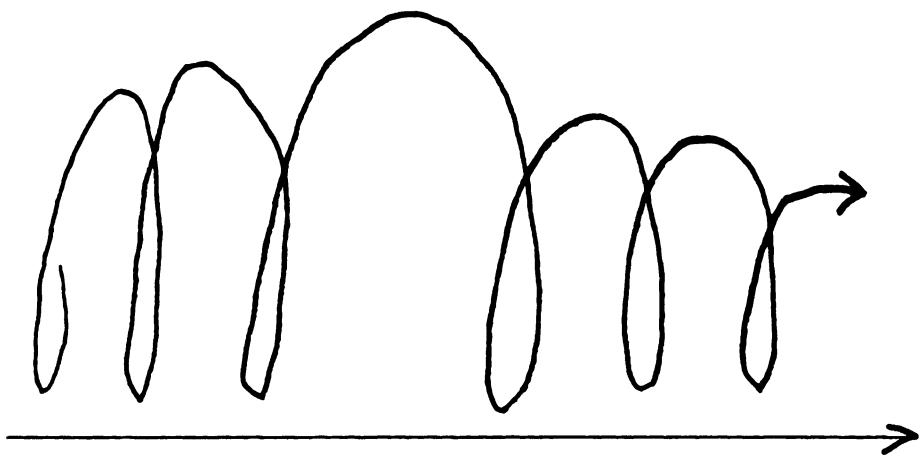


FIGURE 2. Rogers' (1985) The Spiral of Life.

Environment

The environmental energy field is the second energy field addressed by Rogers (1985). According to Rogers (1985), each person's environment is all that is external to the human energy field and extends into infinity. For the young adult, this would include diet, work, relationships, stress, education, climate, health care, and any other factor outside of the human energy field. Rogers (1985) also points out that the environment and man are open systems, constantly effecting change in each other.

This is significant as it points out that the young adult female will not only be affected by the environment, but will influence the environment establishing patterns with animate and inanimate presences. The environment is, as is the human energy field, growing increasingly complex with time, identifiable by pattern and organization, and greater and different from the sum of its parts. The environment of the young adult woman has a global effect on the young woman's process of becoming or evolving. It is the young woman's lived experience of PMS that can be altered through environmental manipulation by the young woman guided by the Clinical Nurse Specialist (CNS). The young adult's reaction to PMS, as will be discussed in the last section of this chapter, is a result of the interaction of her life pattern with the environment's pattern.

Health

Rogers (1985) states, "Maintenance and promotion of health are a nation's first line of defense in building a healthy society" (p. 122). Health is individually determined and is influenced by the person's interaction with the environment. It is the individual's choice of daily activities that determines the selection and interaction of elements in their environment. The elements the individual selects influence the patterning of the individual and allows or disallows for a harmonious pattern.

PMS may represent a disruption in the harmonious life

patterns of the young adult female. The disharmony can, for many women, be re-patterened to a harmonious state by a more careful process of selecting environmental components with which to interact.

Health, then, as represented by a harmonious life pattern, is another significant concept in this study. The CNS working with the PMS client can help to clarify the client's present pattern and the environmental factors which can effect a more harmonious re-pattern. In the case of the young adult, the re-patterning may establish health oriented patterns that will be carried with the individual throughout the life span.

Nursing

The last Rogerian concept requiring definition is that of nursing. Rogers' (1985) five assumptions about human beings are the foundation of the conceptual framework for nursing. The purpose of the framework is to guide the nurse in practice.

Rogers (1985) describes nursing as a profession that is both an art and a science. The scienctific aspect of nursing is the study of the nature and direction of man's development, integral with the environment. The art of nursing is the utilization of nursing's body of knowledge in serving man. By describing PMS, its symptoms, severity, and frequency in relation to the phases of the menstrual cycle this study will add to the scientific knowledge base of nursing. By analyzing and applying the data

collected, the study will demonstrate an expanding of the art of nursing.

According to Rogers (1985) nursing is concerned with all people whether they are well or ill, rich or poor, young or old. Nursing is a process directed toward the goal of assisting individuals to achieve their "maximum health potential" (Rogers, 1985, p.86). Nursing utilizes a process of assessing, diagnosing, planning, intervening, and evaluating human responses to the constant interaction with their environment. The nursing process, as applied by the nurse, focuses on the unified whole, recalling that man is a negentropic energy field, identified by patterns and organization manifesting the characteristics and behaviors that are different from those parts and which cannot be predicted from knowledge of the parts (Rogers, 1985). An example of the nursing process will be presented in the following section to demonstrate the integrated conceptual framework as applied to practice.

An Integration of the Theories of Rogers and Chickering

Within this section, the concepts presented in the description of Rogers (1985) and Chickering (1969) will be integrated to provide the single framework which is the basis of this research. These concepts include: 1) the young adult, as a phase in the life cycle of man, 2) PMS as a disruption in the harmonious patterning of a woman, 3) the environment as

influencing and being influenced by the woman, and 4) the CNS as an energy field within the environment of the young adult female, capable of interacting with the young adult to assist in the choices necessary to re-pattern. Within Rogers' (1985) framework, re-patterning can lead to a more harmonious life state.

Both Chickering (1969) and Rogers (1985) recognize the impact of the environment on the human being. The influence of environment on the young person is tremendous. It is at this life phase that the young woman usually leaves home bound for college, a new job, or to begin a family. It is also at this phase that the young woman establishes an identity. The process of "establishing identity" (Chickering, 1969) is a physical, social, and emotional challenge for even the healthiest young adult. Figure 3 depicts the healthy young adult female energy field interacting with the environmental energy field to accomplish the task of establishing identity.

The young woman's efforts to meet this emotional challenge may be confounded by the multiple physical, behavioral, and affective symptoms of PMS, i.e., nervousness, confusion, irritability, depression, bloating, headaches, and mood swings. For the young woman with PMS, the symptoms become a large part of the human energy field. The symptoms may become so disruptive to the life pattern that assistance is required. Figure 4 represents the presence of PMS symtomatology in the young adult

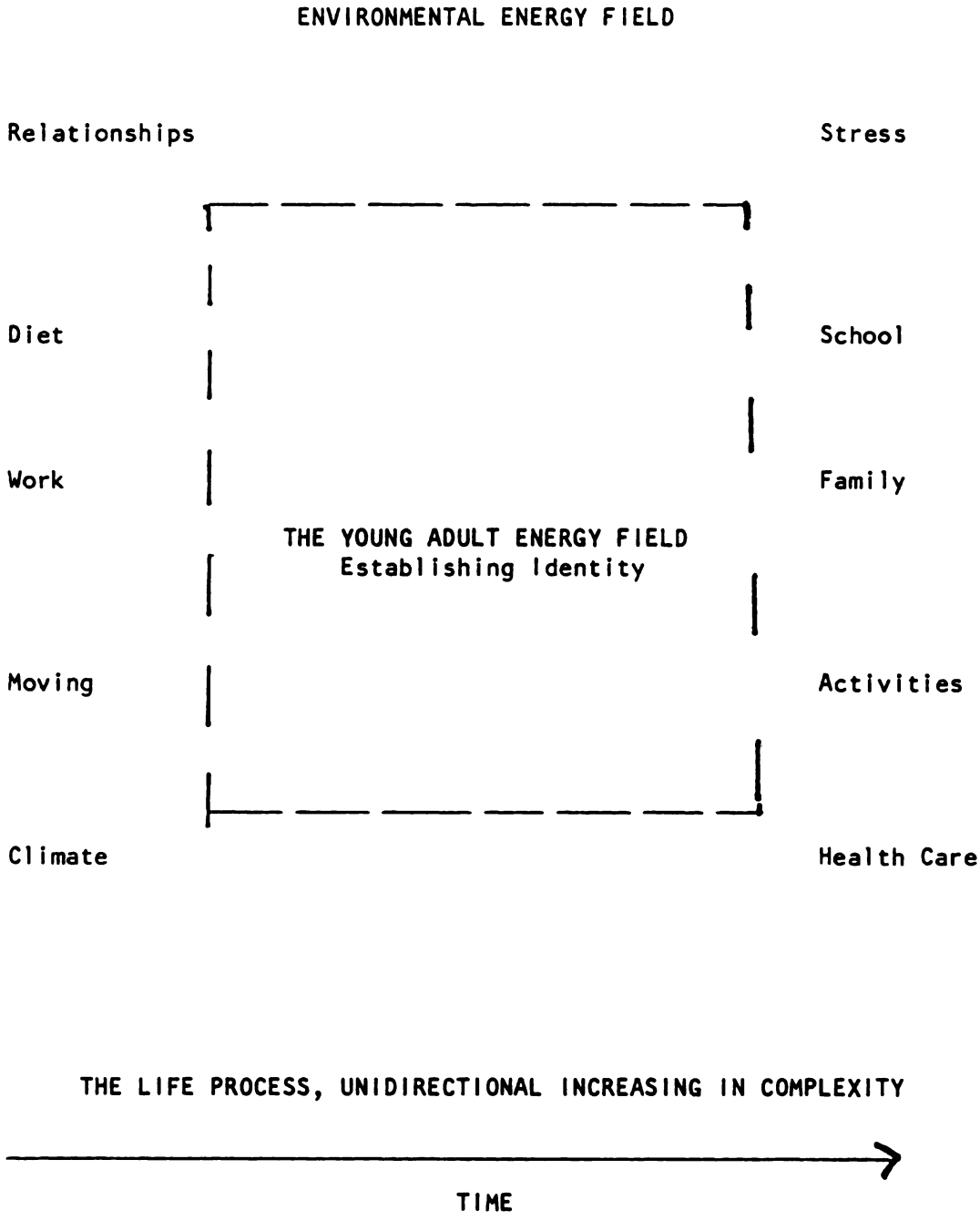


FIGURE 3. Interaction of the human and evironmental energy fields.

energy field. Note that the symptomatology is using up a very large portion of the young adult's energy field. This consumption of energy may drain the energies usually available to the young adult female for establishing identity. Therefore, the process of establishing identity may be slowed or blocked.

The CNS, utilizing Rogers' (1985) theory of ever growing, ever changing unidirectional life processes, Chickering's (1969) concepts of task accomplishment across the life cycle, and information about PMS, can help the young adult to incorporate the external environmental changes and the internal growth processes into the young adult's patterning. The incorporation may lead to a reduction in the impact of PMS. Figure 5 depicts the introduction of the CNS into the environmental energy field of the young adult female. The CNS can assist the young adult female to identify and select the environmental components that eventually lead to a re-pattern of the woman's energy field and a reduction in the size of PMS as an energy consumer in the woman's energy field. The decisions made will have serious consequences, as the choices determine the extent that the woman/environment interaction will shape life patterns. These choices and the impact of these choices can lead to her maximum health potential or to some degree of disharmony that prevents achievement of the maximum health potential. If the woman's health patterns are disharmonious, it will be difficult to direct energy toward other aspects of life, i.e., identity development.

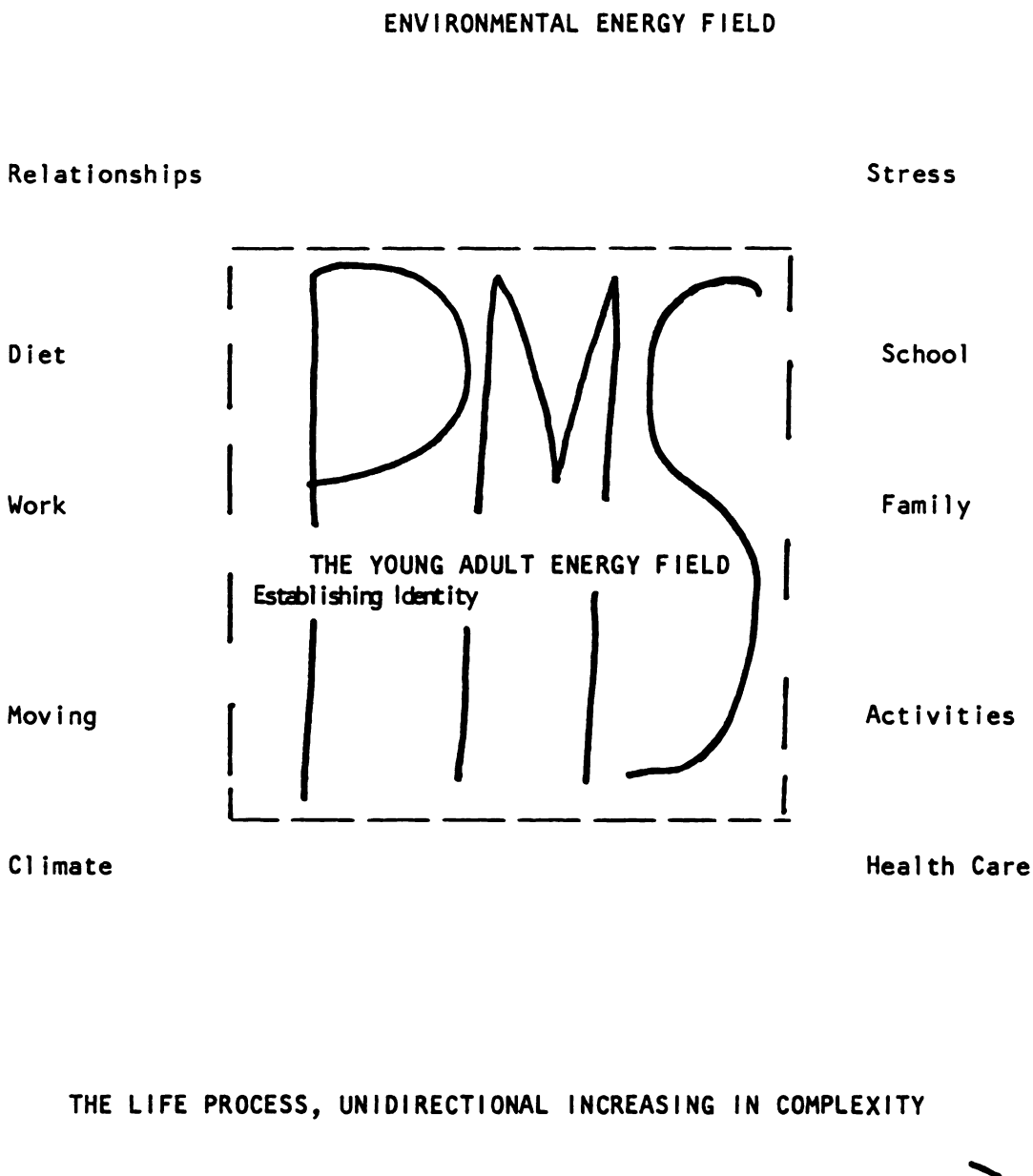


FIGURE 4. The Impact of PMS on the young adult energy field.

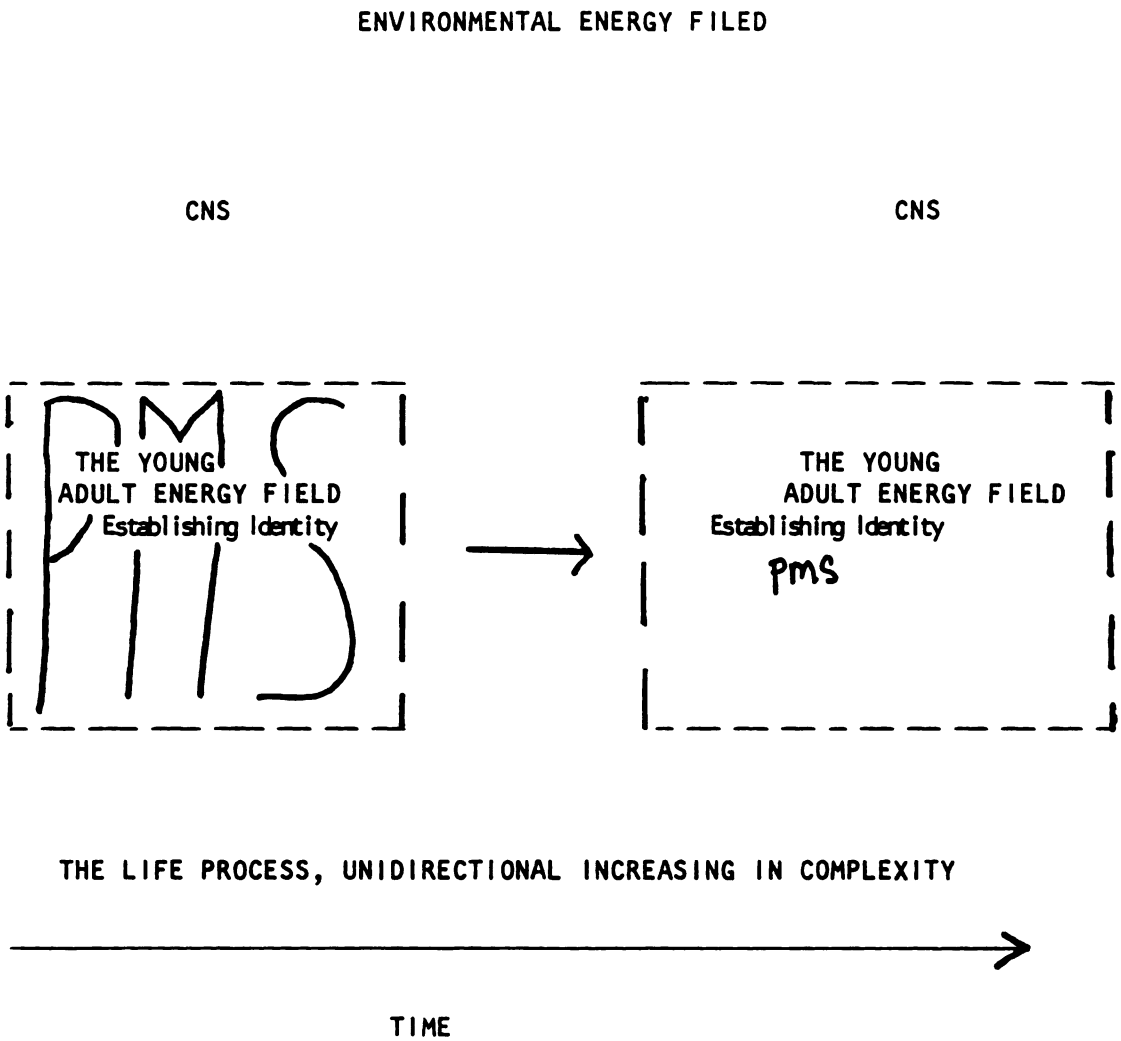


FIGURE 5. Intervention by the CNS with the young adult with PMS.

The Nursing Process

The CNS, utilizing the nursing process assesses the client and the client's environment, including relationships, to provide assistance to the young woman to re-pattern, and create harmony. The nurse relies upon interpretation of the interaction with the client as well as the results of tools used during the assessment to evaluate the client's needs. Tools for an assessment of PMS include a diet history, history of exercise, and information concerning the developmental tasks and successful accomplishment of them. Abraham (1982) would recommend the use of a menstrual diary, as would Dalton (1977). The diary is helpful in acquiring knowledge about the cycle, regularity, duration, and physical and emotional changes which occur during the monthly cycle. A modified version of the Menstrual Distress Scale (Moos, 1968) may be given to assess for the most common symptoms reported by women.

Based upon the data collected, a diagnosis of PMS is or is not determined. It is extremely important to differentiate between PMS and other gynecological, mental, or endocrine problems for the safety of the client and for the efficacy of the treatment.

Once the data have been analyzed and the diagnosis of PMS is confidently made, the planning process begins. During the planning stage, the nurse again analyzes the data collected from the client. Areas for intervention are identified with the client. Goals are set with the client for each area identified for intervention.

Interventions are based upon standards and current research findings in the area of PMS. Current literature contains information that nutrition is a possible cause of some PMS symptoms (Laurensen, 1985). Other researchers (Steiner & Carroll, 1977; Frank, 1985), indicate stress as a possible factor in PMS. Still, in another study, Woods (1985) found the woman's views of menstruation and how she was socialized to deal with the monthly event affected PMS symptomatology. Other researchers cite age, education, and the use of oral contraceptives as causes of some symptoms reported for PMS (Woods, Most, & Dery, 1982).

Once the goals are set and the plan of intervention (approach to re-patterning) decided, it is time to intervene. One goal identified may be to provide data to the client encouraging the client to make choices in regard to environmental components that can affect the client's goal of reduced PMS symptomatology and suffering. If education is the selected mode, the nurse must provide the most up-to-date information available on diet factors that can influence PMS, stress management, exercise, alternatives to oral contraceptives, or other aspects of the client's environment that may be changed by the client. Another mode that has proven helpful to PMS clients, and may be offered to the young adult client, is that of group counseling. Frank (1986) documented decreases in symptoms as a result of being able to share experiences with other women and feel supported by them. The experience provided reassurance that the woman was not alone in her suffering,

exposure to solutions others had found, and a place to vent frustration over the symptomatology most disruptive to them.

Upon completion of interventions, it is necessary to evaluate outcomes and goal attainment, including client satisfaction. To evaluate the outcomes of intervention, similar tools used during the assessment phase could be reused.

The CNS having assisted in the re-patterning of the young adult female's life pattern will always be a part of the client. The support provided, the problem-solving techniques shared with the client, and the knowledge that the CNS is available for future services have become a part of the young woman's pattern, creating an ongoing relationship with the CNS.

The nursing process is a scientific methodology utilized to identify and alter the woman-environment interaction. The alteration in interaction patterns, leads to alterations in the woman's health patterns. Hopefully, the alterations decrease the disruption of the harmonious life patterns (PMS) freeing energy to focus on the successful accomplishment of the developmental task of identity development.

Summary

In this chapter, man has been defined through the use of Rogers' (1985) conceptual framework and assumptions about human beings. Rogers' (1985) framework was further utilized to describe the interaction of man with his environment to achieve maximum health

potential. Health was defined and the concept of harmonious patterns was introduced as a means of describing health. A brief description of nursing was offered followed by the goals of nursing. The young adult was discussed as a phase with tasks in the developmental life cycle of man (Chickering, 1969). PMS was presented as a disruption in the life pattern of the woman with the potential to produce severe disharmony in that patterning. Also presented was an integration of concepts contained in Rogers' (1985) with concepts contain in Chickering (1969) as the actual research framework for this study. Finally, the nursing process was used to demonstrate an approach to the client with PMS. Stressed throughout this chapter was the goal of nursing, to help individuals achieve their maximum health potential.

The following chapter, Chapter III, contains the review of literature related to PMS, its etiology, treatment, and impact on women. In Chapter IV the study methodology is presented. Chapter V contains the study results. Finally, in Chapter VI conclusions drawn from this study, recommendations for future research, and nursing implications for education and practice are presented.

CHAPTER III

REVIEW OF THE LITERATURE

It is important for the CNS as a researcher and a clinician to not only be able to describe and document the symptoms of the menstrual cycle, especially PMS, but to be able to draw on theory concerning the causes of the symptoms. From the assessment of symptoms and the theoretical background concerning symptoms, the CNS can plan and carry out clinical interventions to reduce or eliminate the symptomatology of PMS. This review of the literature is conducted to: provide an overview of the theories proposed as the cause of PMS, review the symptoms documented in the literature, and briefly review therapies that are based on presenting symptoms and supposed underlying etiology. A section is also included from the lay literature to provide insight into what is available to women in the general literature. This segment contains mostly information about the impact of PMS on the woman, her family, and the work place.

The literature in this review of PMS can be divided into four categories: articles focusing on the impact of PMS on the life of the woman, her family, and the workplace, studies attempting to uncover the etiology of PMS, studies describing symptoms of PMS, and studies describing treatment.

The studies and articles presented in this chapter were selected on the basis of two criteria. The first criterion for selection was that the study or article was published during the time period

between 1931 and 1986. This criterion was included to help develop a historical perspective of the identification and study of PMS. The second criterion for selection was that each author included in this review is a recognized scholar, researcher, or clinician in endocrinology, gynecology, psychology, sociology, or nursing, in as much as they have been repeatedly cited in the literature.

PMS, Women, Families, and the Workplace

The review of the literature will begin with reference to the overall impact of PMS on the women who suffer from it, their families, and society in general. This section will briefly examine what is available in the lay and professional literature about the impact of PMS on individual women, families, and the workplace.

Dalton (1980) described cases of two women jailed for violent crimes in England. After following the women for several months Dalton (1980) concluded that the women conducted the crimes during the premenstrual phase of their cycles and consequently were not responsible for their acts. It is clear, that Dalton (1980) views the symptoms of PMS as having a devastating impact on the control levels of these two women.

In 1984, an article by Rock appeared in McCall's Magazine, entitled "Premenstrual misery: The once-a-month disease". Certainly the title bears out this authors perception of the impact of PMS. Within this article one woman described the impact of PMS on her life as follows:

> "There were times when I had the weirdest reactions to things. I would slap my three-month-old son across the face because he wet his diapers. If the toaster went on the blink, I'd try to tear out the wires. Once my husband wore a shirt I didn't like. I ripped it off his back."

The year for PMS in the literature was definitely 1986. Several articles were published in women's magazines, business magazines, and professional journals describing the impact of PMS from several differing perspectives (McCalls, Wall Street Journal, American Journal of Nursing, & Nurse Practitioner).

Mehren (1986) approached the topic from a human interest perspective when the article about Margie Post's battle with PMS was published. Ms. Post described herself as Dr. Jekel and Mr. Hyde. PMS almost ruined her marriage and career. Post states, "PMS really is a family disease. The people closest to you suffer too, PMS turns you into a monster."

The Wall Street Journal ran an article late in 1986 discussing PMS in the work place. Three issues were discussed. The first issue was the estimated cost of PMS to U.S. industry in terms of the total wages lost. Dalton is cited in this article as stating that an estimated illness cost of 8% is charged to U.S. industry's total wage bill as a result of PMS.

The second issue addressed revolved around the discussion by the American Psychiatric Association over whether to classify PMS as a bona fide mental disorder. Mario Buhagiar, a women's rights advocate is quoted as stating, "I wonder if this isn't the same old

guise of women being labled incompetent for high-level positions because they are to emotional."

Obviously the impact of making PMS a mental disorder would be negative for women with or without PMS. Many women would refuse to seek help for PMS while others would be accused of having PMS everytime they became upset.

The third issue discussed in The Wall Street Journal article is an issue that has been debated in the literature for over 20 years. That issue is whether or not women have a decreased ability to concentrate while suffering from PMS. While Dalton (1964, 1977) states that this is the case, Sommer (1982), Golub (1980), and Asso (1984) emphatically state this is not true.

As long as there is a question about women's ability to concentrate, and thus, be productive every day of the year, employers will be reluctant to hire women for top level jobs. This issue threatens women's credibility in the work place.

Brown, and Zimmer (1986) conducted an exploratory study of PMS, coping, personal and family impact, and alterations in family functioning attributed to PMS. The study focused on a sample of 83 women and 32 men who attended an evening lecture on premenstrual syndrome. The ages of the women ranged from 18 to 43, and the men from 27 to 52. Subjects completed a short questionnaire before the lecture. The questionnaire included items about symptoms, why they attended the lecture, coping strategies, and personal and family distress. Brown and Zimmer (1986) found that 74 different regularly

recurring premenstrual symptoms were reported by the women. Both men and women agreed that symptoms were cyclical in nature (96%). Correlations between life disruptions and certain symptoms was found to be significant for irritability, agitation, argumentative ($p<0.01$), loss of control, violence, inability to cope, dizziness, fainting, and hot flashes ($p<0.05$). Motivations for attendance in the women included to: learn about treatments, learn about decreasing symptoms, learn about available professionals in the community treating PMS, help partner to be more supportive, and ask questions about PMS. Motivations for the men included to: demonstrate caring about partner, learn ways to help partner, understand partner better, learn ways to handle own responses, learn about PMS. Brown and Zimmer (1986) conclude that clinical descriptions have portrayed dramatic personal and familial impact of severe PMS. Family systems theory would support the idea that patterns of mutual interaction and exchange that are altered during illness affect all family members. Therefore, the nurse must assess not only the woman, but the family if treatment for PMS is to be effective.

In summarizing this section, it can be said that PMS does not only affect the woman but overflows from the woman to the family and to the work place. This section briefly put forth a number of viable reasons to study PMS. The reasons included the facts that the impact of PMS can be devastating and costly to the woman as well as those around her. PMS was cited as another way to keep women in

their place. The next section in this chapter will address some of the etiologic explanations put forth in the last 50 years.

PMS/ETIOLOGY

Numerous theories have been offered as explanation for the symptoms of PMS. The theories of explanation range from hormonal fluctuations to psychological manifestations. Included below are a few examples of what has been offered as possible etiologies of PMS during the time period previously mentioned.

Data supporting the hypothesis of an excessive estrogen effect or a decrease in progesterone levels are limited and often contradictory. In 1931, Frank observed that a large number of women who consulted himself and colleagues were seeking relief from irritability, edema, and unrest occuring in cyclical patterns. At the same time Frank (1931) observed clients with cyclical exacerbation of asthma and epileptic activity. Frank (1931) concluded based upon four case studies of women in his practice, that "excess accumulation of female hormones caused the symptoms complex" (p. 1057). On the basis of this conclusion Frank (1931) advocated irradiation of the ovaries, and actually recorded some success with this treatment. Today, this treatment is agreed to be too drastic a therapy!

Case studies are not considered to provide hard quantitative data. In 1931 laboratory tests for hormonal levels did not exist for use on humans. Frank's (1931) conclusions were based on

observation of clients alone. Today, observations of this type are not an acceptable methodology upon which to base the types of conclusions arrived at by Frank (1931). In 1931, these data were enough to stimulate further study of the cyclic symptoms.

Since Frank (1931), various theories have been proposed as to how alterations in ovarian hormones may lead to PMS. Morton, (1953) in a descriptive study utilizing a convenience sample, collected data on 29 healthy women ages 20 to 45. A detailed history was collected on the subjects. All 29 women complained of or exhibited, to some degree, internal tension, restlessness, crying, insomnia, and other psychological and physical problems which are summarized in the study (Morton, 1953). The study consisted of basal temperatures and body weights on all subjects. Fourteen women provided hormonal assays premenstrually via a 24 hour urine test while vaginal smears were obtained premenstrually on 28 women. Serum electrolytes were obtained pre and post menstrually on all subjects. Based upon the results of the study, Morton (1953) postulated that a decrease in, or absence of, secretion of progesterone permitted an uninhibited rise of estrogen in the premenstrual phase. That is, 23 of 24 women failed to show an abrupt rise in the basal temperatures, 22 subjects displayed a proliferative or hyperplastic endometrium upon biopsy, and 26 women had vaginal smears which indicated an estrogen-progesterone imbalance based upon cell types. The estrogen-progesterone imbalance was felt to be responsible for many of the symptoms

experienced by women during the premenstrum. Morton (1953) attributed the following symptoms to the increased estrogen levels in this study: painful breast engorgement, abdominal bloating, gain in body weight (edema) and a nervous tension.

This study was reported with actual case numbers provided for the reader. The report also included information about a variety of measures utilized to collect data from the women in the study. Limitations of the study include the use of a non-randomly selected convenience sample, a small subject size, and failure to run similar measures on women reporting no symptoms as a control for evaluating the findings.

In 1960 Parker presented a review of the literature that supported his clinical observations of clients that ovarian steroids probably created a disturbance in water metabolism and hence the symptoms of PMS. Based upon case observations, Parker (1960) believed that estrogen, and to a smaller extent, progesterone caused water retention. Parker (1960) concluded that most patients obtained satisfactory relief of the distressing symptoms of PMT (premenstrual tension syndrome) by individualized programs adjusted to the individual client. Parker (1960) did not elaborate further. The observations reported by Parker (1960) are poorly documented. There is no information pertaining to age groups, number of women observed, how subjects were selected, or exactly what observations were made. The literature review, on the other hand, is well documented and includes review of some authors cited in this chapter

(Frank, 1931; O'Brien, Craven, Selby, & Saymonds, 1979)

Munday, Brush, and Taylor (1977) also found low levels of progesterone in women with PMS. These researchers (1977) studied 16 women ages 22 to 32, eight with and eight without reported PMS symptoms. At five to eight days premenstrually the mean plasma levels of progesterone in the control group was significantly ($p < .02$) higher than in the PMS group. Munday, Brush, and Taylor (1977) also found aldosterone levels to be elevated during the midluteal phase for the PMT group, but this was not a significant difference over the control group.

The study reported by Munday, Brush, and Taylor (1977) is clearly reported, contains a control group, and indicates levels of significance. This study adds to the data previously cited by Morton (1953) that low progesterone levels may lead to some of the symptoms reported as PMS. The limitations of this study include the use of a convenience sample and failure to describe how the symptoms of PMS were evaluated.

O'Brien, Craven, Selby, and Saymonds (1979) found just the opposite results of Morton (1953) and Munday, Brusch, and Taylor (1977). O'Brien et al., (1979) reported conducting a double blind cross over trial during four menstrual cycles. O'Brien et al., (1979) reported progesterone levels for a control group and a group suffering from PMS at ten days premenstrually. The study consisted of 28 healthy subjects, 18 symptomatic and 10 non symptomatic controls (ages not reported). Plasma aldosterone and progesterone

levels were drawn on the 18 symptomatic and 10 control group members for four phases, menstrual, preovulatory, postovulatory, and premenstrual. Daily weights and mood measurements were taken. The symptomatic group demonstrated significantly higher levels of progesterone ($p<0.025$) than the control group and a weak, but significant correlation between the Premenstrual Mood Index and postovulatory progesterone levels ($p<0.05$). The conclusions drawn were that aldosterone levels had no significant correlation with premenstrual moods and that there was a weak, but significant correlation between premenstrual mood and elevated progesterone levels ($r = 0.4267$, $p<0.05$). O'Brien et al., (1979) postulate, based upon the findings of this study, that PMS most probably is the result of multiple hormonal etiology, but further study is required to confirm or refute these findings.

The methodology and research design (double blind cross over), the number of cycles followed, and the reporting of levels of significance and correlational data makes this one of the better studies presented in the literature. The limitations are similar to those found in the previously reviewed studies. That is, it is a convenience sample and descriptive data are missing about the subjects.

Hargrove and Abraham (1981) studied 40 women ages 23 to 39. Twenty nine subjects had tubal ligations and complained of severe PMT as measured by Abraham's (1980) four subcategories of symptoms (Table 2). Eleven subjects served as a control. The control group

was symptom free based upon the same criteria used to identify the PMT subjects. All subjects had three samples of blood drawn on three consecutive days beginning on day 20 of an ideal 28 day cycle. Estradiol, prolactin, progesterone, thyroid stimulating hormone, and tetraiodothyronine (T4) were performed on the three samples. The results showed that the post tubal ligation women with PMT symptoms had much lower levels of progesterone than the control group (6.3ng/ml. vs. 16.0ng/ml.) and slightly higher prolactin levels (16ng/ml. vs. 14ng/ml.).

TABLE 2. Premenstrual Symptoms (Abraham, 1981)

PMT-A, Anxiety	PMT-H, Edema
Anxiety	Weight gain
Irritability	Swelling of extremities
Nervous tension	Breast tenderness
Mood swings	Abdominal bloating
PMT-C, Autonomic	**PMT-D, Depression**
Headache	Depression
Craving sweets	Forgetful
Increased appetite	Crying
Heart pounding	Confusion
Fatigue	Insomnia
Dizziness, faintness	

Hargrove and Abraham (1981) concluded that the high level of PMT symptoms in post tubal ligation women together with a similar midluteal endocrine pattern to women complaining of PMT, suggest abnormal luteal functioning as a cause of symptoms. Since

symptoms found in post tubal ligation women were similar to PMT, they may have the same pathophysiology--ovarian steroids.

This study contained the largest subject number of any reported, though still small. The study utilized current laboratory tests to quantify changes and correlated blood levels to a PMT measuring tool. Limitations consisted of failure to report the correlations between the tool for measuring PMT and the blood levels of the hormones measured and reporting means of hormonal blood levels without levels of significance or interpretation of the data. It is difficult to draw the same conclusions as Hargrove and Abraham (1980) have drawn based upon the documentation of the study in the literature.

Current research on PMS appears to have moved away from studies focused upon etiology and hormonal assays and toward studies focused upon treatment modalities and the success or failure of the chosen modality. For this reason, there are no current studies, 1982 to the present, included in the previous section.

In summary, the ovarian hormone hypothesis holds that PMS symptoms are etiologically related to the ratios of estrogen and progesterone. The shifts in that ratio occur during the late luteal phase. Of course, as demonstrated above, there is much confusion about how the shift or in which direction the shift must occur to create the PMS symptoms. The above studies, though conducted by leading researchers in the fields of endocrinology

and gynecology, display flaws in the scientific process. Most of the conclusions and postulates presented above were based upon small subject numbers. None of the studies utilized random sampling methods for subject selection. Few of the studies reported levels of significance or examples of numerical correlates. Studies replicating previous studies are virtually non-existant. None the less, the hormonal theory remains an often referred to explanation for the symptoms of PMS.

Another theory with enduring qualities is that of the endocrine hypothesis. Dalton (1964), based upon clinical experience and research conducted in Britain, suggests that the symptoms of PMS related to emotional upset may occur when there is an increase in mineralocorticoids in relation to ovarian steroids. Specifically, aldosterone is implicated. Several studies have indicated a rise in aldosterone levels in the luteal phase (Dalton, 1964; Katz & Romfh 1972; Schwartz & Abraham 1975). On the other hand, there are studies that demonstrate no increase (O'Brien, et. al, 1979; Munday, Brush, & Taylor, 1977).

Katz and Romfh (1972) conducted a non-controlled study of 4 healthy females ages 24 to 36 with premenstrual complaints of water retention. Peripheral plasma levels of aldosterone were sampled during the follicular and the luteal phase of 5 successive menstrual cycles. Katz and Romfh (1972) found that 3 of the 4 women studied had significantly ($p < 0.05$) higher levels of aldosterone during the luteal phase. The conclusion made was

that the increase in aldosterone levels might be responsible for excessive premenstrual water retention and the accompanying weight gain, tender breasts, headaches, and bloating.

This study's limitations include failure to describe how premenstrual symptoms were identified, failure to use a control group for comparisons, and failure to collect data on more than one cycle (except for one subject who provided data on two cycles). On the other hand, the study does include levels of significance and a clear idea of the number of subjects reaching the significance level reported.

Schwartz and Abraham (1975) conducted a similar study on 5 normally menstruating women for two consecutive cycles. Three subjects suffered from mild and occasional premenstrual water retention, 1 subject suffered from midmenstrual edema and 1 suffered from premenstrual edema. Schwartz and Abraham (1975) found that 4 of 5 subjects had significantly higher aldosterone levels during the luteal phase than during the follicular phase ($p < 0.01$).

As previously discussed, O'Brien et al., (1979) found in 28 women a significant rise in plasma aldosterone levels in the premenstrual phase of all subjects to double the preovulatory levels ($p < 0.005$). There was no significant correlation between the Premenstrual Mood Index and the premenstrual aldosterone levels ($r = 0.0830$).

The pituitary hormone prolactin has been proposed as a cause

of PMS symptomatology. In a comprehensive review of the literature, Laurenson (1985) cited increases in prolactin and its influence on progesterone as a possible etiology of PMS. Increases in prolactin levels have been reported in PMS clients as compared to the normal controls (Halbreich, Ben-David, Assael, & Bronstein, 1976; Vekeman, Delvoye, L'Hermite, & Robyn, 1977; Laurenson, 1985). On the other hand, at least one study found no significant differences between the follicular and luteal phase for plasma prolactin levels (Ettva, Siler, VandeBerg, Sinha, & Yen, 1973).

Ettva et al., (1973) studied 12 cycles in 11 non-obese healthy female volunteers ages 22-36 with a history of regular menstrual cycles. All subjects were medication free for at least 6 months prior to the study. Blood samples were drawn daily on the subjects for an entire month. No significant difference was found between luteal and follicular phases in the mean plasma prolactin levels (18.2ng/ml. vs 17.8ng/ml. respectively). Random daily fluctuations with erratic spikes were observed in all cycles. Ettva et al., (1973) concluded that the physiologic role of prolactin remains unclear with regards to the menstrual cycle.

The conclusions drawn by this research group are in keeping with the data reported. Strengths include the use of several cycles, a description of the clients including age, health status, menstrual histories, and use of medications. Limitations again relate to the absence of measures taken from women with and

without PMS symptoms, failure to report levels of significance, and lack of information concerning population from which subjects were selected.

In a study of 49 women (28 PMS and 21 control) aged 19 to 45 with 1 to 4 children each, Halbreich, Ben-David, Assael, and Bronstein, (1976) found that serum prolactin levels were significantly higher ($p < 0.01$) in women with PMS than in the control group. Women were diagnosed as having PMS if they met all of the following criteria: 1) cyclical recurrence of symptoms or complaints only during the premenstrum, 2) dramatic and complete relief of symptoms when full menstruation began, 3) no permanent symptoms, similar to or different from the symptoms of the premenstrum during any other times of the cycle. Tension and headaches were the most commonly reported symptoms. Every woman was examined 4 times, once during the second and the third week and twice during the fourth week of their cycles. At each examination a blood sample was drawn. The serum prolactin levels were significantly ($p < 0.01$) higher in the women with PMS than in the control group throughout the menstrual cycle and the PMS group had a significantly higher surge level of prolactin during the premenstrual phase ($p < 0.05$). Halbreich et al., (1976) felt further research was needed to determine if the increased serum prolactin level premenstrually was contributing to the formation of some symptoms of PMS or merely an indicator of a stress condition.

The information provided on the above study contained details about the population, details about how PMS was diagnosed, levels of significance, and facts about methodoloy. Limitations included use of a convenience sample and data collection on only one cycle.

Vekeman, Delvoye, L'Hermite, and Robyn (1977) drew daily blood samples on 51 regularly menstruating women for one cycle (ages not indicated). The 51 women were reported as having two normal cycles before the study began. All women were reported to be medication free, but no indication was given as to the preceding duration of medication free time. Vekeman et al., (1977) found a significant ($p < 0.001$) change in circulating prolactin levels during the menstrual cycle. A biphasic increase was also detected, with the mean value during the luteal phase being significantly higher ($p < 0.001$) than the mean value during the follicular peak. Vekeman et al., (1977) summarized the study results by stating that no conclusions could be drawn as to whether variations in prolactin levels during the menstrual cycle are of physiologic significance. Nevertheless, based on previous research conducted by this group (Robyn et al., 1976), prolactin was associated with amenorrhea, oligomenorrhea, and luteal insufficiency, and, therefore, may play a role in some of the symptoms associated with PMS.

Limitations of this study include failure to report subjects ages, lack of information about the population the subjects

were drawn from, and following subjects for only one cycle. Strengths of this study include the inclusion of levels of significance and the subject number. This data contributes to the conclusion that prolactin levels may account for some of the symptoms of PMS.

In summary, as with the progesteron-estrogen theory, the mineralocorticoid theory is based upon a shifting or fluctuation in levels of prolactin or aldosterone. Also as in the case of the hormonal theory, conclusions are drawn from studies using convenience samples, and reported without the numerical support in the form of significance levels or correlates for the conclusions. The literature contains inconclusive results as to which direction the shifts must occur to produce the symptomatology recognized as PMS. There are data enough to link fluctuations of mineralocorticoids to PMS, but not enough to claim this theory as the only theory capable of explaining the symptoms.

A final explanation for the symptomatology of PMS falls into the realm of psychosomatic. Many researchers (Fortin, Wittkower, Kalz, 1958; Coppen & Kessel, 1960; Paulson, 1961; Woods, 1985; Whitehead, Busch, Heller, & Costa, 1986) believe that the source of the very real symptoms is in the minds of the women who suffer them. Other researchers can find no link between mental illness, attitudes, or affective disorders and PMS symptomatology (Diamond, Rubinstein, Dunner, & Fieve, 1976).

Fortin, Wittkower, and Kalz (1958) concluded that the evidence gathered from 54 subjects participating in psychiatric interviews strongly suggests that emotional factors play an important role in the onset and clinical course of premenstrual tension syndrome. The subjects consisted of 45 women employed at a public service utility. The experimental group consisted of 25 women ages 15 to 30 years of age with an average age of 23.6 years. These women reported physical and psychological symptoms before menses. The comparison group consisted of 20 women ages 15 to 30 with an average age of 24 years who reported no symptoms. The groups were matched for age, and marital status. Each subject underwent 7 interviews with a psychiatrist, weights every other day, and a measurement of resorption time after an intradermal injection of hylauronidase. Hylaurindase is an enzyme capable of creating mild skin irritaions in the form of wheals. Resorption time is based upon fluid retention in the skin. Based upon the results of the interviews and physical assessments, Fortin, Wittkower and Kalz (1958) state, "A psychosomatic approach to premenstrual tension syndrome will yield satisfactory results to the physician interested in diminishing the effects of premenstrual tension syndrome and modifying its social repercussions on the family unit" (p.981). The above statemet inferrs that PMS is in the heads of the women who suffer from it.

This study contained ample description of the subjects,

resorption test, and weights. Very little information was provided concerning the interviews from which the conclusions of the study are based. The above recommendation is somewhat controversial in view of the data reported.

Paulson (1961) hypothesized six factors contributing to PMS: 1) intrafamilial relationships, 2) general attitude toward menarche and menses, 3) self-experience of menarche and menses, 4) acceptance of the feminine psycho-social role, 5) acceptance of the feminine psycho-sexual role, and 6) self-concept. Paulson (1961) collected data on 255 women ranging in age from 18 to 50. All subjects were drawn from parent-teacher organizations, industrial and factory workers, church groups, university students, and individual women who expressed interest in the study. The subjects were divided into 4 groups to allow for different administrations of the two questionnaires to control for phase effect of the menstrual cycle on the data. The questionnaires, one to explore symptomatology of PMS and one to evaluate six hypothesized psychological variables, showed correlations between PMS and the 6 hypothesized psychological concomitants that were positive and statistically significant ($p<0.05$). The correlations with premenstrual tension range from $r = 0.16$ for intrafamililial relationships to $r = 0.55$ for self-experience of menarche and menses. A multiple correlation of $r = 0.58$ indicated that the three most effective scales for predicting PMS were self-experience with menarache and menses,

general attitude toward menarche and menses, and self-concept. Paulson (1961) concluded that psychological factors play an important role in PMS. Also concluded was that this study, without discounting the significance of hormonal or endocrinologic factors, demonstrated several important psychological attitude clusters which have been found to be significantly related to hieghtened premenstrual tension ($p<0.05$).

The study reported by Paulson contains a large subject number, a thorough description of the population from which subjects were drawn, excellant documentation of results with correlation coefficients and levels of significance clearly indicated, a clear statement of purpose, and an explanation of all statistical methodologies utilized. The only weakness is the failure to randomly select the subjects.

Coppen and Kessel (1963) found some symptoms of PMS to be highly correlated with neuroticism ($p<0.001$). Coppen and Kessel (1963) studied 100 women randomly selected from a population of 500 women representing different areas of England. PMS symptoms such as sensations of breast swelling, abdominal bloating, depression, irritability, and headaches were the most frequently reported symptoms of PMS in this group. Coppen and Kessel (1963) also found that tension and depression were significantly correlated ($p<0.01$) with headaches, swelling, and decrease in activity, and that all of these symptoms were significantly

($p<0.01$) correlated with neuroticism. Coppen and Kessel (1963) concluded that the woman's personality greatly affected the type and perception of symptoms experienced premenstrually.

The strengths of this study are found in the large randomly selected subject number. Limitations include vague reports of how PMS symptoms were measured and how information concerning neuroticism was obtained.

Unlike Coppen and Kessel (1963), Diamon, Rubinstein, Dunner and Fieve (1976) found no significant difference between women with affective disorders and a control goup in the frequency, type, or severity of PMS symptoms ($p<0.05$). Diamond et. al, (1976) studied 63 women from a lithium clinic in New York City with a history of unipolar or bipolar affective disorders and a comparison group consisting of 25 social workers or wives of social workers. The groups were similar in age, menstrual cycle length, menstrual flow length, use of birth control pills, and attitudes and beliefs about menarche. Data were collected via a questionnaire containing 22 physical symptoms and a space to contribute other symptoms experienced that were not included in the list. Information was also collected with regard to incidence of premenstrual or menstrual depressions, whether they had ever consulted a physician for physical or mental symptoms during the time of menstruation, incidence of gynecological problems, mental health hospital admissions, postpartum, and menopausal symptoms. The results of this study indicate that

there is no significant difference ($p<0.05$) between women with affective disorders and the control group when reporting somatic or affective symptoms. The percentage of subjects reporting premenstrual and menstrual affective symptoms, however, was consistently higher in the affective disorders group than in that of the controls. The authors drew no conclusions from their study.

Strengths of this study include the reporting of levels of significance and the use of a control group. A weakness of the study, as usual, is the small subject number.

Woods (1985) studied 179 women aged 18 to 35 living in five neighborhoods in a southeastern city of the United States. Woods (1985) utilized the MDQ (Moos, 1968), the Schedule of Recent events (Holmes & Rahe, 1967), the Index of Sex Role Orientation (Dreyer, Woods, & James, 1981) and the Menstrual Attitudes Questionnaire (Brooks-Gunn & Ruble, 1980) to assess symptoms and attitudes of the subjects for the perimenstrual time period. Perimenstrum was defined as the time period immediately before and during menstruation. Woods (1985) found a significant association between stressful life events and perimenstrual negative affect symptoms ($p<.05$). Socialization was related to women's attitudes toward menstruation as were the experience of negative affect symptoms and the disability women experienced. Negative affect had the greatest impact on disability ($r = 0.36$, $p<0.05$). Perimenstrual disability had a stronger effect ($r =$

0.35 $p<0.05$) on menstrual attitudes than did any one symptoms cluster, stress, or socialization. On the other hand, women who have been socialized into traditional roles and views of womanhood saw menstruation as more debilitating than their nontraditional counterparts. Women who were most symptomatic had more negative attitudes. Finally, socialization and exposure to stressful milieu were not as important in understanding disability as was the severity of symptoms, but socialization helped to explain menstrual attitudes and menstrual attitudes do have an effect on women's experiences of the perimenstrual period.

The strengths of the study conducted by Woods (1985) include adequate sample size, thorough description of population pool, description of tools utilized in study, and clear operational definitions.

Whitehead, Busch, Heller, and Costa (1986) hypothesized that the way mothers teach their daughters to respond to menstrual symptoms contributes to the development of somatic complaints and illness behavior. Whitehead et al, (1986) developed scales to measure maternal encouragement of the sick role for menstrual and cold symptoms and a scale to measure maternal modeling of menstrual distress. A parallel form was developed to give to the mothers of the daughter subject group. Three hundred fifty one questionnaires were completed by students 18 to 39 years of age at 2 nursing schools. Subjects were requested to give their

mothers the parallel form of the questionnaire; 198 mothers returned the questionnaire. As predicted, the number of physical symptoms reported by nursing students and the severity of symptoms reported were significantly correlated with encouragement of the sick role (premenstrual $r = 0.36$, menstrual $r = 0.44$, $p<0.01$). Moreover, the number of physical symptoms subjects reported during the premenstrual and menstrual phases of their cycle was more strongly correlated with the encouragement of the sick role for menstrual symptoms (premenstrual $r = 0.27$, menstrual $r = 0.42$, $p<0.01$) and with modeling of menstrual distress by mother (premenstrual $r = 0.28$, and menstrual $r = 0.31$, $p<0.01$) than with encouragement of the sick role for colds (premenstrual $r = 0.21$, menstrual $r = 0.25$, $p<0.01$). Whitehead et al., (1986) concluded that the present data provide the most compelling evidence to date that encouragement of the sick role and modeling during childhood contribute to the way people perceive and react to bodily sensation.

The above study included the following strengths: an adequate sample size, clearly deliniated purpose for the study, clearly reported levels of significance and correlation coefficients. Weaknesses identified include the absence of information describing the population from which subjects were drawn and the absence of reliability and validity information about the tool constructed by the team to measure maternal encouragement of the sick role.

Changes in the emotional behavior and physical experience of women with otherwise normal menstruation have possibly been linked to the hormones or mineralocorticoids which fluctuate during the menstrual cycle or to sick role modeling, attitudes and beliefs about self and menarche, or socialization to traditional female sex roles. To date, not enough information exists to positively link neurohormonal, hormonal, a combination of hormones or attitudes to PMS. Since the cyclic physical and emotional upsets are of an ubiquitous and serious nature, their continued study represents an important challenge to all health care providers.

In the next section, a review of the literature pertaining to symptoms of PMS will be provided. As previously mentioned, any article included in this section has met two specific criteria. That is, the literature included assists in the development of a historical perspective of PMS and the author has been cited repeatedly in the literature.

PMS/SYMPTOMS

The literature contains studies that indicate that Premenstral Syndrome (PMS) is more common than once believed. Though the severity of the symptoms, as well as the symptoms themselves, vary from woman to woman there is an increasing awareness of the ways in which PMS can affect the lives of women. Studies concerned with describing symptoms have not

produced definite conclusions about: 1) symptoms, 2) prevalence or 3) the degree to which women suffer from PMS. Studies have provided information which suggests that PMS symptoms are experienced by 18 to 62 percent of American women; this would indicate 15 to 20 million women experience PMS (Abraham, 1982; Hargrove & Abraham, 1982; Moos, 1968)).

Moos (1968) presented the list of 47 symptoms collected via interviews, open ended questions about the menstrual cycle, and review of the literature about symptoms and severity during the menstrual cycle to 839 women. The purpose of the study was threefold: to develop a Menstrual Distress Questionnaire which could be used as a standard assessment tool for menstrual cycle symptomatology, to gather normative information on symptom prevalence and severity for this tool in a relatively homogenous sample of normal married young women, and to identify possible correlates of symptom severity (age, parity, menstrual cycle length). The mean age of the group was 25.2 with a standard deviation of 3.9. All the members of the group were wives of graduate students at a large Western University. The group was relatively homogenous for education, years married, number of children, length of cycle, length of menstruation. Each woman received a score per phase of the menstrual cycle by adding together each symptom score for that phase. Moos (1968) found that water retention (swelling painful breasts & weight gain) and negative affect (irritability, mood swings, depression,

crying, and tension) showed higher mean scores for the premenstrual phase than for the menstrual phase (mean severity scores for premenstrual water retention 8.26, premenstrual negative affect 16.96, menstrual water retention 7.67, menstrual negative affect 15.79). Moos concluded that 30-50% of normal young married women were bothered to some extent by clinical symptoms of backache, headache, irritability, mood swings, tension and or depression in relation to the menstrual cycle phases. Severity of symptoms was reported, with the majority of women stating that symptoms were mild to moderate, no matter the phase.

In 1977, Moos cluster analysed the results of the above study. The purpose of the analysis was to develop an empirical typology of menstrual cycle symptoms. A cluster analysis of 579 women's MDQ scale scores was performed to identify types of symptoms which tend to occur together. The clusters fell into two groups. The first group consisted of the women who reported symptoms in only one of the eight MDQ subscales. The second group comprised women reporting symptoms in more than one MDQ subscale. In group one, 65 women reported water retention in both the menstrual and premenstrual phases, 15 women reported negative affect in the menstrual phase while 20 women reported it in the premenstrual phase. Similarly 9 women complained of pain only during the menstrual phase, while 12 women complained only of pain in the premenstrual phases. Interestingly enough, 13

percent of all the women reporting only one symptom during the premenstrual or menstrual phase reported arousal reactions (affectionate, orderliness, excitement, feelings of well-being, bursts of energy or activity) as the only symptom scale. In the second group, phase differences in symptom intensity were found. For example, comparing two groups of women reporting pain and behavior change it was found that they did not report these during the same phase. Another comparison demonstrated that women reporting pain, concentration, and negative affect symptoms in both phases reported them as more severe premenstrually. Moos (1977) concluded that the results suggest the existence of several distinct configurations of menstrual cycle symptoms.

Strengths found in the work conducted by Moos (1968, 1977) include the use of a broad spectrum of symptoms and sources for identification of symptoms in the questionnaire, clear description of the sample, inclusion of levels of significance and correlation coefficients, and a large sample size. Limitations can be found in the vagueness with which actual statistical methodologies are described within the study.

Forty two non-pregnant women ages 22 to 43 were studied by Steiner, Haskett, Osmun, and Carroll (1980) to delineate the premenstrual tension syndrome. The 42 subjects were selected from a group of 256 volunteers. The subjects were selected based upon rigorous inclusion criteria. The 42 subjects were medication free for four weeks preceding study and used no

hormonal contraception. Subjects reported regular menses for six previous cycles. The 42 subjects responded to the Moos MDQ (1968). A severity index was calculated for the 47 items and a mean severity score derived from this index. The subjects in this study had an increase in the mean severity score from 74 during the follicular phase to 135 premenstrually. Symptoms that showed a pronounced on-off pattern between the premenstrual and follicular phase included irritability, mood lability, tension, restlessness, swelling, depression, anxiety, difficulty concentrating, and crying ($p<0.001$). Twenty-six of the 42 women had PMTS in the absence of other psychopathology.

Strengths of the study conducted by Steiner et al., (1980) include a thorough description of subjects and inclusion criteria and a clear description of data analysis. As would be expected weaknesses include, a small subject sample and use of volunteers.

Woods, Most, and Dery (1982), after analyzing the findings of the MDQ (Moos, 1968) completed by 179 free-living (women subjects not taken from doctor's office or hospital lists), non-pregnant women between the ages of 18 and 35, found that 16 symptoms were consistently experienced during several days (seven to ten) prior to menses and the first few days (three to seven) of menses. The symptoms that were most prevalent during the premenstrum using the MDQ (Moos, 1968) were: weight gain, crying, lowered work or school performance, taking naps, headaches, skin disorders, cramps, anxiety, backache, fatigue, painful breasts, swelling,

irritability, mood swings, depression, and tension. Prevalence for each symptom was calculated using the ratio of the number of women reporting a symptom over the number of women in the study.

The purpose of the study (Woods, Most, & Dery, 1982) was to determine the prevalence of premenstrual syndrome in a free-living sample of US women and if the estimates of prevalence varied with characteristics of the menstrual cycle, parity, contraceptive status, or selected demographic variables. The sample was drawn from five southeastern city neighborhoods in the United States that offered variation in socioeconomic status and racial composition. Of the 650 households in that area 241 households had one or more women meeting the criteria (18-35 years of age and not pregnant at the time) for the study. Of these, 179 women agreed to participate. Woods, Most, and Dery (1982) found that oral contraceptive use, race, employment, age, education, and income were negatively associated with selected PMS symptomatology. Having long menstral cycles, heavy menstral flow, or long menstral flow and being able to predict the next period were positively associated with PMS ($p \leq 0.000$ to $p \leq 0.047$). The prevalence of premenstrual weight gain (48%), headache (38%), swelling (46%), and tension (43%) among women using oral contraceptives was higher than in studies conducted by Moos (1968, 1977, 1985).

Some obvious strengths of this study include the sample size, the variation in subjects based upon racial and socioeconomic

background, the use of random sampling from identified areas, the inclusion of levels of significance in the results, and clear subject inclusion criteria. One weakness noted was the use of only one menstrual cycle for data collection.

Steiner, Hasket, and Carroll (1980) developed a rating scale for premenstrual tension by following 42 women suffering from severe PMS for six consecutive cycles. The subjects ranged in age from 22 to 43 years of age and had no significant abnormal physical findings during a complete physical examination. Subjects were completely drug free for 4 weeks prior to and during the evaluation period. Semistructured interviews, self administered rating scales, and observation rating by a nurse and a psychiatrist were used to assess symptoms. Several pre-established tools were utilized for this purpose. The MDQ (Moos, 1968), Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965), Visual Analogue (Aitken, 1969), and Hamilton and Carroll Depression Scales (Hamilton, 1960; Carroll, 1979). The results of data analysis produced 9 scales, irritable/hostile, tension, efficiency, dysphoria, motor coordination, mental/cognitive functioning, eating habits, sexual drive/activity, and physical symptoms. By considering only symptoms that changed markedly in a majority of the subjects from the follicular to the premenstrual phase the MDQ (Moos, 1968) was reduced to 27 symptoms from the original 47. Twenty three of the 27 items listed in Steiner, Haskett, & Carroll's (1980) study

were affective symptoms.

Strengths found in this study include clearly defined subject inclusion criteria, clearly defined purpose of the study, and the use of multiple measures to collect and interpret data. Weaknesses include a small subject size and use of volunteers.

Hargrove and Abraham (1982) administered the Menstrual Symptom Questionnaire (MSQ) Abraham, 1980)) to "1,395 regularly menstruating women not on hormonal therapy during routine visits to a gynecologic clinic (p.721)." The purpose of the study was to determine the incidence of premenstrual tension in regularly menstruating women not on any hormonal contraceptive or therapy. Hargrove and Abraham (1982) divided nineteen symptoms (selected from the MDQ) into four groups, PMT-A, PMT-C, PMT-D, and PMT-H (Table 2 included previously). The groupings reflect affective, physical, and behavioral symptoms. The patients' ages ranged from 13 to 54 years. Of the 1,395 patients, 702 scored positive for at least one subgroup of PMT (Premenstrual Tension, synonymous with PMS). Thus 50% of the 1,395 patients experienced PMS. Hargrove and Abraham (1982) then divided the patients into five-year age groups. Sixty percent of those patients in the third decade of life experienced PMS. The most common subgroups of PMS found in the 1982 study were the PMT-A and PMT-H groups. The least occurring subgroup was PMT-D.

Reviewing the study by Hargrove and Abraham (1982) a number of strengths are observed. The first strength is the sample

size, the second is the use of hormonal therapy as an exlusion criterion, and the wide age distribution of the subjects. Weaknesses include failure to clarify how the nineteen items were selected, levels of significance for most common subgroups and a description of how "most common" was arrived at, and the use of onvenience samples from gynecological clinics.

Halbreich, Endicott, Schact, and Nee (1982) describe the development of the Premenstrual Assessment Form. The final version, reduced through multiple administrations contains 95 symptoms. The tool reflects the variability of premenstrual syndromes as opposed to viewing the changes as a single entity. The PAF, as described by Halbreich, Endicott, Schact, and Nee (1982) contains a broader variety and more specific descriptions of positive and negative changes, provides unipolar summary scales and bipolar continua which are sensitive to measures for indexing levels of severity on various types of change, and provides specific criteria for typological categories descriptive of different syndromes of change, especially those of mood and behavior. Thirty five of Moos' (1985) 47 items of the MDQ are contained in this tool. The tool was administered to seperate groups of individuals. The first group consisted of female employees at the research institue who received the questionnaire in the check envelopes along with an explanatory letter. Sixty-nine women completed and returned the questionnaire. The second group consisted of nursing students (N = 85). Ages for

the two groups ranged from 23 to 53 years. The women included were not using any birth control pills and all subjects reported regular menstrual cycles. The data for 159 subjects were analyzed with the goal of reducing redundancy while retaining sufficient coverage of dimensions to provide sensitive summary measures. Through item frequencies and intercorrelations the tool was reduce to 95 items from 150. The original 150 items came from a review of the literature as well as from questionnaires (Coppen & Kessel, 1963; Moos, 1968, 1977) and from the researchers experience in PMS. The tool contains 18 scales with alpha scores ranging from 0.61 to 0.91.

A few strengths noted within this study to create a premenstrual assessment tool include thorough description of sources for original items, pe-established and clearly defined exclusion criteria for subjects, and clear descriptions of use of the tool, scoring of the tool, and presentation of alphas for the scales derived from the study. One weakness noted was the use of a convienience sample.

Shaver and Woods (1985) followed 63 presumably healthy women for two menstrual cycles through the use of the menstrual diary. The subjects ranged in age from 18 to 35 years and were selected from a census list for five neighborhoods in a large southeastern city. The purpose of the study was to assess the degree of concordance of perimenstrual symptoms across two menstrual cycles. The symptoms that were reported concordantly for the

premenstrum were backache, cold sweats, tension, fatigue, and depression ($p<0.001$ to 0.002). Implications of this study are that most women are not noticeably bothered by perimenstrual symptoms. Thus, the question of whether certain symptoms appear consistently or are exacerbated in perimenstrum remains.

Strengths noted in the study by Shaver and Woods (1985) are the use of a menstrual diary, wide age distribution, random sampling of subjects from census lists, and representation of a variety of sociodemographic features in the subjects. Weaknesses of the study include the small sample size and the use of only two cycles from which all conclusions were made.

The symptomatology of PMS varies in both variety and prevalence from one sample to another (Norris, 1983). It is unclear at this point whether variation in methods used in different studies or the differences in age, parity or other demographic data are at the root of the variations. From the above studies it should be quite clear that there is no absolute number or prevalence of symptoms reported in any study. It should also be clear from the above studies that it is quite difficult to include and measure the variety of symptoms women report premenstrually. The studies cited in this section, however, have managed to find larger subject samples and use a wider variety and more sophisticated analysis procedures. Despite the inconclusive nature of the above studies with regard to types and prevalence of symptoms, there is agreement emerging

with regard to a core of symptoms revolving around negative affect, water retention, and pain. Another point of agreement emerging from the literature is that of the concept of PMS as a variety of syndromes. This is seen in the typological groupings undertaken by many of the researchers reviewed above (Moos, 1968; Abraham, 1981; Halbreich, Endicott, Schacht, & Nee, 1982; Shaver and Woods, 1985).

As mentioned earlier, much of the current literature and some of the not-so-current literature is focused upon the reduction of the disruptive impact of PMS on women. Within the following section a brief historical development of treatment modalities will be presented by including the authors repeatedly cited in the literature.

PMS/TREATMENT

Besides studies attempting to describe, categorize or count women suffering with PMS, many studies have been conducted to evaluate treatment modalities. As was the case with previously cited research, many of the studies of treatment demonstrate disagreement in results or effectiveness in relieving or eliminating symptoms.

Sletten and Gershon (1966) reported successful trials of lithium in PMTS. In their case studies, eight women with irritability, headaches, explosive emotional outbursts, tension, insomnia and depression during the premenstrual period were given

300mg. of lithium carbonate three times a day for 10 days prior to the onset of menses. All 8 patients had been previously unresponsive to sedatives, diuretics and psychotherapy. Sletton and Gershon (1966) report success with this regime of lithium for 12 to 18 months.

Weaknesses of the above cited study include failure to thoroughly describe the subjects sociodemographic information, failure to define "successful trials", failure to use a control group, and failure to conduct further research on the placebo effect in these women. Strengths include inclusion of noted symptoms, clear information pertaining to how much and when medication was provided, and information pertaining to duration of lithium use and follow-up in the subjects.

Steiner, Haskett, Osmun, and Carroll (1980) studied 15 women ages 27 to 43 who had no past history of major psychiatric disorders. All subjects were evaluated for at least one complete menstrual cycle before beginning treatment. Women were seen as closely as possible to Day 9 in the follicular phase and day 26 in the luteal phase. At each visit the Visual Analogue Scale (Maxwell, 1978), the MDQ (Moos 1969), the Multiple Affect Adjective Checklist (Zuckerman & Lubin 1965), Hamilton Depression Scale (Hamilton, 1960) and the Carroll Depression Scale (Feinberg et al, 1979) were administered to record the change occurring between follicular and luteal visits. All patients received 600 to 900mg. of lithium carbonate daily and plasma lithium levels

ranged between 0.3 and 0.85 mEq/l. The combined rating scale total score changes failed to show that lithium carbonate produced a significant beneficial effect.

Strengths identified within the above study include the use of multiple measures to assess changes in symptoms, use of rigid inclusion/exclusion criteria for subjects, and a clear description of amount of medication utilized. Weaknesses include use of a small sample size, failure to identify population from which subjects were drawn, failure to use a double-blind or placebo control group, (in fact, failure to use any type of control group) and failure to include pre-established levels of significance.

Timonen and Procope (1971) studied the effects of exercise on 748 female university students ages 18 to 30. A 60 item "yes" or "no" questionnaire was distributed to two separate groups. One group contained athletes (136) and the other group, women from the general student body (612). Timonen and Berndt-Procope (1971) concluded that the practice of sports not only prevented headaches, it had a prophylactic effect on the whole group of tension symptoms ($P<0.05$). The conclusion drawn was that exercise can be beneficial to women suffering from some symptoms of PMS as well as some menstrual problems.

Strengths found in this study include a large sample size, the use of athletes and general study body members, and the inclusion of levels of significance. Weaknesses identified were

failure to provide information concerning how symptoms of PMS were chosen for inclusion in the questionnaire and failure to randomly assign subjects to to the groups. Subjects were self-selected into the two groups, the exercise and the non-excercise groups.

In the study conducted by O'Brien, Craven, Selby and Saymond (1979) the subjects included 28 volunteers, 18 with and 10 without measurable PMS symptomatology. Symptomatology was measured via a Premenstrual Mood Index which included scales for eight commonly occurring mood types: depression, sadness, anxiety, tension, feelings of being bloated, loss of libido, aggression, and lethargy. As previously mentioned aldosterone and progesterone levels along with weight and urine samples were taken. The results indicated that 25 mg. of spironalactone administered four times a day from day 18 to 26 of cycle significantly diminished the Premenstrual Mood Index of the symptomatic group ($p < .005$) in 80% of the treated cycles. One hundred and six cycles were observed with 25 volunteers completing 4 cycles and three volunteers completing two cycles.

Strengths and limitations of this study were included earlier in this chapter. One other identified weakness is the failure to use a double blind condition or control group in this pharmocological study.

Dalton (1980) documented a radical control of symptoms in three women convicted of multiple violent acts related to

menstruation with the use of natural progesterone. The women's ages were 28, 19, and 18. The three women had been arrested for some type of violent behavior. The case studies revealed that these women had a cyclic pattern of violent behavior. Progesterone suppositories were administered to the women. The women's symptoms and disruptive behavior returned after progesterone was stopped for a few days.

The above information was derived from case studies of three women. No quantitative data were provided. Conclusions were based on observing the women's behavior (before and after progesterone administration), self reported histories of emotional upset, and arrest records for the women.

In 1983 Norris conducted a retrospective record survey of 100 consecutive clients who had 1) confirmed diagnosis of PMS, 2) symptoms of sufficient severity to interfere with with daily functioning, 3) at least two unsuccessful attempts at treatment of PMS, 4) were ovulating, 5) had no other disorders, 6) were on no medications, and 7) utilized progesterone suppositories for at least six months. Norris (1983) found that 77 of the patients were symptom free at the time of the survey. Twenty-three were significantly improved, in that most of their reported symptoms had abated. Five patients no longer required progesterone, their symptoms had been eliminated. Norris (1983) strongly advocates the use of progesterone as a relatively safe and effective treatment modality for PMS.

Strengths of the retrospective study include adequate subject size, and clear criteria for inclusion of subjects. Weaknesses noted include failure to describe how the presence or absence of symptoms was measured at the time of the survey, use of a convenience sample, failure to randomly assign subjects to a control group, and failure to include levels of significance.

Goie and Abraham (1983) studied 31 PMT clients in a gynecological setting on the west coast. The mean age of the 31 white, middle-class regularly menstruating women, not on any hormonal therapies or contraceptives was 30.4 years with a standard deviation of 1.2 years. All women selected for the study had to report at least one PMT subgroup score of moderate or severe during the week before their period and mild or absent symptoms score during the week of menses. PMT-A and PMT-H were reported by 24 women, PMT-C symptoms followed with 21 women and PMT-D was last with 12. All the PMT-D patients reported PMT-A symptoms as well. Six women reported severe PMT-A symptoms, 9 women reported severe PMT-H symptoms (2 of those had severe PMT-A symptoms), 6 women reported severe PMT-C symptoms, and 3 women reported severe PMT-D symptoms. All other women reporting symptoms in any of the groups reported them as modererate. After completing the Menstrual Symptoms Questionnaire, the clients were supplied with Optivite tablets and requested to take it daily from day one of the following cycle and to increase the dosage until symptom relief or side effects occurred, but not to exceed

12 tablets daily. Optivite is a high vitamin B-6 and magnesium compound that contains other known essential micronutrients in quantities and proportions designed to meet daily allowances, except for calcium and vitamin D. This study of nutrient involvement in symtomatology of PMT was based on the work of the Biskinds (1945). Goie and Abraham (1983) found that all patients experienced significant ($p<0.01$) symptom improvement following Optivite use. The modified Student t-test was used to compare total MSQ scores between the control cycle and the last Optivite-treated cycle. The best responses were observed in patients who ingested a daily dose of 6-12 tablets for three or more cycles.

Strengths of the above study include a clear description of subjects, use of hormonal therapies as an exclusion criterion, reporting of findings including levels of significance. Weaknesses include the use of a small subject size, use of a convienience sample, and failure to confirm results through controlled, double-blind studies.

Laurensen (1985), in a review of the literature on treatment modalities, concluded that "With proper explanation and counseling in combination with the natural approach, many patients have found relief from, or complete elimination of, the symptoms associated with PMS" (p. 19). By the natural approach Laurensen was referring to high doses of B-6, high protein, low sodium diets coupled with exercise, stress reduction and

sunlight.

Mackay (1985) studied 305 college sophomores, ages 18-21, during registration to determine the effect of caffeine on PMS. MacKay (1985) found 216 of the respondents reported experiencing premenstrual syndrome. Of the 216 respondents 128 felt their symptoms were moderate or severe. The questionnaire included 11 symptoms commonly reported in women with PMS (8 are found in the MDQ, Moos, 1985) and asked the women to rank severity of symptoms as mild, moderate, severe or no symptoms. The subjects were also asked to list the type and amount of caffeine containing items they consumed in a day. The results were strongly associated with the consumption of caffeine. Sixty one percent of the respondents indicating they consumed 4.5 to 15 cups of caffeine containing beverages reported moderate to severe premenstrual symptoms. Leading the list of complaints in this group was depression (12.1%), tender breasts (9.3%), fatigue (8.8%), and cravings for sweets (8.7%). MacKay (1985) concluded that diets that reduced caffeine intake would decrease symptomatology of these women.

Strengths of this study include large subject size, clear reporting of amounts of caffeine consumed and clear reporting of symptoms most often reported. Weaknesses in the study include failure to describe how the PMS symptoms were identified for use in the questionnaire, use of a retrospective tool, failure to provide data concerning alphas or levels of significance for

reported associations, use of a convieience sample, and failure to confirm link to caffeine in a controlled study.

Frank (1986) reviewed the practices of three individual clinics providing treatment of PMS. In the first clinic 5 N.Ps provided the client care. Services included assessment, diagnosis, referral for medical care as required, or treatment by the nurses for PMS. Three quarters of an identified client population (N = 290) reported satisfactory reduction in symptoms through the use of dietary and lifestyle adjustments.

In the second practice reviewed by Frank (1986), nurses were again in the front line service in coordination with a nutritionist and a physician. In this practice 245 women completed the assessment phase and made at least one return visit. Of the 245, 36 women achieved enough relief through dietary, lifestyle, and behavior changes that treatment was discontinued at the center. One hundred thirty-nine of the 245 women were referred for psychotherapy or marital therapy, and the remaining women were treated with progesterone therapy with symptom reduction.

The final clinic reviewed by Frank (1986) was conducted by a nurse-clinician-psychotherapist. Three hundred women were treated by this nurse. Of the 300 women, 160 completed the treatment plan of an individualized program including combinations of biofeedback, relaxation, breathing exercises, psychotherapy, diet manipulations, or assertiveness training as

indicated by the client's needs. One hundred and fourty eight women experience reportedly had a decrease in symptoms. Frank (1986) concluded that a combination approach designed to reflect individual symptoms has proven useful in the three practices reviewed.

The above article by Frank was an overview of three clinics providing care for clients with PMS. The article attempted to provide information concerning different approaches to and results of the approaches utilized by nurses in working with individuals with PMS. The article, at times, failed to present client numbers or how results were measured. The article did attempt to decribe therapeutic approaches for nurses working eith PMS clients. The article also developed a sence for what was or was not showing an impact on the symptomatology the women were presenting with..

The vast array of treatments advocated over the last half-century are based on one etiologic hypothesis or another. Although useful therapeutic approaches may enhance understanding of the etiology of PMS symptoms, the results of clinical trials on the whole have been erratic, with no clear causal factor indicated. As mentioned previously, treatments for PMS are as varied as the symptoms and the etiological explanations. All the treatments are rooted in concerns with the etiology of PMS. To date no single hypothesis has proven acceptable. Many clinicians, however, are having reported successes utilizing

diet, exercise, and counseling approaches (Laurensen, 1985; Frank, 1986).

Summary

In this chapter a review of the literature has been provided covering the lay and professional literature discussing the impact of PMS on the individual, the family, and the workplace. A brief review of the literature was conducted with regards to etiology, the symptoms, and the treatment of PMS. It was the hope of the author that the contents of this chapter would provide insights into why the study of PMS is still important with respect to the impact, etiology, and treatment modalities. In the next chapter, Chapter IV, the methodology of this study will be described. In Chapter V the findings of this study will be presented. Finally in Chapter VI, nursing implications and recommendations for future research will be presented.

CHAPTER IV

METHODOLOGY

Overview

The purpose of this study is to describe the presence, type and severity of symptoms experienced by women 18 through 25 years of age during the week preceding menstrual flow. A brief menstrual history will be collected as well as sociodemographic data to provide information about the sample characteristics.

In this chapter the study variables are operationally defined and the criteria used for sample selection outlined. A description of all procedures is provided as well as a discussion of the instrument, data collection, and scoring methodology. This chapter concludes with information regarding the statistical analysis to be utilized.

Description of the Design

This descriptive study utilized the survey method. One hundred 18 to 25 year old women were given a survey to determine type, severity, and the timing of symptoms most frequently reported across the three phases of the menstrual cycle. The Menstrual Distress Questionnaire (Moos, 1985) was used to gather the data for this descriptive study. The questionnaire was self-administered by subjects. The variables in this study were the symptoms reported by this sample of women during the premenstrual phase of the menstrual cycle.

Sample

The subjects in this study were approximately 100 women 18 to 25 years of age who volunteered in response to requests made by the instructors of 3 undergraduate nursing courses at a midwestern university, or who were approached by the researcher and asked if they would be interested in participating. All subjects were English speaking. Subjects filled out and returned the questionnaire on the same day that it was provided. Women who reported ages outside the criterion age of 18 to 25, used oral birth control, were currently pregnant, or had any reported gynecological problems were eliminated from the study. Several group and/or individual administrations were used to help assure that the N of 100 was reached. A total of 92 subjects were included through the group administration. The remainig 8 subjects were from individual administrations of the questionnaire.

Data Collection Procedures

This study was conducted through the cooperation of the subjects in their own classrooms. In the case of those individually approached, their office or other comfortable area was utilized. Questionnaires were given to any woman responding to the requests made by instructor or researcher in the classroom and meeting the 18 to 25 year age criterion. A consent form was provided to each woman in the package with the questionnaire.

The researcher was available in the classroom for a forty-five minute time period.

With the MDQ and demographic questionnaire, the subjects received the following (See appendix C):

1. A cover letter introduced the researcher as a student in the Graduate Program in Nursing, explained that the researcher was collecting information pertaining to the type and severity of symptoms women usually experience during different phases of the menstrual month, and assurance that all information was strictly confidential. An explanation was provided on how to find the identity number on the packet. All subjects were asked to identify their data with that number.
2. The consent form was signed and returned with the questionnaire. Subjects were informed that they had the right to withdraw from the study at any time without any reprisal or ill consequences.
3. An offer was made to send results of the study, if an address was left with researcher.

Subjects who responded to the request of their instructor were provided packets on the same day of class during the last fifteen minutes of their class time. Individuals approached by the researcher and agreeing to participate were provided with the questionnaire and asked to return it and the consent form during the same day, at their convenience. The researcher was present

to distribute the packets to all subjects in person. A brief opportunity for questions was provided before the subjects completed the questionnaire and other questions were answered, by the researcher, as they arose during the data collection period. Individuals not completing the questionnaire during a group administration were provided a means to reach the researcher during the day that they were to complete the questionnaire. All packets were prenumbered with an identity code and subjects were asked to refer to their data in the future by that code, never by their name. Subject selection was made from an assumed healthy population (i.e. women attending class and presenting for data collection at the request of instructor or researcher) versus subjects selected from lists acquired from gynecologist offices.

Operational Definitions of Variables

PMS

PMS is the cluster of symptoms including physical, behavioral, or affective manifestations that occur during the week preceding menses and which are absent with the onset of menses. Symptoms reported by a woman during the seven days preceding menses and not reported during the menstrual phase or the remainder of the month are classified as symptoms of PMS.

Phase of the Menstrual Cycle

The phases of the menstrual cycle are: the premenstrual phase or the seven days prior to the onset of menses, the menstrual phase, defined as the time during which the woman is menstruating, and the post menstrual phase or the remainder of the month. The remainder of the month is that time not included in the other two phases of the menstrual cycle. These delineations were used because they allowed the women to differentiate between their experiences of different symptoms at different times during the menstrual cycle.

Symptoms

In this study symptoms consist of the 47 items included by Moos (1985) in the Menstrual Distress Questionnaire (Table 3) as experienced by women across the menstrual cycle. The placement of the symptom in the premenstruaa phase and not in any other phase qualifies the symptom for inclusion as a premenstrual symptom.

Severity of PMS Symptoms

The quantitative assessment of the severity of symptoms is based on Moos (1985) 0 = "no symptoms", 1 = "mild, present but do not interfere with activity", 2 = "moderate, present and interferes with familial, marital, social and work related activities but is not disabling", 3 = "present and

disabling/unable to carry out any daily activity". The definition of each category was listed at the top of the page of the questionnaire to ensure understanding and consistency among the respondents.

TABLE 3. The eight subscales of the MDQ (Moos, 1985).

Pain	Impaired Concentration	Negative Affect
Muscle stiffness	Insomnia	Loneliness
Headache	Forgetfulness	Anxiety
Cramps	Poor judgement	Mood swings
Confusion	Difficulty concentrating	Crying
Backache	Minor accidents	Irritability
Fatigue	Poor coordinatttn	Tension
General aches and pains	Distractible	Feeling sad/blue
		Restlessness
Water Retention		
Weight gain	**Behavior Change**	**Control**
Skin blemishes	Poor work/school performance	Feelings of suffocation
Painful or tender breast	Take naps	Chest Pains
Swelling	Stay at home	Ringing in the ears
	Avoid social activity	Heart pounding
	Decreased efficiency	Numbness, tingling
		Blind spots, fuzzy vision
Autonomic Reactions		
Dizziness, faintness		
Cold sweats	**Arousal**	
Nausea, vomiting	Affectionate	
Hot flashes	Orderliness	
	Excitement	
	Feelings of well-being	
Changes in appetite	Bursts of energy	

The Instrument

The Moos (1985) Menstrual Distress Questionnaire was used to measure presence and severity of symptoms. This tool has two forms, form C, the tool selected for this study, and form T. Form C was developed to provide retrospective information about women's menstrual cycle experiences and form T is used to collect concurrent cycle experiences. This tool was designed in 1968, and revised in 1985 by reducing the severity score from 5 levels to 4. The tool was designed with the following purposes in mind: 1) to obtain estimates of types and severity of symptoms across different phases of the menstrual cycle, 2) to follow women over several menstrual cycles, or 3) to conduct studies of the psychosocial and hormonal correlates of perimenstrual syndromes (syndromes of each phase) (Moos, 1985). Moos' (1985) questionnaire contains 47 symptoms which have been found to cluster into eight empirically correlated groups (Moos, 1977). The empirically correlated groups will be referred to as subscales from this point forward. The subscales are labeled to reflect the major content of symptoms. These subscales were created based on data from 839 subjects, very similar to the subjects in this study. The data for the 47 symptoms were intercorrelated and factor analyzed (principal components solution with varimax rotation of the factor matrix) (Moos, 1985 p.3). Table 3 lists the subscales and symptoms derived from that analysis. The item changes in appetite does not appear in any of

the eight subscales as this item never factored into the same scale twice, yet women continue to report this as a menstrual cycle symptom (Moos, 1985).

Separate analysis for the menstrual, premenstrual, and remainder of the cycle was conducted by Moos (1985). Table 4 shows the intercorrelations among the eight MDQ subscales averaged across the three phases of the menstrual cycle (Moos, 1985). The MDQ subscales reflect symptoms most often reported by women as premenstrual, symptoms most often reported in relation to actual menstruation, and a group of control symptoms which reflect a general tendency to complain of a variety of symptoms irrespective of whether or not symptoms are usually associated with the menstrual cycle (Moos, 1985).

Since the development of the tool, other researchers have utilized the questionnaire and reduced the number of items. Abraham (1980, 1983) found that 19 of the 47 symptoms were reported most often during the premenstrual phase and thus utilized 19 of the 47 for his studies. Abraham (1980) dropped the control and the arousal scales. In contrast to Abraham (1980), other researchers (Israel, 1953; Halbreich, Endicott, Schacht, and Nee, 1982; Moos, 1968) found arousal items were reported by women during the premenstrual phase. The control items assist in identifing women who are generally complainers and establishing a degree of confidence in a woman's response to other items.

TABLE 4. Average intercorrelations of eight MDQ subscales, form C (N=839) (Moos, 1985).

MDQ Scale		1	2	3	4	5	6	7	8
Pain	(1)	—	.38	.41	.59	.51	.58	.25	.42
Water Retention	(2)	—	—	.22	.44	.36	.33	.23	.26
Autonomic Reactions	(3)	—	—	—	.32	.38	.34	.18	.42
Negative Affect	(4)	—	—	—	—	.63	.58	.36	.35
Impaired Concentration	(5)	—	—	—	—	—	.57	.32	.39
Behavior Change	(6)	—	—	—	—	—	—	.21	.32
Arousal	(7)	—	—	—	—	—	—	—	.28
Control	(8)								

In 1982, Woods, Most, and Dery used the Moos (1968) questionnaire and found that the 179 subjects studied most frequently reported 16 of the 47 symptoms. Of the 16 only eight symptoms were reported to be more prevalent in the premenstrum.

On the other hand, a study conducted by Halbreich, Endicott, Schaht, and Nee (1982) increased the number of items to 95. All of Moos' (1968) items are included in this questionnaire. Due to the size and time required to administer the questionnaire, it was not suitable for this study.

Use of the 47 item questionnaire was selected for a number of reasons. First, there is confusion and controversy surrounding the studies that only utilized parts of the tool (Abraham, 1980, 1985; Woods, 1980; Mackay, 1985). Secondly, utilizing a shortened version forces women to report a narrower band of symptoms and reduces a global perspective of symptoms

for the premenstrual phase. Finally, in its entirety, the questionnaire requires little time to complete (approximately 10 minutes) and can provide information about symptoms and severity for three phases.

Reliability of the MDQ

Form C of the MDQ (Moos, 1985) was assessed for internal consistency of the eight subscales with a sample of 839 women ages 20-35 (Moos, 1968). The eight subscales varied in internal consistency from .89 for the negative affect scale to .53 for control scale. These numbers reflect the average of internal consistencies calculated separately for the three phases of the menstrual cycle. Since internal consistencies were not available for individual phases ot the menstrual cycle in the manual prepared by Moos (1985), Table 5 contains the average internal consistencies for the three phases. The Kuder-Richardson Formula 20 provided the scores (Moos, 1985). Markum (1976) divided the 47 MDQ symptoms by an odd even and by random assignment method and calculated a split-half correlation for an experimental (N=47) and a control (N=47) group. The split half reliabilities for the three phases of the menstrual cycle varied from .74 to .98, and were all statistically significant. The normal range of values for the coeffiecient alpha and the Kuder-Richardson formula 20 is between 0.0 and +1.0 with a higher coefficient indicating a greater level of

reliability (Polit & Hungler, 1983). Instruments with alphas of 0.60 or greater are adequate, using an instrument with reliabilities of less than .60 is "risky" (Polit & Hungler, 1983 p.394). The control subscale, based upon Polit and Hungler's (1983) standard for reliabilities, would be considered risky. The subscales water retention and autonomic reactions also have low alpha scores, but are considered safer to use than the control subscale.

TABLE 5. Average internal consistencies for MDQ (Moos, 1985) subscales (N = 839).

Scale	Form C
Pain	.74
Water Retention	.67
Automonic Reactions	.66
Negative Affect	.89
Impaired Concentration	.82
Behavior Change	.73
Arousal	.72
Control	.53

Validity of the MDQ

Validity is the degree to which an instrument measures the concept it is meant to measure. The first type of validity that concerns this study is that of content validity. Content

validity refers to the degree to which an instrument adequately covers the aspects of a particular area, in this study, that is the menstrual cycle, specifically the premenstrual phase. The question then is, does this tool cover the range of symptoms known as PMS.

The literature reviewed to date contains information to indicate that the items in this questionnaire are useful in determining the type of PMS experienced by the subject (Abraham, 1980, 1983; Frank, 1985; Laurensen, 1985; Norris, 1983). Currently, there is no consensus about the precise symptoms to be included in the syndrome. Moos (1985) found that different women suffer from different types of menstrual distress and that women also vary with respect to whether specific symptoms are most severe before or during menstrum. The list of 47 symptoms for inclusion in the MDQ was obtained from several sources. 1) Women were given open-ended questionnaires and/or interviewed to elicit information about many different menstrual cycle symptoms. 2) A comprehensive review of previous research on menstrual cycle symptomatology was conducted by Moos and Baker (1965). 3) A list of control symptoms was obtained from the Blatt Menopausal Index (Blatt, Wiesbader, and Kupperman, 1953). 4) A list of symptoms suggested by various authors, i.e., increased excitement and feelings of well-being, which occur in conjunction with the menstrual cycle, usually before menstruation (Moos, 1977), were also included. Each of the symptoms on the first six subscales

showed a statistically significant ($p < .05$, Mann-Whitney U Test) cyclical variation with the menstrual cycle, whereas the symptoms on the last two subscales showed no such cyclical variation (Moos, 1977). This study is designed to describe those symptoms reported most often during the premenstrual phase and the level of severity. For the purpose listed above, the MDQ has demonstrated content validity.

A second type of validity is that of criterion validity. According to Wilson (1985) criterion validity refers to the extent that the score on the instrument can be related to a criterion (item that the tool is supposed to measure) There are two types of criterion validity, predictive and concurrent. If the criterion measure is obtained at the same time as the measurement under study, concurrent validity is addressed. One study reporting concurrent validity was conducted by Seagull (1974). The MDQ was modified in such a manner as to allow a woman's friend or roommate to rate the subject's behavior on a cyclical basis. Four undergraduate psychology students were selected from 204 similar women who took the MDQ. The 4 subjects were selected because they matched each other well, two had very high PMS scores while 2 had low scores. In analyzing the data Seagull (1973) found that there were correlations between the observed behavior and the reported symptoms on the MDQ. Specifically, Seagull (1973) found that 10 items showed at least one significant phase effect at the 0.10 level or better

(findings as reported by Seagull). Six were significant for the premenstrual phase, i.e., tension, avoids social activities, crying, irritable, complains of headaches, complains of general aches and pains, and anxious. Many of these item scores were based on the subject reporting them to the observer (complains of: headache, cramps, general aches) or left to the sensitivity of the observer to detect (appears: dizzy, confused, depressed, irritable, absent-minded). It is possible that under-observing occurred decreasing the correlation between the self reported MDQ scores and the observed behavior changes.

A second study demonstrating concurrent validity is the study conducted by Clare and Wiggins (1979). Clare and Wiggins administered a modified version of the MDQ (reduced the item number to 35) to a large sample of British women. Then, 73 women judged to be PMS positive (had at least one moderate or severe premenstrual symptom) and 45 women judged to be free of PMS were interviewed. Only two of the 45 PMS negative women were judged on interview to have PMS. However, 12 of the 73 PMS positive women did not meet interview criteria for PMS. These findings demonstrated that the questionnaire detected virtually all the positive cases of PMS and that an interview, stressing the symptoms that are exacerbated during the week prior to menstrual flow or appearing only during this time, obtained similar results. Therfore, concurrent validity was substantiated in this study.

A final type of validity addressed is that of construct validity. Wilson (1985) defines construct validity as the degree to which an instrument measures the theoretical construct or trait that it was designed to measure. Seagull (1974) hypothesized that there would be a positive correlations between PMT scores on the MDQ and the number of visits to a physician in the previous year. Two hundred and four undergraduate women responded to the MDQ. Seagull (1974) found a small but significant positive correlation ($r=.206$, $p<.005$) between scores on the MDQ and number of visits to a physician reported in the past year.

The reliability of this tool for assessing symptoms reported by women during different phases of the menstrual cycle and the degree of disruption caused by symptoms reported has been documented for the entire tool. There is one subscale, the control subscale, with an unacceptable reliability coefficient. The low coefficient for this subscale reduces the overall reliability of the tool.

Validity, on the other hand, is somewhat more difficult to establish as few studies have been conducted using the MDQ in its entirety. Several studies have been presented in an attempt to provide a sense of what has been done with the tool. To date, content validity is the most thoroughly established form of validity for this tool. Though no actual validity studies could be found, this is the most widely used tool at present and this

tool was used for data collection in this study.

Data Analysis and Summary

The demographic data collected on this sample will be described in the text and presented in frequency tables for clarity. The variables described will also be represented by means and standard deviations as necessary to provide an understanding of this sample's characteristics.

Frequency distributions and percentages will be based on the number of women who participated in the study (N). Frequencies are reported for each of the 47 items for the three phases of the menstrual cycle. Rank order frequencies are used to display the frequency for each symptom reported that meets the definition of a premenstrual symptom. Individual symptoms are grouped into the subscales described by Moos (1985). The subscales are placed in rank order based upon the inclusion of symptoms in the subscale most frequently reported and meeting the definition of a premenstrual symptom. These findings are provided to answer question 1, "what physical, affective or behavioral symptoms are reported most frequently by this sample during the premenstrual phase?"

Severity, as represented by question 2, "what symptoms are reported as most severe during the premenstrual phases", is based on the 0 to 3 rating scale. The individual raw severity scores will be summed for each symptom. A mean severity score and

standard deviation for each symptom will be derived from the group totals. Each symptom is reported as a mean severity score for each of the three phases of the menstrual cycle. The mean severities of symptoms reported only during the premenstrual phase and during no other phase will then be presented in rank order.

Finally, the symptoms will be grouped into the eight subscales described by Moos (1985). The scales will be placed in rank order of severity for the premenstrual phase only. Scale severity score ranking is based upon the scales containing symptoms which were reported as being most severe during the premenstrual phase. Mean severity scores will be derived for the group for each scale and reported for the premenstrual phase by adding together the severity scores for each item in a scale as reported by all subjects and dividing by the number of subjects.

Information about the other two phases, menstrual and week after menses, will be provided to allow the reader to view in table form the frequencies and distributions of symptoms reported for three phases. These data were collected to allow for determination of symptoms that meet the definition of PMS.

A table similar to Table 5 was included in Chapter V to depict internal consistencies as represented by the subscales and phase alphas for this study. The Cronbach alpha will be utilized for calculating the internal consistencies for the subscales in this study. This information is included as an assessment of the

tool's reliability in this sample. The coefficients from this study can not be directly compared to the coefficients found by Moos (1985) for two reasons. First, Moos (1985) has reported the average internal consistencies for the premenstrual and menstrual phase. This study will report the coefficient for each phase individually and then the average will be reported. Secondly, the Kuder-Richardson formula 20 was utilized by Moos (1985). The K-R 20 is a general coefficient alpha and is usually utilized with dichotomous items (Polit & Hungler, 1983). In this study the Cronbach alpha was used. The Cronbach alpha was used because the items in the MDQ (Moos, 1985) are not dichotomous.

Summary

In this chapter a discussion of the methodology and procedures utilized for data collection and analysis were presented. All variables were operationally defined, the sample was described along with the procedure for securing a sample, the instrument and the technique for scoring were also presented.

Chapter V contains the results of this study. Tables and graphs will be included in the chapter depending on their length and facilitation of the reader's understanding. Lengthy tables will be found in the appendix. Chapter VI contains suggestions for future research and discussion of application of the findings from this study to nursing.

CHAPTER V

DATA PRESENTATION

Within this chapter, the study results will be presented. Data will be presented to describe the study sample and the presence, type, and severity of symptoms reported during the three phases of the menstrual cycle. This will be followed by data compiled to specifically address the two research questions. The first section of this chapter is dedicated to a description of the study sample, i.e., socio-demographic data, health status, and medication use. The next section will contain information about the reliabiltiy of the tool in this sample. This will be followed by the statistical analysis of the data for the 47 questionnaire items.

The data presented in this chapter were collected to answer the following questions:

1. What physical, affective, or behavioral symptoms are most commonly self-reported retrospectively by this sample of women 18 to 25 years of age during the premenstrual phase of the menstrual cycle?
2. What symptoms are reported as being most severe during the premenstrual phase of the menstrual cycle?

The Study Sample

The demographic variables included in this study to describe participants are: age, educational level, race, income, health

status, number of days missed from school or work in the past year, illnesses, and current medications. Regular exercise, snacking, and consumption of balanced meals on a regular basis were also surveyed.

Two hundred questionnaires were distributed either in a group setting or to individuals approached by the researcher. One hundred and twenty-six completed questionnaires were returned to the researcher. Twenty-six subjects were dropped from the study based on the preestablished exclusion criteria (use of birth control pills or diagnosed as having a menstrual disorder) . The final study sample consisted of 100 women ranging in age from 18 to 25, with a mean age of 21.24 years and a standard deviation of 1.8 years. The sample included 92 white subjects, 7 black subjects, and 1 oriental subject. Eighty-three percent of the respondents were full-time students with an annual income of less than $10,000. These data are summarized in Table 6. All data presented in the following tables are based upon the subject size (N) of 100.

The overall health of the subjects was self rated as good (N=64), excellent (N=32), and fair health (N=4). A low rate of absenteeism was reported by the subjects. Few chronic illnesses, and infrequent use of medications were also reported. Sixty-nine percent of the subjects reported no chronic illnesses, however, 16 subjects failed to respond to this item (See Table 7). Chronic illnesses in the "other" column include vitamin

TABLE 6. Demographic variables.

Variable	Number of Respondents	Percent of Respondents
Age in years		
18	10	10
19	7	7
20	11	11
21	30	30
22	23	23
23	6	6
24	4	4
25	8	8
missing	1	1
Education		
Some Junior College	2	2
Associate Degree	1	1
Some College	84	84
Bachelors Degree	10	10
Some Graduate School	2	2
Master's Degree	1	1
Racial or Ethnic Background		
White	92	92
Black	7	7
Oriental	1	1
Income		
Less than $10,00	83	83
$10,000 - $19,999	6	6
$20,000 - $29,999	2	2
$50,000 or more	2	2
Do not know	5	5
missing	2	2

deficiencies, migraine headaches, and sinus headaches.

Fifty eight percent of the subjects reported use of non-narcotic over the counter types of pain relievers. Sixty two percent reported use of other medications which included items such as over the counter decongestants and antihistamines, antacids, and vitamins. One client reported the use of an antibiotic in the last six months. Eight subjects failed to respond to the question about medications.

Information describing menstruation of the subjects included: number of days between the end of menses and the resumption of the next flow, length of blood flow, and amount of blood loss during menses. This information is summarized in Table 8. The ideal menstrual cycle length cited in the literature is approximately 28 days with an average blood flow of from three to five days (Moos, 1985). The mean menstrual cycle length in this study was 29.39 days. The mean length of flow was 5.48 days.

In summary, the participants in this study are predominantly white college students from a large midwestern university. The subjects rate their overall health as good. The subjects have average length menstrual cycles and an average length of flow compared to norms found in the literature (Moos, 1985).

TABLE 7. Self-reported health status of sample.

General Health		
Fair	2	2
Good	64	64
Excellent	32	32
Days of work or school missed due to illness		
0	42	42
1 - 3	36	36
4 - 6	13	13
7 - 9	5	5
10 - 12	3	3
*18	1	1
Chronic illness		
Asthma	8	8
Allergies	5	5
Other	11	11
None	69	69
missing	16	16
Medications		
Aspirin	25	25
Non narcotic/non asprin pain reliever	33	33
Other	62	62
Nothing	26	26
Missing	8	8

* This subject had mononucleosis during past year.

TABLE 8. Menstrual variables.

Frequency of Menses

Shortest cycle	20 days
Longest cycle	55 days
Mean cycle length	29.39 days
Std. Deviation	7.17 days
Missing	4

Length of Menstrual Flow

Shortest	3 days
Longest	9 days
Mean flow	5.48 days
Std. Deviation	2.36 days
Missing	1

Blood Loss Typical Menses

	Number of Respondents	Percent of Respondents
Light	11	11
Moderate	66	66
Heavy	23	23

Reliability of the Instrument

The reliability of this instrument was measured by computing the Cronbach alpha on the subscales identified by Moos (Moos, 1985) and for the full scale in each phase. Table 10 contains the alpha scores obtained for each subscale and a full scale alpha for each of the three phases of the menstrual cycle. The final column is the average internal consistencies for the menstrual and premenstrual phase.

Referring to standards of alpha values previously cited (Polit & Hungler, 1983), the alphas found for symptoms reported

in the premenstrual phase are adequate. Two subscales, water retention and autonomic reactions are near the lower limit of the standard of .60

The alpha values found for the menstrual phase of the cycle are lower than those found in the premenstrual phase. Two subscales, arousal and control, have unacceptably low alpha values (0.54). Two other subscales, autonomic reactions and negative affect, have low, but acceptable alpha values.

The alpha values found derived from data in the remainder of the cycle phase are low overall. Only one subscale, negative affect, has a strong alpha value, the rest are unacceptable or low acceptable (See Table 9). Finally, the average internal consistencies derived for the premenstrual and menstrual phase are acceptable alpha values.

ABLE 9. Reliability of the subscales, represented by internal consistencies (Alpha N = 100 Form C).

Scale	Premen.	Menses	Remaind. Cycle	Ave.
Pain	.77	.73	.64	.75
Water Retention	.69	.72	.71	.71
Autonomic Reactions	.66	.63	.37	.65
Negative Affect	.79	.65	.83	.72
Impaired Concentration	.83	.71	.79	.77
Behavior Change	.71	.78	.31	.75
Arousal	.71	.54	.67	.63
Control	.70	.54	.44	.62
Full scale total	.95	.92	.92	

Research Questions

This study, as previously stated, was designed to address two questions. Table 10 contains the frequencies for all items reported by subjects in each of the three phases of the cycle. The symptoms are grouped according to the subscales described by Moos (Moos, 1985). The grouping of symptoms into the eight subscales assists in the classification of symptoms as emotional, behavioral, and physical. Symptoms in the control subscale are reported least often by this group for any phase. Table 11 contains the frequencies for symptoms reported only during the premenstrual phase, arranged in rank order. Approximately 1 in 4 subjects report weight gain (N = 24), and skin disorders (N = 23) only during the premenstrual phase. Also approximately 1 of 5 subjects reported crying (N = 17), breasts tenderness (N = 18), depression (N = 20), and tension (N = 18) during the premenstrual phase. Recall that symptoms reported only during the premenstrual phase and not during the other phases of the menstrual cycle qualified by definition as premenstrual symptoms. In Table 11 all 47 items on the MDQ have been included, however, only 15 symptoms were reported by 10 or more subjects during the premenstrual phase alone. The remaining symptoms have been reported by fewer than 10 subjects per item during the premenstrual phase.

TABLE 10. Frequencies of symptoms reported for the three phases of the menstrual cycle by subscale (N = 100).

Symptoms	Premenstrual fx	%	Menses fx	%	Remaind. cycle fx	%
Pain						
Muscle stiffness	32	32	38	38	8	8
Headache	47	47	54	54	15	15
Cramps	53	53	86	86	4	4
Backache	50	50	67	67	5	5
Fatigue	52	52	61	61	10	10
Gen. aches/pains	46	46	49	49	6	6
Water Retention						
Weight gain	70	70	51	51	11	11
Skin disorders	55	55	39	39	8	8
Tender breasts	72	72	64	64	9	9
Swelling	61	61	57	57	10	10
Autonomic Reactions						
Dizzy/faint	17	17	24	24	6	6
Cold sweats	8	8	15	15	3	3
Hot flashes	8	8	11	11	3	3
Nausea/vomiting	13	13	25	25	1	1
Negative Affect						
Loneliness	36	36	30	30	12	12
Anxiety	43	43	38	38	6	6
Mood swings	71	71	67	67	14	14
Crying	47	47	35	35	11	11
Irritable	68	68	73	73	7	7
Tension	57	57	45	45	11	11
Depression	55	55	49	49	13	13
Restless	27	27	27	27	9	9
Impaired Concentration						
Insomnia	7	7	8	8	6	6
Forgetfulness	8	8	9	9	3	3
Confusion	5	5	5	5	4	4
Poor judgement	7	7	7	7	3	3
Difficult concentrating	19	19	28	28	6	6
Accidents	9	9	7	7	00	00
Poor coordination	12	12	9	9	4	4
Distractible	24	24	27	27	10	10

Table 10. Continued.

Symptoms	Premenstrual fx	Premenstrual %	Menses fx	Menses %	Remaind. cycle fx	Remaind. cycle %
Behavior Change						
Poor performance	23	23	31	31	5	5
Napping	38	38	56	56	13	13
Stay home	9	9	29	29	4	4
Avoid social activity	15	15	30	30	3	3
Decreased efficiency	21	21	26	26	3	3
Arousal						
Affectionate	48	48	41	41	34	34
Orderliness	26	26	20	20	18	18
Excitement	17	17	13	13	10	10
Well-being	24	24	24	24	28	28
Bursts of energy	17	17	11	11	23	23
Control						
Feel suffocated	9	9	6	6	00	00
Chest pain	6	6	6	6	3	3
Buzzing in ears	11	11	9	9	8	8
Heart pounding	8	8	8	8	1	1
Numbness	9	9	8	8	5	5
Blind spots	9	9	7	7	2	2
*Changes in appetite	63	63	59	59	8	8

*Not included in data analysis as part of any subscale.

TABLE 11. Premenstrual symptoms in rank order.

Symptom	Frequency	Symptoms	Frequency
Weight gain	24	Dizzy/faint	6
Skin disorders	23	Distractible	6
Depression	20	Excitement	6
Tension	18	Avoid soc. act.	6
Tender breasts	18	Feel suffocated	5
Crying	17	Nausea/vomiting	5
Changes in appetitie	15	Difficult conce.	5
Mood swings	14	Chest pain	4
Fatigue	12	Cold sweats	4
Swelling	11	Buzzing in ears	4
Anxiety	11	Accidents	4
Backache	11	Blind spots	4
Loneliness	11	Bursts of energy	3
Irritable	10	Poor judgement	3
Affectionate	10	Forgetfulness	3
Headache	9	Numbness	3
Poor performance	9	Well-being	3
Gen aches/pains	8	Insomnia	2
Restless	8	Confusion	2
Muscle stiffness	7	Stay home	2
Napping	7	Heart pounding	2
Decreased efficiency	7	Hot flashes	1
Poor coordination	6		
Orderliness	6		
Cramps	6		

TABLE 12. Rank order of subscales for most frequently reported premenstrual symptoms.

Scales	Average Number of Subjects Reporting Symptoms During Premenstrual Phase
Water Retention	19
Negative Affect	13.6
Pain	8.4
Behavior Changes	6.2
Arousal	5.6
Autonomic	4.0
Impaired Concentration	3.9
Control	3.6

In Table 12 the symptoms were grouped into the eight subscales described by Moos (1985). The subscales are arranged in rank order. Order was determined by identifying the subscale containing the most frequently reported symptoms during the premenstrual phase and not during any other phase of the menstrual cycle. The three subscales containing symptoms most commonly reported by this sample of young women were: the water retention scale, the negative affect scale, and the pain scale.

The data collected with regard to the severity of symptoms reported by this sample are presented in the following pages. Table 13 contains the symptom severity scores reported by the 100 subjects

for the three phases of the menstrual cycle. Severity was measured by using a 4 point scale "0 = no symptom", "1 = mild symptoms", "2 = moderate symptoms", and "3 = severe symptoms" (Moos, 1985). The symptoms are grouped into the eight subscales to ease the identification of emotional, physical, and behavioral symptoms. It can be seen in Table 13 that some women did report symptoms as severe or moderate for the menstrual and premenstrual phase. The majority of women, however, reported symptoms as absent or mild. During the premenstrual phase, 3 subscales contain symptoms reported as severe by at least 2 women. The subscales are the pain, water retention, and negative affect subscales.

Table 14 contains the mean symptom severity scores reported by subjects for all 47 items for the three phases of the menstrual cycle. Many of the symptoms reported most often during the premenstrual phase are the same symptoms reported as most severe during the premenstrual phase, i.e., weight gain, severity = .83, skin disorders, severity = .64, tender breasts, severity = .93, depression, severity = .83, and tension, severity = .76. Other symptoms receiving high frequency and severity scores are anxiety (N = 11, severity =.61), mood swings (N = 14, severity = 1.09), and irritability (N = 10, severity = 1.00).

Items meeting the criterion of premenstrual symptoms are listed in rank order of severity in Table 15. As in Table 11, all 47 items

TABLE 13. Frequencies of severity of symptoms for three phases.

Symptoms	Week Before Menses				Menses				Remainder of Cycle			
	None	Mild	Moderate	Severe	None	Mild	Moderate	Severe	None	Mild	Moderate	Severe
Pain												
Muscle stiffness	68	27	4	1	62	28	8	2	92	7	1	0
Headache	53	30	16	1	46	35	17	2	85	13	2	0
Cramps	47	33	18	2	14	32	34	20	96	3	1	0
Backache	50	33	15	2	33	42	20	5	94	5	0	0*
Fatigue	48	32	18	2	39	40	19	2	90	9	1	0
Gen. aches/pains	54	27	19	0	51	34	14	1	95	4	1	0
Water Retention												
Weight gain	30	58	9	2*	48	40	10	1*	88	9	1	1*
Skin disorders	45	46	9	0	61	34	5	0	92	8	0	0
Tender breasts	28	53	17	2	36	52	11	1	91	8	0	1
Swelling	39	46	13	2	43	43	11	3	90	9	0	1
Autonomic Reactions												
Dizzy/faint	83	12	5	0	76	17	5	2	94	6	0	0
Cold sweats	92	7	1	0	85	10	3	2	96	3	0	0*
Nausea/Vomiting	87	13	0	0	75	13	6	6	99	1	0	0
Hot flashes	93	4	2	1	89	6	5	0	97	3	0	0
Negative Affect												
Loneliness	64	26	8	2	70	24	5	1	88	10	1	1
Anxiety	57	28	12	3	62	29	8	1	89	10	0	1
Mood swings	29	42	20	9	33	47	17	3	86	11	2	1
Crying	53	35	10	2	65	29	5	1	90	7	2	1
Irritable	32	41	22	5	27	55	14	4	93	5	1	1
Tension	43	42	11	4	55	35	7	3	89	8	2	1
Depression	45	32	18	5	51	35	11	3	87	10	2	1
Restlessness	73	19	8	0	73	22	5	0	91	9	0	0

TABLE 13. Continued.

Symptoms	Week Before Menses None	Mild	Moderate	Severe	Menses None	Mild	Moderate	Severe	Remainder of Cycle None	Mild	Moderate	Severe
Impaired Concentration												
Insomnia	93	6	1	0	92	6	2	0	94	6	0	0
Forgetfulness	92	5	3	0	91	7	1	1	97	3	0	0
Confusion	95	2	3	0	95	3	2	0	96	3	1	0
Poor judgement	93	4	3	0	93	5	2	0	97	2	1	0
Difficulty concentrating	88	14	4	1	72	16	11	1	94	5	0	1
Poor coordination	88	9	3	0	90	7	2	0*	95	4	0	0*
Accidents	91	7	2	0	93	5	2	0	100	0	0	0
Distractible	76	14	9	1	73	21	5	1	90	9	0	1
Behavior Change												
Poor performance	77	17	5	1	69	16	12	3	95	3	1	1
Napping	62	29	8	1	44	34	17	5	87	11	2	0
Stay home	91	5	4	0	68	16	10	6	96	3	1	0
Avoid social activity	85	10	5	0	70	19	9	2	97	3	0	0
Decr. efficiency	79	14	6	1	73	19	6	1*	97	2	0	0*
Arousal												
Affectionate	52	43	4	1	59	35	4	2	66	32	2	0
Orderliness	73	22	4	0*	79	20	0	0*	81	17	1	0*
Excitement	83	13	4	0	87	12	0	1	90	10	0	0
Well-being	76	21	2	1	76	22	2	0	72	28	0	0
Bursts of energy	83	14	3	0	89	11	0	0	77	21	0	1
Control												
Feel suffocated	91	6	3	0	94	4	1	1	100	0	0	0
Chest pain	94	5	1	0	94	4	2	0	97	3	0	0
Buzzing in ears	89	9	2	0	91	9	0	0	92	8	0	0
Heart pounding	92	2	6	0	92	6	1	1	99	1	0	0
Numbness	91	6	1	0*	92	5	1	0*	95	3	0	0*
Blind spots	91	7	2	0	93	5	1	1	98	1	1	0
Change in appetite	37	42	18	3	41	48	10	1	92	6	1	1

TABLE 14. Mean severity reported for the three phases.

Symptom	Premenstrual	Menses	Remainder of cycle
Pain			
Muscle stiffness	.39	.50	.09
Headache	.65	.75	.17
Cramps	.75	1.60	.05
Backache	.69	.97	.05
Fatigue	.74	.84	.11
Gen. aches/pain	.65	.65	.06
Water Retention			
Weight gain	.83	.64	.14
Skin disorders	.64	.44	.08
Tender breasts	.93	.77	.11
Swelling	.78	.74	.12
Autonomic Reactions			
Dizzy/faint	.22	.33	.06
Cold sweats	.09	.22	.03
Nausea/vomiting	.13	.43	.01
Hot flashes	.11	.16	.03
Negative Affect			
Loneliness	.48	.37	.15
Anxiety	.61	.48	.13
Mood swings	1.09	.90	.18
Crying	.61	.42	.14
Irritable	1.00	.95	.10
Tension	.76	.58	.15
Depression	.83	.66	.17
Restless	.35	.32	.09

TABLE 14. Continued.

Symptom	Premenstrual	Menses	Remainder of cycle
Impaired Concentration			
Insomnia	.08	.10	.06
Forgetfulness	.11	.12	.03
Confusion	.08	.07	.05
Poor judgement	.10	.09	.04
Difficult concen.	.25	.41	.08
Accidents	.11	.09	0.00
Poor coordination	.15	.11	.04
Distractible	.35	.34	.12
Behavioral Changes			
Poor performance	.30	.49	.08
Napping	.48	.83	.15
Stay home	.13	.54	.05
Avoid soc. acti.	.20	.43	.03
Decreased efficiency	.29	.34	.02
Arousal			
Affectionate	.54	.20	.36
Orderliness	.30	.28	.19
Excitement	.21	.15	.10
Well-being	.28	.26	.28
Bursts of energy	.20	.11	.27
Control			
Feel suffocated	.12	.09	0.00
Chest pain	.07	.08	.03
Buzzing in ears	.13	.09	.08
Heart pounding	.14	.11	.01
Numbness	.08	.07	.03
Blind spots	.11	.10	.03
Change in appetite	.87	1.0	.11

are represented. Note that several of the symptoms received very low mean severity scores, however, they met the definition of a premenstrual symptom and were included. Depression (.70), tender breasts (.55), weight gain (.52) and mood swings (.51) are reported as most severe during the premenstrual phase. This is consistent with the earlier reported frequencies in this study. Although the mean severity for symptoms is low, some women reported disruptive symptoms during the premenstrual phase of thier cycles.

In Table 16, the symptoms are grouped into the eight subscales defined by Moos (1968). The symptom severity scores derived from the group for each symptom in the subscale were summed and the mean symptom severity score is reported per subscale in rank order. Note the average symptom severity for the subscales does not reach the mild level (1) of severity. Table 16 contains the subscales arranged in a similar order to Table 12, the table of frequencies. The only difference noted in the order of subscales between Table 12 and Table 16 is that the behavior changes, autonomic reactions, and arousal subscales have changed positions. In the severity ranking the order of subscales is autonomic, behavior changes, and arousal. In the frequency ranking the subscale order is behavior change, arousal, and autonomic. Table 17 lists the premenstrual symptoms that were reported most frequently and were most severe. The letters to the left of the symptom depicts in which subsubscale the item belongs. The subscales most frequently cited in Table 17 are the negative affect and the water retention subscales.

TABLE 15. Mean symptom severity in rank order for the premenstrual phase only.

Symptoms	Mean Severity	Frequency None	Mild	Mod	Severe
Depression	0.70	30	13	6	1
Tender breasts	0.55	18	16	2	0
Weight gain	0.52	24	23	1	0
Mood swings	0.51	17	11	2	1
Irritable	0.48	17	8	1	1
Cramps	0.44	8	5	1	0
Changes in appetite	0.43	26	12	3	0
Tension	0.43	36	14	2	2
Skin disorders	0.38	37	23	0	0
Fatigue	0.38	25	10	2	0
Backache	0.37	21	10	1	0
Crying	0.32	45	14	3	0
Anxiety	0.27	48	7	4	0
Swelling	0.27	32	10	1	0
Insomnia	0.23	87	2	0	0
Headache	0.23	34	8	1	0
Loneliness	0.22	56	7	4	0
Affectionate	0.21	42	9	1	0
General aches	0.21	43	5	3	0
Restless	0.16	63	4	4	0
Poor performance	0.14	59	8	1	0
Napping	0.14	35	7	0	0
Muscle stiffness	0.13	54	6	1	0

TABLE 15. Continued.

Symptoms	Mean Severity	Frequency None	Mild	Mod	Severe
Dizzy/faint	0.12	69	3	3	0
Distractible	0.11	64	4	2	0
Orderliness	0.10	69	4	2	0
Avoid soc. act.	0.10	62	5	1	0
Decreased efficiency	0.10	66	6	1	0
Difficult concen.	0.08	65	4	1	0
Excitement	0.08	78	4	2	0
Poor coordination	0.08	84	4	2	0
Well-being	0.06	61	2	1	0
Accidents	0.06	89	2	2	0
Bursts of energy	0.06	70	1	2	0
Feel suffocated	0.05	89	5	0	0
Chest pain	0.05	88	3	1	0
Blind spots	0.05	89	3	1	0
Nausea/vomiting	0.05	70	5	0	0
Buzzing in ears	0.04	84	2	2	0
Heart pounding	0.04	90	2	0	0
Forgetfulness	0.04	87	2	1	0
Stay home	0.04	65	1	1	0
Cold sweats	0.04	80	4	0	0
Poor judgement	0.04	89	2	1	0
Numbness	0.03	88	2	1	0
Confusion	0.03	91	1	1	0
Hot flashes	0.02	86	0	1	0

TABLE 16. Rank order of scales containing most severe symptoms reported during the premenstrual phase only.

Scales	Average degree of Severity for subjects reporting symptoms during premenstrual phase
Water Retention	.42
Negative Affect	.37
Pain	.28
Autonomic	.16
Behavior Changes	.10
Arousal	.10
Impaired Concentration	.06
Control	.04

TABLE 17. Comparison most frequently reported and most severe symptoms for the premenstrual phase only.

Symptom	Frequency	Mean Severity
wr Weight gain	24	0.52
wr Skin disorders	23	0.38
na Depression	20	0.70
na Tension	18	0.43
wr Tender breasts	18	0.55
na Crying	17	0.32
* Changes in appetitie	15	0.43
na Mood swings	14	0.51
p Fatigue	12	0.38
wr Swelling	11	0.27
na Anxiety	11	0.27
p Backache	11	0.37
na Loneliness	11	0.22
na Irritable	10	0.48
a Affectionate	10	0.21

Additional Findings

It was interesting to find that when the mean symptom severity was calculated only 2 symptoms in the premenstrual phase reached a score of 1 or higher, i.e., irritable (1.00) and mood swings (1.09). When mean symptom severities were calculated for symptoms that met the definition for a premenstrual symptom no symptoms reached a severity level of 1.00 and only one symptom even came close, i.e, depression (0.70). For symptoms reported during menses, again mean symptom severity scores revealed only 2 symptoms attaining a score of one or more, these symptoms are cramps (1.60) and change in appetite (1.00). Symptoms reported by this group of women 18 to 25 years of age, were extremely mild.

Other findings of interest relate to the intercorrelations of subscales. During the premenstrual phase the pain subscale was highly correlated with the negative affect, behavior change, and water retention subscales. The Pearson coefficients are r=0.655, 0.673, & 0.504 respectively at a significance level of $p < 0.001$. During the menstrual phase pain was highly correlated with autonomic reactions, negative affect, impairment of concentration, and behavior changes. The Pearson coeficients for these scales are r=0.597, 0.626, 0.518, & 0.616 respectively at a significance level of $p < 0.001$. Finally, during the remainder of the cycle pain, was highly correlated with autonomic reactions, negative affect, behavior change, and the control subscale. The

Pearson coeficients at a significance level of p≤0.001 are r=0.542, 0.637, 0.649, & 0.641 respectively.

Another interesting finding has to do with symptoms not included in the MDQ (Moos, 1985). That is, 3 subjects wrote in symptoms on the questionnaire. Table 18 lists the symptoms that were written in by the subjects. Sadly, the subjects did not indicate symptom severity.

TABLE 18. Symptoms written in by subjects

Symptom	Frequency		
	Premenst.	Menses	Remainder
Diarrhea	1	1	
Crave chocolate	1	1	
Loss of appetite	1		

Summary

In this chapter the results of the study were provided. It was found that only 15 symptoms were reported by 10% to 24% of this sample (N = 10 to 24 subjects reporting) as premenstrual symptoms. It was also found that of the symptoms that qualified by definition as premenstraul symptoms, no mean severity score was greater than "1" (mild), however, at least one women did report experiencing 4 symptoms as severe. Finally, it was found that the symptoms reported most frequently as premenstrual symptoms were similar to symptoms reported as being most severe.

It was concluded, based upon these findings, that this group of healthy 18 to 25 year old women suffered from symptoms that qualified by definition as PMS, and that of the symptoms that were reported as premenstrual symptoms were experienced as mild symptoms. It was also noted, that at least one women reported severe symptoms and that others did experience moderate symptomatology.

In the last chapter, Chapter VI, a brief discussion of the findings will be provided. This will be followed by discussions on the implications of the findings for nursing research, education, and practice.

CHAPTER VI

SUMMARY AND IMPLICATIONS

Discussion

In this study two questions were investigated. The first question was, what physical, affective, or behavioral symptoms are most commonly self-reported retrospectively by this sample of women 18 to 25 years of age during the premenstrual phase of the menstrual cycle? The findings were that this group of women experienced all 47 symptoms listed on the Moos MDQ (1985). The most commonly reported symptoms fell into two general categories, physical discomfort and emotional upset symptoms. These findings are consistent with the literature (Parker, 1960; Sletton, & Geshon, 1966; Abraham, 1980; Woods, Most, & Dery, 1982; Laurenson, 1985;). The physical discomfort symptoms included weight gain (N = 24), skin disorders (N =23), tender breasts (N = 18), changes in appetite (N = 15), fatigue (N = 12), swelling (N = 11), and backaches (N = 11). The emotional upset symptoms reported were depression (N = 20), tension (N = 18), crying (N = 17), mood swings (N = 14), anxiety (N = 11), loneliness (N = 11), irritability (N = 10), and affectionate (N = 10).

The second question was, what symptoms are reported as being most severe during the premenstrual phase of the menstrual cycle. The symptoms reported as being most severe were the same symptoms reported as being most common. Mean severity scores, however, were very low. The mild mean severity scores lead to

the conclusion that on the average, women in this group experienced symptoms, but that symptoms experienced were not upsetting to activities of daily living. Four symptoms met the definition of PMS, and had at least one woman who reported that a specific symptom was severe. The four symptoms are depression, mood swings, irritability, and tension. Several women also reported experiencing symptoms in the moderate category. Table 15, Chapter V lists the PMS symptoms found in this study, the mean severity score for the symptoms, and frequencies for the reported severity levels. The findings of this study are consistent with previously cited literature (Moos, 1968, 1977, 1985; Steiner, Haskett, & Carroll, 1980; Woods, Most, & Dery, 1982; Shaver & Woods, 1985).

Women reporting PMS, with symptoms that are moderate to severe will require some form of intervention. In Chapter II, the theoretical framework was developed. It was the premise of the framework that severe PMS symptomatology would interfere with the accomplishment of the normal developmental tasks in this age group. Based upon the results of this study, it is not possible to say that this is true, nor is it possible to say that this is a false supposition. It can, and has been, said that at least one women in this group of subjects has symptoms of PMS that render her unable to deal with normal activities of daily living. It can be said that a great number of women in this group suffer from symptoms that are disruptive enough to lead to a decrease in

the number of activites involved in during the premenstrual phase. It can be said that every woman in this group experienced at least one mild premenstrual symptom. It could be assumed that if a symptom is severe enough to make the woman unable to carry out normal activites of daily living, that their would be some reduction in the ability to accomplish normal developmental tasks. This assumption was not investigated directly in this study.

The consistency found between Table 12 and Table 16 of Chapter V allow for the following conclusion: the symptoms reported most often by this sample, during the premenstrual phase and not during any other phase of the menstrual cycle are the same symptoms reported as most severe during the premenstrual phase and not during any other phase of the menstrual cycle. It can also be concluded that, based upon this study, few healthy women 18 to 25 years of age in this sample suffer from severe symptoms. Intervention, however, is justafiable in the cases where the symptoms are severe enough to alter daily functioning. Interventions will be addressed in a later section of this chapter.

This researcher has identified a number of possible explanations for the mildness of symptoms reported in this study. The first explanation that could be put forth, and has been offered by at least one other group of researchers (Halbreich, Endicott, Schacht, & Nee, 1982), is that this tool

may not actually contain enough symptoms to describe PMS. The tool advocated by Halbreich et al, (1982) containes over 90 symptoms. This researcher believes the MDQ (Moos, 1985) does describe PMS symptoms comprehensively. The disagreement with Halbreich, Endicott, Schacht, and Nee (1982) is based upon two points. The first point was developed in Chapter III, the literature review. In the section discussing PMS symptoms and research focusing on symptomatolgy of PMS, a core of symptoms was identified. The core revolved around negative affect and water retention symptoms. This tool contains these symptoms, in addition to others. The second point was developed in Chapter IV, in the section on validity of the tool. In Chapter IV a case was built to substantiate the claim that this tool has content validity. That is, this tool contains the symptoms most frequently cited as premenstrual symptoms by women.

A second possible explanation for the low mean severity scores in this sample also relates to the tool. It is possible that the subjects asked to recall symptoms from a past menstrual cycle did not do so accurately and thus, have falsely under reported symptoms. This researcher does not believe this to be the case either. Within the contents of Chapter IV, limitations of the MDQ (Moos, 1985) were addressed. One limitation referred to was that of the use of a retrospective tool and the potential for inaccurate reporting. At that time it was pointed out that the trend in reporting for this type of tool is toward over

reporting, not under reporting (Rose & Abplanalp, 1983). Also at that time, it was pointed out that women who experience symptoms as severe will accurately report them as severe (Ruble, 1977).

The final explanation, and the most acceptable to this researcher, is that all healthy women suffer from some symptoms premenstrually and that some women suffer from severe symptoms. It would appear that over the years the majority of women have grown to recognize and accept the mild discomfort of body and shifts of mood that indicate the nearing of menses. The majority of women find the symptoms experienced premenstrually, when experienced at the mild level, to be a normal part of the menstrual cycle, and not a pathology. In this sample everyone reported at least one symptom that met the definition of a premenstrual symptom and 4 symptoms were reported as severe by at least one woman.

Implications

The implication of this research will be addressed in three sections. The sections include implications and recommendations for research, implications for education, and finally, implications for practice. The discussion that follows will be directed toward the nurse in advanced practice, as represented by the Clinical Nurse Specialist (CNS).

Research

There are a number of implications that arise as a result of the process and the actual findings of this research. This section is dedicated to the enumeration and clarification of these implications. The first group of implications revolve around the research methodology.

A limitation of this research was the one time administration of the tool. To overcome this limitation a study could be conducted including multiple administrations of the MDQ (Moos, 1985) over a number of cycles and the results compared. The MDQ, (Moos, 1985) when administered as a one time tool does not account for the mood the woman is in while responding to the items, nor does it allow for the accumulation of data with regards to the change of symptom severity or frequency across cycles.

Another limitation of this study was failure to use another measuring device to assess the valididty and reliability of the reported symptoms and severity of the MDQ (Moos, 1985). The MDQ (Moos, 1985) could be given followed by the use of a menstrual symptoms diary for two to three months. The data from the diaries should be compared to the MDQ. The MDQ (Moos, 1985) is a retrospective (form C) measuring device. The tool is dependant on memory for the reporting of symptoms. Use of memory can lead to over reporting of symptoms. The MDQ can identify women in whom it may be useful to conduct further investigation of

symptoms and possible treatment planning.

This study was purely descriptive in nature. It was meant to provide more descriptive information about PMS and to increase the researchers knowledge level of PMS. An interventionist approach, however, could be used. The MDQ could be administered followed by a nursing intervention (counseling, diet, exercise, or vitamins, stress reduction) and the repeat administration of the MDQ to assess any change. The MDQ (Moos, 1985) is a quick tool to use for measuring symptoms before and after treatments.

This study did not inquire into attitudes, beliefs, or parental influence with regards to menses. Questions could be included to assess women's attitudes about menstruation along with the MDQ (Moos, 1985) and correlational statistics run on the data. It was pointed out in the literature review that attitudes, family beliefs, and role models can influence how one experiences menstruation (Moos, 1985; Whitehead, Busch, Heller, & Costa, 1986). The MDQ (Moos, 1985) in no way addresses this phenomenon and therefore utilizing it with an attitudes measure may provide further information about the overall experience of women during the menstrual cycle.

The second group of recommendations is derived in part from the literature review. Studies utilizing random selection or random assignment of subjects, controlled, double-blind studies on the treatments used for PMS, especially the hormonal treatments would be helpful. Since very few of these studies

have been conducted, it is difficult to recommend one form of treatment over another for any given client.

Research must be conducted by women on women from a phenomenological viewpoint attempting to describe the lived experience of PMS. This research would be useful in providing insight into the world of the menstruating female which may provide clues to useful and meaningful interventions to relieve or reduce reported symptoms of PMS.

Research on how providers of care are being prepared to provide care is another area that has barely been touched. This researcher was unable to find in the literature any information about how and what information is being included in the academic programs or in continuing education of nurses, physicians, social workers, or psychologists who are expected to assist or treat women with PMS.

Research to determine who is providing care and what the impact rate is of different practitioners would prove useful to clinicians. Throughout the literature, one can find hints as to who is providing care for PMS clients. Based upon articles in the newspapers, television, professional journals, and current lay magazines one can get an idea of what is being recommended as treatment for PMS. It is interesting to note, however, that very little is found in the literature that deals with actual success rates versus the practitioner's ability to say this did not work. Does everything work?

The above mentioned recommendations for future research were derived from the literature review as well as an evaluation of the results of this study. This researcher concludes that a one time retrospective administration of the MDQ (Moos, 1985) is a reasonable method to use for screening a population for PMS. The reader is asked to recall that a screening device is utilized to identify persons who may need further evaluation and treatment of a problem. Screenings are not conclusive in and of themselves. It is this researcher's opinion that the MDQ (Moos, 1985) as utilized in this study is an appropriate tool for screening women for further evaluation for the complaint of PMS. It would be inappropriate to administer this tool alone or only as a one time measure in the attempt to diagnose PMS.

The results of this study demonstrate the usefulness of this tool as a screening device. The methodology utilized in this study had several weaknesses that were identified in Chapter I and reiterated in this chapter. Despite these weaknesses, the results of this study can be utilized to construct a case for intervention with PMS. That is, this study did find that at least one women in this sample had premenstrual symptoms severe enough to disrupt activities of daily living (severe) and several women had symptoms which decreased the number of daily activities the women could undertake (Moderate). When symptoms disrupt a young woman's life, intervention is required.

The next section of this chapter is focused upon the

implications of this study for education. Education is placed second as it is the corner stone of advanced practice. Research and education combined enhance the advanced practice of the nurse.

Education

In this study a health need of the young adult female has been identified. It has been pointed out that, at least in this sample, the mean severity for symptoms experienced was mild. It was also pointed out that some women did report severe symptoms and several women reported moderate severity of symptoms. The term severe was identified as meaning "present and disabling, unable to carry out activites of daily life" (Moos, 1985). This means that some women in this group did experience symptoms at a disruptive level, but that the majority of women reported a severity level of mild. For women with mild symptoms, it may be helpful to know that others experience similar annoying symptoms. For the young adult female, severe symptoms once a month may be enough to cause multiple absences from work or school, this in turn may lead to loss of the job or failure in school depending on the nature of work and school. Severe symptoms may lead the young woman to avoid social contact or become irritable and block meaningful interactions with peers, family, lovers, and even individuals willing to assist the female. What all this leads to is the decrease in the available energies of the young adult female for focusing on the normal

developmental stresses and tasks. The decrease in available energies eventually leads to a total inability to accomplish the tasks. At this point intervention is a must. At an earlier point intervention could have led to a resolution of the problem and the freeing of energies to focus on the normal developmental tasks of this age group.

For the woman with severe PMS, the CNS is in a special position to assist them. At the graduate level of nursing, every program focusing on family health across the lifespan should provide basic information about PMS. The basic education should include information to increase the students understanding of the normal menstrual cycle and variations of normal across the female life cycle. Each graduate should be able to demonstrate skills mastery in assessment of normal and variations from normal in menstrual patterns. Each graduate should possess the ability to apply diagnostic criteria for PMS and utilize the most accurate assessment tools available. Finally, each graduate should have a background in etiology and treatment regimens of PMS. The basics of nursing and caring for clients with PMS should include the development of a theory for practice. Every nurse should be practicing from a theory that places man, the environment, health, and nursing into an interconnected state. From this the nurse is capable of seeing the global and resists dissecting the woman in order to treat or predict behavior.

More than just basic information is required of any

practitioner who plans to specialize in womens' health. To the basic information must be added the indepth understanding of how PMS impacts upon the woman. The concept of PMS must be addressed within the context of spirituality, sexuality, self-care issues, economic concerns, and legal issues. The graduate nurse focusing on womens' health issues must be as knowledgeable about PMS as possible and must continue to collect information and contribute to the existing body of knowledge about PMS.

Within the concept of education lies another area requiring attention, that is the area of education of the client. The CNS must be able to utilize teaching and counseling theory to assist the client in identifying specific learning needs and assisting them to meet those needs. In the case of PMS, the nurse must assist the client to identify areas of health practices that may be enhancing the monthly symptoms. An educational plan could be devised and utilized to assist the client to establish the behavior changes that will lead to a decrease or total resolution of the symptoms.

The concept of client education overlaps with the next section of this chapter. The next section outlines implications for practice.

Practice

As previously mentioned, nursing practice is, or should be, based upon theory. The nursing theory utilized in this study was Martha Rogers' (1985). Also as discussed earlier, PMS is a

woman's health issue and as such is placed into the context of the life cycle of the woman. PMS is a disharmony in the pattern of the young adults life process. Therefore, in providing care to the young adult it is important to remember the developmental tasks of this age group. The single most important task as described by Chickering (1969) is establishing identity. This means, combining Rogers (1985) and Chickering (1969), that the young adult female is beginning to exercise the free will and abilities to think and to create an adult life identity that is congruent with their background and future aspirations. In the following discussion a number of the advanced role characteristics of the nurse will be utilized to clarify different approaches available to the CNS attempting to assist the young adult female to repattern the life process into a harmonious arrangement. It is the repatterning that will allow the young woman to once again focus energy on the accomplishment of the developmental tasks of her age group.

The CNS, within the role of consultant, is in a position to share expert knowledge and skills. The CNS can provide consultation to college health care facilities regarding the establishment of programs of treatment for this age group. Nurses in advanced practice, focusing on PMS, may offer expertise to marriage counselors and representatives of businesses. Practical knowledge may be offered by the CNS to assist colleges

to design and implement programs capable of preparing women's health specialist.

The CNS is always an educator reaching out to the individual client, the family, the community, and other members of the health care system. As a lecturer, the CNS disseminates knowledge to groups, organizations, and university classes. As an author, the CNS may be published in lay journals read by the college age women, and professional journals read by peers.

The CNS is a role model, a living example of health promotive self-care practices aimed at reducing stress and improving the quality of life. The CNS is a role model to peers, demonstrating empathy and respect to the client with PMS.

Another role available to the CNS is that of a change agent working with the client to mutually reach client goals. The CNS can also impact the health care system, restructuring it to meet the needs of this age group.

The CNS is a clinician working with the young adult female to reduce the presenting symptoms. The clinician practices from the most up to date information as possible while maintaining the standards of practice. The clinician assists the client to select from the myriad of available treatment modalities the one suited to the individual and the symptoms assessed. Available but unproven treatment modalities to select from include assertiveness training, relaxation techniques, group support meetings, diet manipulations, exercise, vitamin supplements,

sunshine, hormonal therapy, diuretics, or combinations of the above. The clinician is aware of the client's symptom presentation and based upon advanced clinical judgements rooted in understanding of possible etiologies assists the client in choices and follow through.

Though the role characteristics are not yet exhausted, it is this author's belief that one more example is sufficient to demonstrate the versatility and resources of the CNS focusing on the 18 to 25 year old female experiencing symptoms premenstrually.

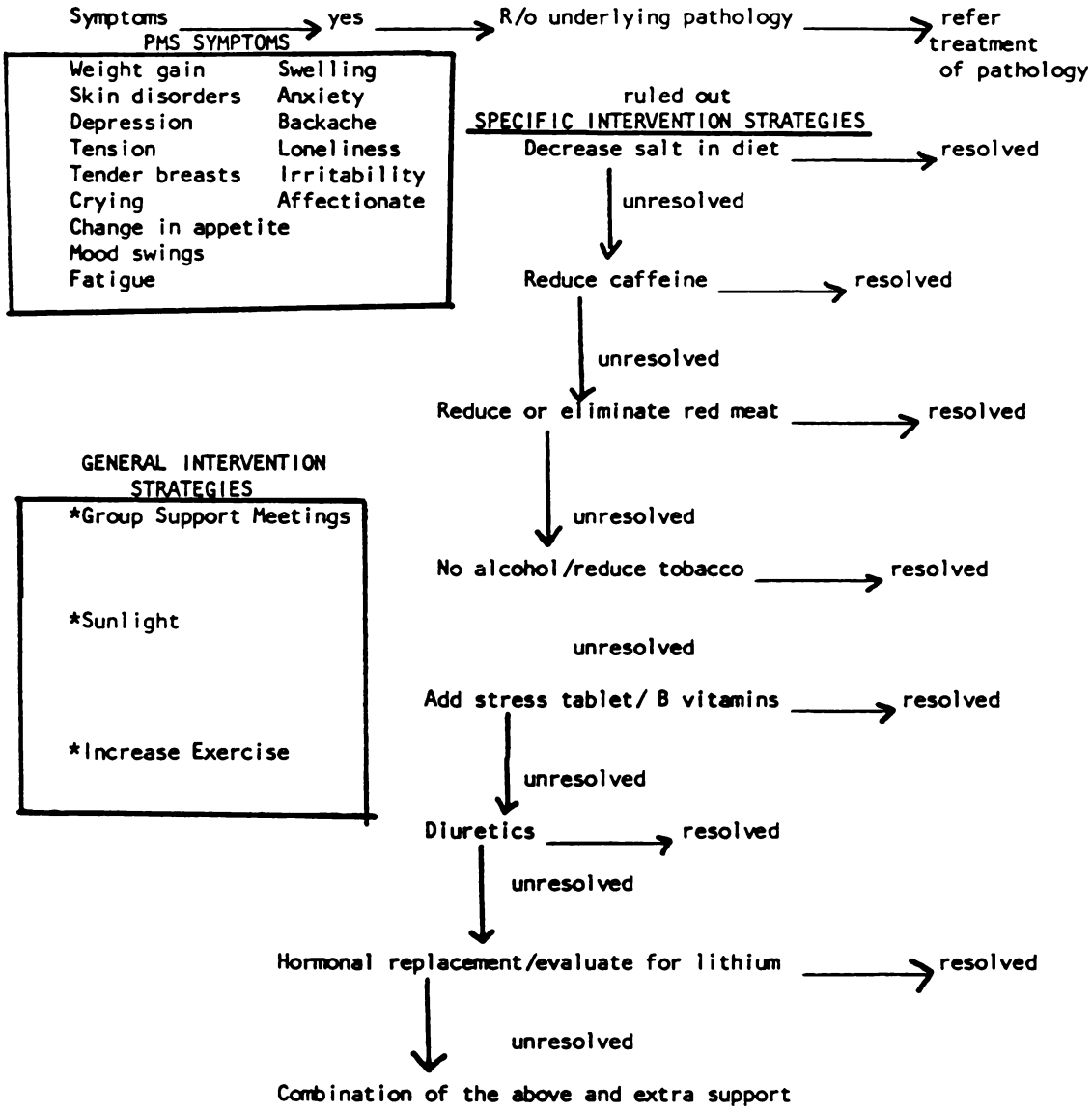
The final example is that of the client advocate. The young adult female is at a prime time to learn new skills in self-care and to fit them into the identity that is being established. The concept of advocate is that of a practitioner assisting the client to develop self care skills or assisting in the removal of obstacles in the clients path to self care. With this in mind an algorithm for interventions with clients is presented in Figure 6. The algorithm is based upon the findings of this study with regards to the 15 symptoms found to be most commonly reported premenstrually. The interventions enumerated within the body of the decision tree were identified through the review of the literature conducted in Chapter III. The interventions also reflect the initial symptoms in the algorithm. The algorithm flows from the simplest forms of intervention to more complicated treatments. It can be expected that to progress from the top of

the decision tree to the bottom would require approximately 12 to 18 months. This amount of time is required to evaluate each attempted treatment for impact on the symptoms, before another treatment is added. The algorithm is presented as an additive interventionist strategy. That is, treatments are added as one descends the tree. Previous measures are retained as the strategies lower on the tree are added.

The algorithm, Figure 6, can be given to clients to guide in decision making. It can also be utilized by the clinican. The tool is helpful in documentation of original symptoms, treatments, duration of treatments, and impact of treatments. The tool is simple to use and the use of it can provide standardized methods of documentation. The reader is cautioned that this tool has never been tested. The tool, as presented here, is the first succctool eeccuntered by this author to guide systematic treatment of PMS. This tool requires testing to determine its true value.

Summary

Within this chapter a brief discussion of the results was presented. Within this section on results it was stated that every woman in the sample reported at least one PMS symptom as mild. At least one woman reported four PMS symptoms as severe and several women reported moderate PMS symptomatology. It was



*Interject these items at anytime along the tree with any combination of other interventions.

FIGURE 6. Algorithm for client and clinician decision making for treatment of PMS.

concluded that women with mild, moderate, or severe symptoms could benefit from an individually designed treatment program. The results section was followed by a discussion of implications for nursing research. Items in this section included comments on methods for future research as well as directions for research. It was stressed that this study was a descriptive study and contained methodological limitations. The author expressed the belief that the limitations could be overcome by accounting for attitudes of the women, increasing the number of administrations of the tool, or by using another data collection procedure with the MDQ (Moos, 1985). The next section of the chapter dealt with nursing education and client education. It was stressed in this section that information sharing was a basic requirement for all graduate programs. The final section focused on nursing practice. In this section a number of role characteristics were utilized to demonstrate the implications of this study for practice. Finally, an algorithm was presented that could be used by the client, as well as the clinician, to assist in the determination and documentation of treatment possibilities for PMS. It was pointed out in this section that the algorithm could provide a standardized approach to the documentation and treatment of PMS. Readers were cautioned that this tool has never been tested.

APPENDIX A

APPENDIX A

October 21, 1986

To: Dr. G. Talarczyk

From: Mary Jo Gagan

RE: The use of undergraduate students as research subjects.

Dear Dr. Talarczyk;

It is my desire to approach the students in three of the undergraduate courses, through their professors, to request that they complete a questionnaire about their menstrual cycle. The questionnaire was designed by R. Moos (1968) and is the tool of choice for my thesis. The tool, plus a demographic data sheet, will require approximately 20 minutes to complete.

Clare Collins is the chair of my thesis committee. My proposal is presently in the hands of the University Committee for Human Subjects awaiting approval. I anticiapte receiving approval from human subjects during the second week of November. I hope to begin data collection immediaately after the Thanksgiving holiday.

I await your response to this request for access to the above mentioned undergraduate population.

Thank You

Mary Jo Gagan

APPENDIX B

APPENDIX B

Dear participant,

I would like to take this opportunity to thank you for your interest in my study. I have attached a consent form which you are asked to sign and return to me before beginning the questionnaire. Directions for completion of the questionnaire are attached to the forms. Please take a minute to read them as it is very important that you follow them when answering the different sections of the questionnaire. If you have any questions, please feel free to ask them at any time.

If you would like a copy of the study results please leave your name and number on a seperate sheet from the questionnaire with me before leaving the test site.

Again, thank you very much for your time and energy.

Yours in research

Mary Jo Gagan

Instructions for Questionnaire Completion

Now, that you have signed the consent form that came with your packet and passed it forward, it is time to respond to the questionnaire. The first two pages are entitled demographic data, this is information about you, your health, and activity level. This information is necessary to give the researcher information about the people in the study. Please note some questions are labeled optional.

The last two pages contain the tool for describing your menstrual experience. There are 47 symptoms. On the same line with each symptom are 3 blank lines. Above each blank line is a category pertaining to the menstrual cycle, i.e., week before menses, menses, and remainder of the cycle. At the top of the page is a severity scale. The scale ranges from 0, no symptom to 3 present and disabling/unable to carry out any daily activities. For each of the 47 symptoms you are asked to select a degree of severity for each of the three blank lines. For each symptom all three blanks must have a number ranging from 0 to 3. See the example below.

	week before	menses	remainder of cycle
Stood on head.....(48)	3	(78) 1	(108) 1

This means that during the week before her period, the symptom of standing on her head was so severe, for this subject, that it prohibited her from doing anything else. During menses, and the remainder of the cycle, the symptom was present, but did not interfere with other activites. Any combination of numbers is possible as long as it acurately describes your experience.

Below is an explanation of how to determine the time period to use when responding to each of the three blank lines for each item. Please read and follow carefully. List the dates for your most recent menstrual flow, this is the time for which you will respond to symptom precence in the center column (menses). If you are menstruating now describe your experience with these symptoms for this menses.

For the week preceeding the menstrual flow you have just identified, describe your experience of the symptoms, this is column one (week before menstrual flow). If you are menstruating at this time use last week to describe your symptom experience.

For the last column, (remainder of the cycle) describe your experience of symptoms immediately after your most recent menstrual flow (the flow identified in step one) up to, but not including the week before your most recent menstrual flow. If you are menstruating now, think of your previous menses and describe symptoms that followed that blood flow up to, but not including last week.

APPENDIX C

APPENDIX C

(1-3) I.D. #_____
(4)Line #_____
(5-10) Date _____

Your participation in this project is voluntary and you may withdraw at any time without penalty. Please do not put your name on this survey.

Demographic Data

Please fill in each section of this form.

(11-12) Age _____

(13-14) Highest level of education.

Some high school _____
High school graduate _____
Some Junior College _____
Associate Degree _____
Some college _____
Bachelors Degree _____
Some Graduate School _____
Master's Degree _____
Some post grad. school _____
Ph.D. _____

(15) Racial or ethnic background. (optional)

_____ White
_____ Black
_____ American Indian
_____ Hispanic
_____ Oriental
_____ other (specify)

(16)Range of your income

Less than $10,000 _____
$10,000 to $19,999 _____
$20,000 to $29,999 _____
$30,000 to $39,999 _____
$40,000 to $49,999 _____
$50,000 Or more _____
Do not know _____

(17) How would you describe your overall health?

_____Excellent _____Good _____Fair _____Poor

(18) Are you pregnant at this time?
_____yes _____no

(19-20) Approximately how many days did you miss from school or work this year for health reasons? _____

21-28) Please list any chronic illnesses (For example: diabetes, asthma, epilepsy, high blood pressure)

_____
_____
_____
_____

(29-36) Have you been diagnosed within the last year with any of the following gynecological problems? (please check any and all that apply)

Endometriosis _____
Dysmenorrhea _____
Menstrual distress _____
Pelvic inflammatory disease _____
Infertility _____
Other (please specify) _____

(37-44) Please list any medications you have used or are on regularily for the last six months (include aspirin, sinus tablets or sprays, and any prescriptions from physician)

_____
_____
_____
_____
_____
_____

(45) Are you now or have you used birth control pills in the last three months?
_____yes _____no

(46-47) Approximately how many days are there between the first day of your menstrual flow to the first day of your next menstrual blood flow?
Every_____days

(48-49) How many days do your periods last?
_____days

(50) Describe your usual menstrual flow
_____light _____moderate _____heavy

(51-56) Date of your most recent period (date it started)
month_____ Day_____ Year_____

(57) Are you presently undergoing psychological or psychiatric counseling at this time?

_____yes _____no

58) How many days a week do you eat at least two meals containing the basic 4 food groups?

_____0 _____1 _____2 _____3 _____4 _____5 _____6 _____7

(59-60) How many times a week do you eat snack food?

____0 ____1 ____2 ____3 ____4 ____5 ____6 ____7 ____
8 ____9 ____10 ____ 11 or more times a week

(61) Do you exercise at least three times a week for 20 minutes or more?

_____yes _____no

Questionnaire

On the following pages is a list of symptoms somtimes experienced by women. Please indicate your experience of each of these symptoms during the three different time periods of your last menstrual flow according to the following scale. If no descriptor is exactly correct, choose the one that best describes your experience. Do not leave any blank spaces.

0. did not experience at all
1. present but did not interfere with daily activities
2. present and did interfere with daily activities (reduced number of daily activities involved in or planned)
3. present and disabling/unable to carry out any daily activities

	week before menses	menses	remainder of cycle
Muscle Stiffness.....(62)	_____	(16)_____	(46)_____
Insomnia.....(63)	_____	(17)_____	(47)_____
Crying.....(64)	_____	(18)_____	(48)_____
Poor school or work performance.(65)	_____	(19)_____	(49)_____
Weight Gain.....(66)	_____	(20)_____	(50)_____
Forgetfulness.....(67)	_____	(21)_____	(51)_____
Confusion.....(68)	_____	(22)_____	(52)_____
Take naps; stay in bed.....(69)	_____	(23)_____	(53)_____
Headache.....(70)	_____	(24)_____	(54)_____
Skin disorders (rash/acne).....(71)	_____	(25)_____	(55)_____
Loneliness.....(72)	_____	(26)_____	(56)_____
Feelings of suffocation.....(73)	_____	(27)_____	(57)_____
Affectionate.....(74)	_____	(28)_____	(58)_____
Orderliness.....(75)	_____	(29)_____	(59)_____
Stay home from work or school...(76)	_____	(30)_____	(60)_____
Cramps.....(77)	_____	(31)_____	(61)_____
Dizziness or faintness.....(78)	_____	(32)_____	(62)_____
Excitement.....(79)	_____	(33)_____	(63)_____
Chest pains.....(80)	_____	(34)_____	(64)_____
I.D. # (1-3)			
Line # (4)			
Avoid social activities.....(5)	_____	(35)_____	(65)_____
Anxiety.....(6)	_____	(36)_____	(66)_____
Backache.....(7)	_____	(37)_____	(67)_____
Cold sweats.....(8)	_____	(38)_____	(68)_____
Poor judgement.....(9)	_____	(39)_____	(69)_____
Fatigue.....(10)	_____	(40)_____	(70)_____
Nausea or vomiting.....(11)	_____	(41)_____	(71)_____
Restlessness.....(12)	_____	(42)_____	(72)_____
Hot flashes.....(13)	_____	(43)_____	(73)_____

		week before	menses	remainder of cycle
Difficulty concentrating.....	(14)_____	(44)_____		(74)_____
Painful or tender breasts.....	(15)_____	(45)_____		(75)_____
Feelins of well-being.....	(76)_____	(17)_____		(34)_____
Buzzing or ringing in ears.....	(77)_____	(18)_____		(35)_____
Distractable.....	(78)_____	(19)_____		(36)_____
Swellin (abdomen, hands, ankles).	(79)_____	(20)_____		(37)_____
Accidents (cut self, broken dish)	(80)_____	(21)_____		(38)_____
I.D. # 1-3)				
Line # (4)				
Irritability.....	(5)_____	(22)_____		(39)_____
General aches & pains.....	(6)_____	(23)_____		(40)_____
Mood swings.....	(7)_____	(24)_____		(41)_____
Heart pounding.....	(8)_____	(25)_____		(42)_____
Depression (sad or blue).....	(9)_____	(26)_____		(43)_____
Decreased efficiency.....	(10)_____	(27)_____		(44)_____
Poor motor coordination.....	(11)_____	(28)_____		(45)_____
Numbness or tingling in hands or feet.....	(12)_____	(29)_____		(46)_____
Changes in eating habits.....	(13)_____	(30)_____		(47)_____
Tension.....	(14)_____	(31)_____		(48)_____
Blind spots or fuzzy vision.....	(15)_____	(32)_____		(49)_____
Bursts of energy/activity.....	(16)_____	(33)_____		(50)_____

APPENDIX D

APPENDIX D

Consent to Be a Research Subject

Ms. Gagan is a graduate student at the Michigan State University College of Nursing, who is studying symptoms of the menstrual cycle. I understand that participation in this study involves completing a questionnaire about symptoms experienced during the menstrual cycle.

I have been told that the questionnaire will require approximately twenty minutes to complete.

I have been informed that all data is strictly confidential, that I have been assigned an identifying number, and that I have been asked to use it for identifying my responses, never my name.

I have been told that if I wish a copy of study results to leave my name and address with Ms. Gagan before leaving research area.

I understand that participation in this study is voluntary and that I may withdraw from the study at any time without consequence.

_____ _____

Date Signature

This work is being conducted in partial fulfillment of the requirements for the degree of MSN, Michigan State University, College of Nursing.

APPENDIX E

APPENDIX E

MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
238 ADMINISTRATION BUILDING
(517) 355-2186

EAST LANSING • MICHIGAN • 48824-1046

November 7, 1986

Ms. Mary Jo Gagan
College of Nursing

Dear Ms. Gagan:

Subject: Proposal Entitled, "PMS: Self Reported Symptoms and Severity"

UCRIHS' review of the above referenced project has now been completed. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and the Committee, therefore, approved this project at its meeting on November 3, 1986.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval prior to November 3, 1987.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

Henry E. Bredeck, Ph.D.
Chairman, UCRIHS

HEB/jms

cc: Dr. Barbara Given

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