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I am submitting herewith a dissertation written by Helen Smith entitled "Angry Temperament and Locus of Control in Young Women With and Without Premenstrual Syndrome." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Education.

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ANGRY TEMPERAMENT AND LOCUS OF CONTROL IN YOUNG WOMEN WITH AND WITHOUT PREMENSTRUAL SYNDROME

A Dissertation

Presented for the Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Helen Smith

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DEDICATION

This dissertation is dedicated first and foremost to my best friend, Glenn Reynolds, who even after watching me go through this dissertation process still agreed to marry me in June of this year. His encouragement and patience kept me going throughout graduate school, even at times when I felt like giving up.

I would also like to dedicate this project to my family, particularly my mother, Janet Smith, who not only listened to me throughout the years regarding my various graduate school projects but entered into lively discussions about my work. I would like to give special thanks to my father, Julius Smith, Ph.D. who set the precedence for me in obtaining my Ph.D. by taking me to work with him when I was a child and showing me what the other half of his life was all about. I would also like to give thanks to my sister, Anne Thomas, who never doubted my abilities and told me to keep going even when I wasn't sure how to get there.

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ABSTRACT

Premenstrual Syndrome (PMS) affects millions of women, yet there has been little research on the psychological factors involved in the etiology of PMS symptomatology. The purpose of this study was to examine the relationship between the psychological variables of anger, locus of control, and PMS in college age women.

Subjects in the study were 72 female undergraduates in the Colleges of Liberal Arts and Human Ecology at the University of Tennessee who were between the ages of twenty and twenty-seven. Data collection occurred during the last thirty minutes of a class period. Each subject completed a Biographical Questionnaire, the Rotter Internal-External Locus of Control Scale, the Spielberger State Trait Anger Scale, the Framingham Anger Scale, and a Women's Health Questionnaire. The subjects were placed into a PMS (N=48) or a Non-PMS group (N=24) according to their responses to questions on the Women's Health Questionnaire (WHQ). The WHQ also incorporated questions which were related to stress, diet, and exercise. In addition, after debriefing the sample, the women were given an Additional Information Sheet asking them if they believed they had PMS, as well as to describe their

family discussions of PMS and their perceptions of men's opinions on PMS. Independent two sample t-tests were utilized in the data analysis.

Results of the study showed there to be no significant differences between the PMS and Non-PMS group on the variables of locus of control or anger expression. Ancillary findings revealed a high percentage of the subjects who believed that they had PMS (89%). Twenty-two percent of these women did not meet the criteria for PMS, indicating that self diagnosis of PMS is not always correct. In contrast, a negative self-report of PMS was suggested to be accurate; fully 100% of the subjects who believed they did not have PMS did not meet the criteria for Premenstrual Dysphoric Disorder (PMDD). The high percentage of women who met the criteria for PMS (67% of the sample) suggests that the viability of the *DSM* criteria is questionable. The PMS group perceived that they had a greater amount of stress in their lives than the Non-PMS group. The former exercised more but showed similar patterns in their dietary habits to the non-PMS group.

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CHAPTER I

INTRODUCTION

Premenstrual Syndrome (PMS) affects millions of women, yet there has been little research on the psychological factors involved in the etiology of PMS symptomatology. Researchers in recent years have focused more on women's health issues, in part due to an increased awareness of the psychological and physiological differences in health care between men and women. There has been a great deal of controversy over what an accurate definition of PMS would encompass, with no overall consensus among researchers as to its etiology. Researchers tend to be divided into three camps: those who view PMS as a physical condition that produces psychological symptoms (e.g., Abraham, 1981; Backstrom, Wide & Soderga, 1976); those who view PMS as caused by psychological traits inherent in certain women (e.g., Van Der Ploeg, 1987); and finally, those who view PMS from a feminist perspective (e.g., Rodin, 1992).

One of the first researchers to use the term "premenstrual tension" was Robert Frank (1931) who described "a feeling of incredible tension from 10 to 7 days preceding the menstrual period, which in most

instances continues until the time the menstrual flow occurs" (Frank, 1931, p.1053). Dr. Katharina Dalton (1964) popularized the term "premenstrual syndrome" to describe a set of symptoms occurring prior to the menstrual period. These symptoms include headaches, irritability, vertigo, breast tenderness, fatigue, depression, crying spells, junk food binges, and mood swings. In fact, there are over 150 symptoms of PMS described by medical researchers (Degraff-Bender, 1986).

In the *American Journal of Psychiatry,* Rubinow and Roy-Bryne (1984, p.163) describe PMS as "the cyclic occurrence of symptoms that are of sufficient severity to interfere with some aspect of life, and which appear with a consistent and predictable relationship to menses". Because PMS has both psychological and physical symptoms, this dual nature makes it difficult to define. The focus in past years has been on the physical symptoms of PMS as psychological symptoms were regarded as stemming from physiological changes during the premenstrual period. For a physiological description of the menstrual cycle, see Appendix A. Therefore, psychological symptoms were not given the attention that was given to physical symptoms. However, the focus shifted as psychiatrists and

researchers outside of the medical community began investigating PMS (e.g., Rodin, 1976; Ruble, 1976). The psychological symptoms were examined in a new light; however the theories produced by researchers were not always positive ones. Many of the psychological symptoms of PMS were thought to be produced by negative traits inherent in women with PMS such as being a "neurotic" (a person with an emotionally unstable character) or having some type of mental disorder (e.g., Van Der Ploeg, 1987).

In fact, PMS has been included by the psychiatric community as a mental disorder in the *Diagnostic and Statistical Manual, DSM-III-R* (American Psychiatric Association, Third Edition-Revised, 1987). The symptoms related to the menstrual cycle in the *DSM-III-R* are referred to as "Late Luteal Phase Dysphoric Disorder" (LLPDD)(see Appendix B for criteria). The newest edition of the Diagnostic and Statistical Manual will be the *DSM-IV* (American Psychiatric Association, 1994). In this fourth edition, Late Luteal Phase Dysphoric Disorder will be replaced by the diagnosis of Premenstrual Dysphoric Disorder (PMDD) (see Appendix B for criteria).

There has been a great deal of controversy since the *DSM-III-R*'s inclusion of Late Luteal Phase Disorder,

controversy that has continued with the addition of the new diagnosis of Premenstrual Dysphoric Disorder to the *DSM-IV*. Carol Tavris, a social psychologist in Los Angeles, states that studies show that "women with so-called PMS don't differ in any biologically determined way from other women without PMS. The question is, what are the other things going on in a woman's life that might be manifesting as severe premenstrual moodswings or pain? How is she thinking about her symptoms?" (De Angelis, 1993, p.32). Mary Brown Parlee (in De Angelis, 1993) states that "there is no biological marker tying PMDD to menstrual symptoms" (p.32). A study in the *New England Journal of Medicine* (Schmidt, Nieman, Grover, Muller, Merriam and Rubinow, 1991) shows evidence of the lack of support for PMDD. The researchers in this study used various drugs (e.g. mifepristone) to block the hormones regulating the menstrual cycle in eighteen women (ages 31-45) with PMS symptoms. The women completed daily questionnaires measuring a variety of mood-related and somatic symptoms. The results showed that even though hormones during the late luteal phase had been blocked, the women still reported having the symptoms of PMDD or LLPDD. The authors concluded that neither timing nor the

severity of PMS symptoms was altered by mifepristone-induced menses or luteolysis; this suggests that endocrine events during the late luteal do not directly generate symptoms of PMS (Schimdt, Nieman, Grover, Muller, Merriam & Rubinow, 1991). The findings in this study suggest that it is possible that other factors may generate PMS symptoms. The psychological symptoms of PMS might be especially sensitive to social conditioning, women's cognitions, and/or subjective experience of the premenstrual time. Thus, although physiological events underlie PMS, there appear to be significant limitations to a purely physiological approach to explaining PMS. Therefore, other explanations of the symptoms of PMS need to be examined. In particular, research needs to address the psychological symptoms of PMS, as well as providing possible alternative explanations of women's feelings and experiences during the late luteal phase.

Present diagnostic criteria, while attempting to address these issues, are not entirely satisfactory, and more research is required for a complete understanding of premenstrual syndrome. An important unresolved issue is the relationship between PMS, anger, and locus of control. Both the *DSM-III-R* and the *DSM-IV* include as

criteria a "persistent and marked anger or irritability" (see Appendices B and C). The *DSM-IV* also includes as a criterion a "subjective sense of being overwhelmed or out-of-control" (American Psychiatric Association, Appendix C, 1994). In fact, throughout the PMS literature, there is mention of feelings of loss of control or feelings of "not being myself" (e.g. Chrisler & Levy,1990; Stout and Steege, 1985). There is also frequent mention of feelings of anger and irritability (e.g. Van Der Ploeg, 1987) during the premenstrual period.

The way in which women perceive their ability to control situations may impact on their perceptions of PMS symptoms. "One personality variable conceptually related to controllability is locus of control" (O'Boyle, Severino, and Hurt, 1988, p.68). Rotter (1966) coined the term "locus of control" which has been used to study individual differences in people's perceptions of the world (See Definition of Terms for a description of locus of control). There have been numerous studies that link "internal people" with being less likely to exhibit distress in the face of stressful life events and to show more effective coping behavior than "external people"

(Lefcourt, 1976). The feeling that one has no control over external events may take the form of ineffective expression of anger and may lead toward less conscious ability to cope with stressful events during the premenstrual time.

In summary, the literature shows that women who have PMS often exhibit feelings of being angry and "out of control." However, there appears to be little research that investigates these psychological variables.

Purpose

The purpose of this study was to examine the relationship between the psychological variables of anger, locus of control, and PMS in college age women. It might be possible that, because of social learning as well as through their cognitive styles, women come to express their anger and attribute a lack of control to a physical condition. This emphasis toward an external or outside locus for one's control, lack of control, and/or ineffective use of anger was examined in this study using a social learning perspective. The theories of Albert Bandura (1977, 1978) and Julian Rotter (1954, 1966) were used as frameworks for understanding women's feeling of

loss of control and expression of anger in relation to Premenstrual Syndrome.

Research Questions

This research primarily considered possible differences in locus of control and general anger propensity between women with PMS and women without PMS. Specific research questions examined:

1. Do college women in their twenties who meet the criteria for PMS (as determined by this study) have a more external locus of control than college women in their twenties who do not meet the criteria for PMS?
2. Do women with PMS display a higher "angry temperament" than women without PMS?
3. Do women who meet the criteria for PMS differ in modes (or styles) of anger expression from women without PMS?

Definition of Terms

Many of the following terms and constructs can be interpreted in a variety of ways; therefore the following definitions apply to this study:

<u>Premenstrual Syndrome</u> (PMS)- the provisional criteria given in the *DSM-IV* for Premenstrual

Dysphoric Disorder (PMDD) will be used as a definition for PMS (see Appendix C for criteria).

Locus of control-a generalized expectancy that events are more under personal control or controlled by external forces such as fate, luck, or powerful others (Rotter, 1966, p.1).

External locus of control-a belief that reinforcement is not contingent on one's own actions, but rather is the result of luck, chance, or under the control of powerful others, or is unpredictable due to the great complexity of the surrounding forces (Rotter, 1966, p.1).

Internal locus of control-the belief that an event is contingent upon the individual's own behavior or on relatively permanent characteristics (Rotter, 1966, p. 1).

Anger-in-refers to keeping angry feelings to oneself rather than letting anyone else know that one is angry (Thomas, 1993, p.44).

Anger-out-refers to venting anger by attacking or blaming others (Thomas, 1993, p.46).

Anger-discuss-refers to discussing one's feelings of anger with one's friends or relatives to get the feelings "off one's chest" (Thomas, 1993, p.47).

Anger-Symptoms-refers to physical symptoms which can result when one is angry, such as tension, headaches, and shakiness (Thomas, 1993, p.48).

Social Learning Theory(SLT)-views psychological functioning as a continuous reciprocal interaction between personal, behavioral, and environmental determinants (Bandura, 1978, p.345).

Reciprocal determinism-extends the basic premise of Social Learning Theory (see above) and includes internal personal factors such as beliefs, values, and perceptions (Bandura, 1978, p.345).

Operant Conditioning-a term, associated with B.F. Skinner, which refers to a behaviorist approach to modifying human behavior. This type of behavior modification rewards desired

behavior and punishes undesired behavior (Hyde, 1991, p.326).

Limitations of the Study

There are a number of limitations to this study. First, there is no generally accepted definition of PMS, which makes it difficult to operationalize the term. However, this study may aid in the formulation of such a definition, to the benefit of future research. Second, the data used in most PMS studies are self-reports which are retrospective ways of gaining information as to the subject's feelings and experiences and may or may not be accurate. Third, all subjects used in this study were enrolled in the University of Tennessee which limits the generalizability of these results. And finally, the subjects are mostly white, middle class females from the Southeast.

Significance of the Study

This study examined anger and feelings of locus of control in women suffering from PMS. The influence of social conditioning, as well as cognitive styles, may lead to expression of anger and lack of control through a physical condition such as PMS. In fact, Hare-Mustin (1991) believed that one way in which women overcame or

overlooked their own lack of power was by shifting the focus to physical symptoms.

By addressing women's subjective experiences of the psychological symptoms of PMS, this study could contribute in many ways to PMS research. This study explored internal and external locus of control in young college women with and without PMS. The study also examined whether or not women with PMS displayed a tendency toward a particular style or expression of anger. This study differs from others because of its emphasis on both locus of control and types of anger expression in women suffering from PMS. An attempt was made to determine if the orientation of locus of control, anger propensity, and types of expression of anger are associated with PMS symptoms. There has been limited literature about the link between PMS and locus of control, and almost no research on the types of anger expression that women with PMS display.

In addition, this study used the *DSM-IV* criteria as opposed to the *DSM-III-R* criteria employed by previous studies. This use of the *DSM-IV* criteria is important as there is almost no previous literature examining the *DSM-IV* criteria of Premenstrual Dysphoric Disorder and the

relationship between social conditioning and cognitive processes and the symptoms described in the *Diagnostic and Statistical Manual* (American Psychiatric Association, 4th ed., 1994); the *DSM-IV* will be the primary reference source for research in the remainder of this decade.

This research also looked specifically at a college population of women in their twenties as opposed to focusing more broadly on the general population. For example, women participating in an earlier study responded to a newspaper article and were self-selected more narrowly (O'Boyle, Severino & Hurt, 1988). Early diagnosis and treatment of the psychological symptoms of PMS is important, as this is a condition that can be treated through behavioral and cognitive techniques. Studies have also shown that PMS tends to worsen with age. Woods, Most & Derry (1982) reported an increased prevalence of negative affect symptoms with increased age among women between 18-40.

Many previous studies have not looked specifically at women outside the developmental period of change, but have either used adolescents as subjects (e.g. Golub and Harrington, 1981) or lumped all age groups together as women between 18-45 (e.g. O'Boyle, Severino, and Hurt,

1988). Age has been found to be a factor in causing great variability in PMS research. Dalton (1964) found that women over thirty tend to have greater premenstrual problems while Taylor (1979) found that younger women frequently have more menstrual symptoms, particularly dysmenorrhea. Frequently, in the past research on PMS, mature but younger women have been excluded or not used exclusively as a sample. In contrast, this study looked specifically at this age grouping. As a result of its focus on college age women, this study developed important information about young women with PMS in order to provide clinicians and mental health workers with an understanding of specific aspects of the psychological symptoms of PMS that could aid in treatment programs.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter will present a brief review of the literature regarding theoretical perspectives on Premenstrual Syndrome, with particular emphasis on the psychological symptoms. These perspectives will include physiological theories that stress the medical model and psychological theories that include psychoanalytic theory and feminist perspectives. The primary focus will be on the psychological theory of Social Learning with its cognitive-behavioral components to examine the psychological symptoms of PMS. The following literature review on PMS symptoms also seems to suggest that women who show psychological symptoms of PMS tend to express their anger and feelings of control differently than do women without PMS symptoms.

Several theoretical perspectives on PMS will be presented, concluding with Social Learning Theory, the conceptual framework used in this study. The work of Albert Bandura emphasizing a cognitive-behavioral component is further discussed in relation to women and the psychological symptoms of PMS. Social Learning Theory (SLT) will also be used to examine how women come to

repress anger and possibly to use the physical symptoms of PMS as an emotional outlet and as an external source of blame for events.

Physiological Theories of PMS

There have been numerous physiological etiologies hypothesized for PMS, ranging from progesterone deficiency (e.g., Lewis, 1992) to a lack of serotoninergic activity (e.g. Wood, Mortola, Chan, Moossazadeh, and Yen, 1992). Stephanie Degraff-Bender (1986) states that PMS is a "medical disorder which is physical in origin. Medical researchers usually attribute its cause to endocrine abnormalities" (p.14). This is a classic statement of the medical view of PMS. In this view, hormones play an important role in regulating the cyclic phases. These hormones work in a negative feedback loop with one another so that "the production of a hormone increases to a high level, producing a desired physiological change" (Hyde, 1991, p.233).

Many PMS researchers have speculated that the psychological and physiological changes that occur during the late luteal phase take place because of fluctuating levels of progesterone and estrogen (see Appendix A for

a description of the menstrual cycle). "Current knowledge of neuroendocrine physiology points to an important role for progesterone in normal ovarian cyclicity and through its effects on the brain, a possible role in PMS" (Lewis, 1992, p.61). In a normal menstrual cycle, there is a drop in both progesterone and estrogen in the late luteal phase which signals the hypothalamus to release the gonadotropin releasing hormone (GnRH). In turn, GnRH signals the pituitary to release two hormones, the follicle stimulating hormone (FSH) and luteinizing hormone (LH). LH prompts the ovary to release one of its mature ova. The structure left over after the ovum is released is the corpus luteum which produces progesterone and estrogen. Some researchers hypothesize that PMS might stem from a deficiency in the female hormone progesterone and thus advocate progesterone therapy as a means of treating women with PMS (Dalton, 1984; Lark, 1983).

Studies on the effectiveness of progesterone therapy have been contradictory at best. For example, Rubinow and Roy-Bryne (1984) reviewed ten studies of progesterone levels in relation to menstrually-related mood disturbances and found them to be inconsistent. One of the studies showed progesterone levels actually to be

higher during the premenstrual period (O'Brien and Symonds, 1980); in another study, there were appearances of premenstrual symptoms *before* the decrease in progesterone in the late luteal phase, the time prior to menstruation (Mundy, Brush, & Taylor, 1981).

There are also hypotheses in the literature that PMS is caused by an elevation in estrogen or by elevated estrogen-progesterone ratios (Backstrom, Wide, & Soderga, 1976). However, there have been contradictions in various studies as to whether or not estrogen plays a role in the etiology of PMS. Backstrom and Mattsson (1975) demonstrated a correlation between anxiety and irritability and estrogen levels. However, other authorities have criticized this study on both statistical grounds (Taylor, 1979) and methodological ones (Rubinow & Roy-Bryne, 1984). These methodological flaws include obtaining blood samples and symptom evaluations in different phases of the menstrual cycle in 11 out of 15 patients. Rubinow and Roy-Bryne (1984) also point out that the symptoms reported were only slight to moderate as a result of the poor entry criteria used in the study. As a result of contradictions in the research, the medical model lacks a strong base of experimental

support. Though appealing because it appears to offer a simple solution, the medical model of PMS has not yet been proven. At the very least, it appears to leave many important aspects of PMS unexplained. This weakness has encouraged some researchers to explore feminist perspectives of PMS.

Feminist Perspectives of PMS

Rather than viewing PMS as being caused by "negative" traits inherent in some women's personalities or as stemming from biomedical reasons, feminists look to alternative explanations, such as socially constructed cultural beliefs about women's traditional role and their behavior in Western society. For example, Mari Rodin (1992) argues that the "inconclusiveness surrounding PMS (and the debate on the status of LLPDD as a diagnostic category) are symptomatic of the persistence of cultural beliefs in the production (and reproduction) of medical knowledge" (p.49). Rodin explores the problems that she believes are inherent in contemporary biomedical research on PMS and gives examples of how "medical knowledge is informed by Western beliefs and expectations about the relationship between the menstrual cycle and 'irrational' and 'uncontrollable' behavior in women" (p.49). She

compares the emergence of PMS as a medical disorder to the earlier history of hysteria as evidence for women's sanity consistently being tied to their reproductive systems and their role in society. Hysteria in ancient times was thought to be caused by the "wanderings of the uterus."

There have also been feminist researchers who have found PMS to be linked to cultural perceptions of the traits that comprise appropriate "feminine" behavior. Koeske (1976) through her studies on PMS in college students found that negative behaviors such as depression, anger, and hostile moods are often interpreted as stemming from biology while premenstrual displays of positive behaviors are often attributed to personality or situational factors. Koeske explains this phenomenon by saying that negative behaviors like hostility are viewed as unusual or "out-of-role" for women and therefore cannot be explained by situational factors alone; whereas positive behaviors, like pleasantness, are characteristically "feminine" and are therefore ascribed to personality or situational factors.

Another researcher, Diane Ruble (1977), found that learned beliefs about the premenstrual period can cause a woman to overstate her bodily changes. She had college students fill out a self-report questionnaire after they had been told that they were participating in a study on a new technique for predicting their menstrual date. Women who believed they were premenstrual reported they had more problems on the questionnaire than those who were told they were at mid-cycle.

A related article by Chrisler and Levy (1990) found that women with PMS were described by the media in an overwhelmingly negative fashion. These negative portrayals of women ranged from depictions of mental breakdowns and psychotic episodes to charges of child abuse. Often, women quoted in magazine articles on PMS describe themselves as "getting weird" or "looking crazy." The article also points out that many of the negative symptoms of PMS reported by popular magazines support the stereotype of the maladjusted woman. "Interestingly, other symptoms which frequently appear show women who are stepping out of the stereotypical role. Good (read 'normal') women do not show aggression, rage, hostility, anger, violence, or short tempers. Thus

we have another case of women labeled as 'crazy' if they follow gender role stereotype and also labeled 'crazy' if they do not" (Chrisler and Levy, p.97).

Although culturally induced perceptions of women with PMS symptoms might play a role in creating some of the psychological symptoms of PMS, these perceptions do not take into account women's own perceptions and beliefs about the world and personal styles of anger which may effect them psychologically during the premenstrual period. In fact, there has been little research concerning the correlation of the constructs of anger and locus of control to women's psychological symptoms of PMS, especially in the feminist literature on PMS. Feminist researchers have focused on the role of culture and have ignored contributions of women's manifestations of anger and cognitions about experiences. Because of this lack of research on locus of control orientation and expression of anger, feminist theory regarding PMS is lacking. There are important questions that need to be answered. One such question is the relationship between women's anger and locus of control and the psychological symptoms of PMS. There are some researchers who believe that these psychological

symptoms of PMS result from negative traits inherent in particular women. As the following discussion will make clear, however, such explanations are also incomplete.

Psychological Theories of PMS

Many researchers believe that there are psychological reasons for PMS. There have been a number of studies that have explored the relationship of psychological characteristics to the etiology of Premenstrual Syndrome. Much of the psychoanalytic research looking for psychological factors in PMS has focused on assessing the relationship between premenstrual complaints and neuroticism and rejection of the female role (Stout and Steege, 1985). For example, Coppen and Kessel (1963) administered a menstrual symptom questionnaire and personality inventory to 464 women between the ages of 18 and 45. They found a significant correlation between neuroticism and premenstrual complaints.

In another study, Halbreich and Kas (1977) administered the Taylor Manifest Anxiety (TMAS) inventory to 28 women diagnosed with PMS and 22 controls, between the ages of 19-45. The instrument was given four times throughout the menstrual cycle. They found that women

with PMS had higher scores on the TMAS throughout their monthly cycle and the scores rose significantly during their premenstrual time. Both of these studies have used samples which include women across a wide age span. If PMS is related to adult developmental changes or aging, results could be confounded.

There have been other researchers with a psychoanalytic orientation who have found a correlation between rejection of the female role and psychological changes in the menstrual cycle (Stout and Steege, 1985). Levitt and Lubin (1967) found a significant correlation between menstrually related symptoms and negative attitudes toward menstruation and the feminine role. Such an approach has a certain intuitive appeal, given the obvious relationship between menstruation and female characteristics in general.

Other studies contradict this finding. Stout and Steege (1985) administered the Minnesota Multiphasic Personality Inventory (MMPI) to a group of one hundred women who were seeking treatment for PMS. The subjects ranged in age from 20-50 with 68% having had at least one term pregnancy, 33% having two children, 27% having one child, and 8% having three children. Eighteen percent

(18%) of the women in the study had from one to three psychiatric admissions and many of the subjects reported having been prescribed psychotropic medications in the past for depression, anxiety and psychosis. The MMPI was completed by the subjects during the follicular phase (between onset of menstrual flow and ovulation).

Results of the study (Stout and Steege, 1985) did not support the hypotheses that PMS symptoms are correlated to rejection of the female role or neuroticism. In fact, the most common feature of the MMPI profiles of these PMS-symptomatic women was a very strong *endorsement* of the feminine role, and there was no particular personality type to indicate that these women were "neurotic." Further interesting results of this study were that 63% of these women had completed college, 18% had graduate degrees, and 68% were employed outside of the home. The researchers suggest that this sample might be particularly stressed by the conflicting roles relating to career goals and stereotypical feminine roles; 40% of the sample had profiles that are associated with strong tendencies to control or repress angry feelings. These women frequently sought counseling or medical treatment for premenstrual symptoms because of

angry outbursts which occurred prior to their menstrual period. The women in this sample would characterize these irritable outbursts as "not like myself." A majority of the sample also had profiles that indicated an oversensitivity to criticism and a tendency to externalize blame (Stout and Steege, 1985).

The Stout and Steege (1985) study is very useful in pointing out other explanations of the psychological symptoms of PMS but their subject selection may have led to several confounding variables in their study. First of all, the researchers had the women volunteer for the study through a PMS clinic. This access to subjects through the clinic influenced their initial knowledge of the study's intent. Previous research has shown that women tend to exaggerate their PMS symptoms when they know that the study is about PMS (Feldman, 1988/1989). Data were collapsed into one age category (20-50). This categorization also confounded the study because PMS tends to worsen with age (Dalton, 1964). Many of the women in the Stout and Steege study had previous psychiatric histories and had used psychotropic medications which may interfere with the premenstrual symptoms of PMS. These factors could possibly play a role

in the outcome of the data and impact on the results of the study; however, it is important as it provides a psychological profile of women with PMS. This profile can lead to further investigation of both psychoanalytic theories of PMS as well as an exploration of some of the characteristics they found of women with PMS, such as a tendency to externalize blame. This will be an important concept in this current research project. While both feminist perspectives and psychoanalytic theory add much to the PMS literature, neither theory is adequate in itself to explain the psychological symptoms of PMS. The psychoanalytic theories of PMS associate PMS symptoms with constitutional neurotic traits, while feminist theories view PMS as stemming from some negative portrayal of women by society and individuals. These psychological theories do not employ a multidimensional approach to understanding PMS, nor do they examine the cognitive behavioral processes or thoughts that women have about the world, which may in turn contribute to their behavior during the premenstrual time. In contrast, Social Learning Theory, with an added behavioral component analyzes a variety of variables as a means of understanding behavior.

Social Learning Theory

The Social Learning Theory of J.B. Rotter (1954, 1966) and Albert Bandura (1977, 1978) were used in this study. In SLT, a "reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future" (Rotter, 1966, p.2). Rotter (1966) hypothesizes that a child develops their own individual history of being reinforced, and therefore will make a determination of whether or not a reinforcement will be contingent on the child's own actions or from outside forces due to luck or chance. From this hypothesis, it would appear that one's behavior would depend on thoughts or cognitions about a situation as to whether or not actions or outside forces make a difference in achieving a reinforcer. Thus, the individual's history of reinforcement is likely to shape expectations and behavior. A logical corollary would be that environmental conditions, by shaping the kinds of reinforcement available, will also tend to shape an individual's expectations and behavior. This is explored in the work of Bandura.

Albert Bandura's (1977,1978) Social Learning Theory differs from Rotter's in that it extends the basic

premise of social learning to include social variables such as observational learning and imitation. Bandura (1977) gives the example of a child having to learn speech if he or she had never heard it before. A simple reinforcement might be appropriate for simple behavior but complex behavior requires modeling. Because speech is a complex behavior, if the child were merely reinforced, he or she would never learn to speak. "In such cases, imitation is an indispensable aspect of learning" (Bandura, 1977,p.3). Bandura (1977) is also credited with the reciprocal determinism model, deduced from social learning theory. According to Social Learning Theory, psychological functioning is a "continuous reciprocal interaction between personal, behavioral, and environmental determinants" (Bandura, 1977, p 3). Cognitive events play a large part in addition to the environment in determining how a human being will behave in a particular situation. According to Bandura (1978):

> Most external influences affect behavior through intermediary cognitive processes. Cognitive factors partly determine which external events will be observed, how they will be perceived... and how the information they convey will be organized for

> future use... By altering their immediate environment, and by arranging conditional incentives for themselves, people can exercise some influence over their own behavior. An act therefore includes among its determinants self-produced influences.
>
> It is true that behavior is influenced by the environment, but the environment is partly of a person's own making. By their actions, people play a role in creating the social milieu and other circumstances that arise in their daily transactions. Thus, from the social learning perspective, psychological functioning involves a continuous reciprocal interaction between behavioral, cognitive, and environmental influences (p. 345).

The reciprocal determinism model extended the basic premise of social learning theory, that behavior is a function of interaction between the environment and the individual by including internal personal factors such as beliefs, values, and perceptions. This research investigated the belief systems of women with PMS, specifically in regard to their expectations of internal

or external events having control over their actions (e.g., Christensen, Board, and Oei, 1992; O'Boyle, Severino, and Hurt, 1988). Because so much of PMS symptomatology involves diffuse attributes such as women's moods, it is especially important in PMS research to investigate the influence of environment, socialization, and cognitions (Hyde, 1991). The way in which women are socialized plays a large role in determining how women will interpret their life experiences.

Women's Socialization Process

Social learning theory is relevant to the study of women because it has been used to explain gender differences (Mischel, 1966). Operant conditioning is often used to explain the reason why girls and boys come to act in traditional gender roles, as they are rewarded for some types of behavior and punished for others. For example, girls are rewarded for quiet and obedient behavior and boys are rewarded for athletics and achievement (Hyde, 1991). In order to understand how socialization might come to play an important role in the manifestation of feelings of anger and lack of control in women, it is important to understand the psychological

underpinnings of the socialization process for females, particularly in the early years. As further evidence of the impact of the socialization process on young women, Carol Gilligan (cited in Moses, 1990) found that teenage girls tend to repress anger and are under "enormous pressure to be perfect girls--who are always quiet, calm, and kind. The coming of age of girls in this society is accompanied by a falling away of the self" (p.26). This repression of anger and pressure to remain "in control" at all times can also result in stress.

Stress and PMS

Previous research on stress found gender differences between the sexes, particularly in the teenage years. Studies have found that adolescent girls tend to be more stressed than adolescent boys both as high school freshmen and as seniors (e.g., Groer, Thomas, and Shoffner, 1992; Thomas, Shoffner, and Groer, 1988). This stress might possibly lead to a "socially appropriate" outlet such as a physical condition in which to express one's feelings of being out of control or angry. Higher levels of life stress have been found to be associated with PMS symptoms, such as negative mood (Taylor, Woods, Lentz, Mitchell, and Lee, 1991).

Other studies show similar results. Mitchell, Woods, and Lentz (1994) examined stress and feminine socialization as variables in three different menstrual symptom patterns. These three patterns were the classic Premenstrual Syndrome (PMS), Premenstrual Magnification (PMM) and Low Symptoms (LS). The study defined the classic pattern of PMS as low-symptom severity postmenstrually and a higher-level of symptoms premenstrually. PMM is the pattern in which medium to high symptoms postmenstrually and a higher level of severity premenstrually are reported. LS is the pattern of low-symptoms throughout the menstrual cycle. The subjects were twenty-six women who met the criteria for the PMS group, twenty-five women who met the criteria for the PMM group and finally, ninety-one women who met the criteria for the LS group, for a total of one hundred and forty-two subjects. The women were chosen for the three groups depending on their answers on the Washington Women's Health Diary (WWHD) which included a list of fifty-seven negative and positive feelings and behaviors frequently reported to change across the menstrual cycle. A factor analysis on the fifty-seven items was done by the researchers which resulted in thirty-three of the

items being called the Menstrual Symptom Severity List (MSSL). The MSSL was used to categorize the subjects.

Results of the above study showed women with PMS to be older, had more education, engaged in more positive health practices and had more nontraditional attitudes toward women as opposed to the PMM group of women. The PMM group was found to have more stress in their lives than women with the PMS pattern (M=11.2, M=7.3). The women with PMS symptoms also had greater stress from life events than women with low symptoms (M=7.3). The authors (Mitchell, Woods and Lentz, 1994) hypothesized that since the PMM group (who had the greatest severity of symptoms) were younger and had less experience in life, they may be more vulnerable to the negative effect of stress in their lives. The Mitchell, Woods, and Lentz (1994) study uses a different criterion for diagnosing PMS than presently defined in the *DSM-IV,* yet points to the impact of stress and socialization on the symptoms of PMS for this current study. It could be that women who have been socialized to incorporate the traditional female role into their lives may feel more pressured and stressed and therefore express their anger and frustration in what they believe

to be a socially acceptable outlet such as a physical condition like PMS.

There is evidence that emotional habits, such as coping skills in relation to stress, are learned within a cultural context and that women are more likely than men to suppress anger (Haynes, Levine, Scotch, Feinlieb, & Kannel, 1978). Harriet Lerner (1985) proposes that this is because "nice ladies" have been discouraged from the forthright expression of their anger. It is this discouragement of anger that is prevalent in our culture, particularly with regard to women. Feelings of loss of control and the release of anger in relation to Premenstrual Syndrome were investigated in this study to determine if there are differences between women who report the psychological symptoms of PMS and those who do not. In order to better understand how women view the premenstrual time, it is important to consider attribution theory, which possibly plays a role in how women perceive their premenstrual symptoms.

Attribution Theory

Attribution research became prevalent in the 1960's as a means of understanding how a physiological response could be the basis for different emotional responses and

interpretations, depending on cues from the environment (Schachter & Singer, 1962). Attribu- tions regarding the source of arousal have been found to influence emotionally relevant behavior (Nisbett & Schachter, 1966; Ross, Rodin & Zimbaro, 1969).

Studies have found that women may be more influenced by attributions they make regarding the effects of menstruation on their level of competence than by the actual cyclic changes. In one such study on performance, Rodin (1976) compared the performance of menstruating women complaining of moderate or severe symptoms with other non-menstruating women. Rodin's hypothesis was that "women who report that they usually experience menstrual and premenstrual symptoms should be more likely to attribute task-relevant tension and distress to their menstrual state than women who report very mild or no symptoms" (Rodin, 1976, p. 350).

The subjects for Rodin's 1976 study were 60 female volunteers from Eastern colleges. Every subject completed a menstrual symptom checklist before participating in the experiment. No subjects were taking contraceptive pills which can cause changes in the menstrual cycle. Subjects were informed that they were participating in the study

in order to compare their responses on the menstrual symptom questionnaire with responses from women who were taking oral contraceptives. They were told this was being done in order to look at the physiological changes which take place during the normal menstrual phase in comparison to the hormonal effects of oral contraceptives.

The study used a 2 x 2 x 2 design with menstrual and premenstrual versus midcycle subjects who reported at least moderate versus no menstrual symptoms under conditions of high or low task-relevant arousal. Results showed that when asked about perceived causes of arousal, 16 out of the 20 symptom subjects attributed arousal to menstrual or premenstrual discomfort. Five of the 20 non-symptomatic subjects gave explanations related to menstruation, and finally, none of the midcycle group attributed their feelings to menstruation, but to other sources such a experimenter conditions(Rodin, 1976).

Differences of reported attributions among the three groups were found to be significant (X^2 (4)= 25.42, p < .001). The results of the study demonstrated that women's perceived level of symptoms, which had no influence on performance when women were in midcycle, made it more

possible for some women than others to attribute extrinsically produced arousal to menstruation. Women who experienced few or no symptoms premenstrually were not able to attribute an alternative attribution for task-related arousal as readily as women with stronger symptoms do (Rodin, 1976).

Extrapolating these results, it is possible that women's locus of control orientation leads them to attribute feelings of loss of control to an external factor such as PMS. Those women with an external locus of control may attribute their symptoms to PMS rather than stress or lack of support from their partner.

Locus of Control

Locus of control has been the subject of research in psychology since the concept's appearance in 1954 when Julian Rotter wrote his first book on Social Learning Theory. Rotter's 1966 monograph, which discusses the development of the Internal-External Locus of Control Scale, has been one of the most widely cited articles in social science literature from 1969 to 1977 (Sherman, 1991).

Social Learning Theory is the basic premise behind locus of control analysis. Rotter states that "when a

reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, or fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him" (Rotter, 1966, p.1). Rotter (1966) labels this a belief in "external control." However, "if the person perceives that the event is contingent upon his own behavior or relatively permanent characteristics," Rotter labels this a belief in internal control (Rotter, 1966, p.1). According to Social Learning Theory, a person who expects to be reinforced for their behavior is more likely to engage in that behavior in the future. Therefore, if a person were to have an external locus of control, they might be more likely to see reinforcement as coming from outside themselves; and vice versa, a person with an internal locus of control would more likely to see reinforcement as coming from within themselves.

According to previous literature on locus of control, a belief in control by external events has been linked to passivity and tends to have negative

consequences. Other social scientists have examined the belief in chance or luck. For example, Veblen (1899) felt that a belief in chance or luck as a solution to one's problems was characterized by less productivity. Rotter (1966) hypothesizes that Veblen's theory was similar to the hypothesis that a belief in external control of reinforcements is related to a general passivity. Merton (1946) has also suggested a link between passivity and the belief in luck or chance. He argues that a belief in luck or chance "serves the psychological function of enabling people to preserve their self esteem in the face of failure" (Merton, 1946). There is also literature linking high trait anger to high externality. Those who blame failure experiences on external sources tend to have characteristics of high trait anger (Lefcourt, Martin, & Saleh, 1982). According to Spielberger, Jacobs, Russell, and Crane (1983) "state anger" refers to transitory emotional states, while "trait anger" grows out of "relatively stable individual differences in personality traits" (p. 169). Individuals who have an internal locus of control would thus tend to blame failure on themselves and would be less likely to be

angry at others, while the reverse might be expected for those with an external locus of control (Sherman, 1991).

Thomas (1989) found that external locus of control beliefs were positively related to anger somatization. Specifically, Thomas's study showed that beliefs in (a) control by chance factors and (b) control by powerful others were linked to anger somatization for females. This finding might lead conceptually to the possibility that women with PMS symptoms have more of an overall belief in an external locus of control. The following studies speak to and reflect one of the current areas of investigation by this study.

Locus of Control and Premenstrual Syndrome

There has been little research done specifically on Locus of Control and Premenstrual Syndrome. In fact, the literature contains only a very limited number of studies dealing with this topic and none deal with directly both locus of control and anger expression. One such study examining locus of control was conducted by O'Boyle, Severino and Hurt (1988). This study used as subjects seventy-six women who responded to a newspaper article offering an evaluation for PMS. The women were administered the Premenstrual Assessment Form along with

a Daily Rating Form to determine if they met the criteria for PMS and were then administered Rotter's Locus of Control Scale at two different points in their cycle, in the follicular phase (cycle days 5-10) and premenstrually (within a six day interval prior to menses). Results showed that women who met the criteria for PMS had significantly higher external LOC scores both in the follicular phase and premenstrually. This result suggests that LOC scores reflect both characteristic predispositions and situational factors (O'Boyle, Severino & Hurt, 1988).

Another study by Christensen, Board, and Oei (1992) used 60 women to identify a profile of premenstrual dysphoria. Women who met the criteria for premenstrual dysphoria (N=24) were compared to women with unconfirmed premenstrual dysphoria (N=21) and to a control group (N=21). The Premenstrual Assessment Form, Rotter's Internal-External Locus of Control, the Locke-Wallace Marital Adjustment Form, and the State-Trait Anxiety Inventory were administered. The results showed that, premenstrually, the women with confirmed and unconfirmed premenstrual dysphoria had a characteristic profile of having changes in relation to dysphoria and levels of

state and trait anxiety. However, postmenstrually, these symptoms appeared to be superimposed on a background of affective disorder and an external locus of control.

Harding (1989) studied female patients (ages 19-42) with general anxiety (N=55) and compared them to women nonpatients without generalized anxiety in their attitudes toward menstruation, locus of control and treatment effectiveness. Results showed that subjects with general anxiety about menstruation reported more premenstrual symptoms than the nonpatients. The general anxiety subjects had higher "powerful others" and "chance" locus of control scores than nonpatients, suggesting a higher external locus of control score in these women.

The few studies done on anger and locus of control in relation to PMS have looked at both loss of control and anger as psychological symptoms of PMS. However, this current research project is unique in that it seeks to understand if these variables are present in women with and without PMS symptoms. In other words, do women with PMS have a particular locus of control orientation, propensity toward anger, and anger expression that is

present whether or not they are in the late luteal phase of the menstrual cycle?

Precursors of PMS

Anger and Irritability

The methodologies used in many research studies do not explore whether women who have PMS differ in their anger propensity or expression (or mode) of anger from women who do not have PMS. Generally, studies simply associate anger with other variables such as hostility. Spielberger, Jacobs, Russell, and Crane (1983) state:

> Anger is generally considered to be a simpler concept than hostility or aggression. The physiological correlates of anger and hostility and the behavioral manifestations of aggression have been investigated in numerous studies. In contrast, anger, that is, the phenomenological experience of angry feelings, has been largely neglected in psychological research. Moreover, most psychometric measures of hostility confound angry feelings with the mode and direction of the expression of anger (Spielberger et al., 1983, p. 162).

The research on PMS has shown that there are numerous psychological symptoms of anger and related

symptoms reported during the late luteal phase. The anger symptoms include irritability and angry outbursts while related symptoms include mood swings, crying spells, depression, hostility and anxiety. The literature shows that irritation, anger, and a feeling of being "out of control" are reported by a majority of women suffering from PMS (e.g. Van Der Ploeg, 1987).

There are few studies which have explored the direction or expression of the subjects' generalized anger in their overall outlook of the world; however, they have looked at anger in terms of being a symptom of PMS. For example, Van Der Ploeg (1987) examined the emotional states of 844 women across one menstrual cycle. The women responded to a newspaper advertisement asking for volunteers suffering from premenstrual tension. These subjects were given several sets of PMS questionnaires and personality inventories including the Spielberger Trait Anger Scale (Spielberger et al., 1983) which was used to measure anger. Means were given for each of the variables of anger, depression, and anxiety for women with and without PMS, as determined by the answers on a menstrual distress questionnaire and the timing of the menstrual symptoms on days twelve, eighteen, twenty-two,

and twenty-six of their menstrual cycle. Results showed that women without PMS scored lower on the variables of anger, anxiety, and depression. In women who met the criteria for PMS, there was a significant increase in their scores during the premenstrual period. One interesting result of the study was that the mean score on anger for women with PMS was initially lower on day twelve of their cycle than the mean score of women without PMS (M=11.4, M=11.6, respectively). Perhaps this indicates that women with PMS tend to hold their anger in check more during midcycle.

However, because the study views anger as a unidimensional variable rather than an emotion consisting of various manifestations, e.g. angry temperament or reaction, Van Der Ploeg (1987) concludes that women with higher anger tend to be higher in neuroticism or have an affective disorder. Because anger variables have been collapsed into one category rather than explored in terms of its mode (or style) of anger expression, it is not possible to extrapolate other factors which may result in the rise of the mean scores on the STAS rather than neuroticism or psychopathology.

Another study looking at the psychological symptoms of PMS found that many women who suffered from PMS described themselves as "not being able to control their normal selves". Married women with PMS reported that they would "rant and rave" especially to their families, and would lash out at their husbands and children (Gottlieb, 1988, p.10).

In fact, even articles in the popular press looking at women's views on PMS have found reported symptoms of anger, rage, hostility, and irritability to be common among women. Chrisler and Bevy (1990) analyzed PMS articles in the media and found that the most frequently discussed behaviors of premenstrual women were irritability, 63%; anger/rage, 24%; hostility/short temper/nastiness, 12%; and out-of control-behavior, 15%. Although this analysis of popular articles in the media should be viewed with a great deal of caution due to a lack of methodological controls, the Chrisler and Bevy (1990) study does point out many of the symptoms that women with PMS experience. These previous studies, however, do little more than describe the subjects with PMS as being angry, irritable or out of control. Previous research has not examined the propensity or type of anger

displayed which would give researchers more understanding of the psychological aspects of PMS.

Perhaps women with particular modes of anger expression and propensity towards anger have more psychological symptoms of anger during the time of PMS in order to provide an outlet for their anger. Rome (1986) believes that social expectations influence our perceptions to make the experience of PMS more negative than it needs to be. She gives an example of a woman who feels "edgy and angry" for days on end.

> She can not live up to the image of herself as a good woman that she maintains through the rest of her cycle: that is cheerful, compliant, easing everyone else's social relations. She feels she should be able to manage on her own and generally, will not discuss this problem with friends or family members (Rome, 1986, p.147).

Rome notes that a woman who is busy smoothing things over for others during the first and middle of her cycle may have a harder time keeping her anger from showing during the premenstrual time. This societal pressure on women to be compliant and adaptable and to constantly meet other people's needs without asking for help may

have serious consequences. Women who constantly strive to keep everything "in control" during the beginning and middle of their cycle may start to feel that they are losing control during the premenstrual time, particularly if they have not been expressing anger during the rest of the month.

Loss of Control

Feelings of a loss of control are frequently mentioned as part of the premenstrual symptomatology. In a qualitative research analysis performed by Bultemeier (1993) which examined the Rogerian derived theory of perceived dissonance, twenty-one women were asked to photograph themselves during their PMS and non-PMS times. Written narratives were also obtained by the subjects asking them to describe their feelings and experiences during these times. Themes emerged from the data of feelings of being overwhelmed, angry and irritable during the premenstrual time. In her descriptions of the subjects, Bultemeier (1993) discusses the various types of being overwhelmed and feelings of being "out of control." For example, one of the subjects wrote, "I just need help in controlling" which reveals the sense of being overwhelmed. "The women emerged as

isolated from and overwhelmed by their bodies and their existence" (Bultemeier, 1993, p.136). Many of the photographs during the PMS time showed the women with their backs turned away from others and questioning faces. They felt a profound sense of aloneness, coupled with guilt, for treating and feeling angry towards others. This anger was usually directed at significant others such as husbands or children.

Rather than discussing their feelings or trying to use internal resources to change their situation or perceptions, the women in Bultemeier's study were shown to become depressed and hopeless. This was evidenced by some of the negative statements contained in the written narratives. Bultemeier summarized the women's feelings in the study as follows: "Futility and depression manifest as a sense of hopelessness in relation to themselves, others, their homes, and the world" (Bultemeier, 1993, p.137). This sense of depression and futility seems similar to that described by Rotter's external locus of control theory (1966), as the women in Bultemeier's study seemed to feel that they were not in control and were dependent on external sources for feelings of success and self-esteem. This study examined

this concept of locus of control orientation in order to determine whether women with PMS perceive events as contingent upon their own behavior or upon relatively stable characteristics inherent within themselves.

In summary, the theoretical perspectives of PMS that were presented were shown to be incomplete explanations of the psychological variables of PMS. The literature review showed previous research to be limited in relation to PMS and locus of control and anger expression. The present study attempted to understand these psychological variables by examining the differences between women with and without PMS.

CHAPTER III

DESIGN

This study examined data from a sample of college women to investigate differences of women who have PMS and those who do not have PMS in the expression of anger and locus of control. The study was designed to address the question of whether women with premenstrual syndrome were more likely to possess an external locus of control and whether they express anger differently than do women without PMS. This chapter will present a review of the chosen psychometric instruments, the data collection procedures, a description of subjects sampling, and the data analyses that were used in the study.

Instruments

The present study used three paper-and-pencil measures: the Rotter I-E Scale (Rotter, 1966), the Spielberger's Trait Anger Scale (Spielberger, Jacobs, Russell, and Crane, 1983), and the Framingham Anger Scale (1978). The descriptions and reviews of these instruments as well as reliability and validity information are presented in the following section.

The subjects also filled out a Biographical Profile and the Women's Health Questionnaire which are also discussed.

Rotter I-E Scale

The Rotter I-E Scale was chosen for this study for two reasons. First, this instrument is widely used to measure locus of control and has been studied for reliability and validity with other measures. Second, the instrument is the most widely researched Locus of Control measure across gender (Sherman, 1991). It is important in this current study to have an instrument which can measure women's tendencies toward internal or external locus of control. This is one aspect of investigation in this study: that women who have PMS have a general outlook on events as happening outside of themselves and not within their control.

This scale was first developed by Rotter (1966) in order to measure individual differences in generalized expectancy of internal-external control. The scale is a forced-choice 29-item scale with 6 filler items. The filler items are used to make the test more ambiguous to subjects, making it less likely that they will determine what the test is measuring. Each of the items contains

one external and one internal statement. The respondent is to choose the statement which is the closer to his or her own opinion. The test is scored on a continuum with the higher the score, the more external the respondent, or the lower the score, the more internal the respondent.

Rotter's test-retest reliability assessments over a one and two month period, ranged from .49 to .83. Internal consistency was found to be moderately stable with values ranging from .65 to .79. Rotter points out that the internal consistency is quite reasonable, particularly given the fact that the test was given in a broad range of situations and test items were measuring a broadly generalized characteristic (Rotter, 1966). The discriminant validity of the I-E scale has proved to be successful, as relationships with other test variables such as adjustment, social desirability or need for approval, and intelligence are low (Rotter, 1966).

Studies using the Rotter's Locus of Control Scale have shown the scale to be both valid and reliable. Shapurian and Hojat (1987) administered a short form of the Rotter Scale to a total of 537 Iranian college students, 305 in Iranian universities (Sample I) and 232 in American universities (Sample II). The internal

consistency aspect of reliability was .72 for Sample I and .68 for Sample II. Test-retest reliability between testing was .80 and item-total correlations ranged from .34 to .60 for Sample I and .28 to .66 for Sample II, with most correlations in the fifties. Small Pearson correlations ($p < .05$) were found between the locus of control scale and scores on Beck's Depression Scale ($r=.34$) and the Taylor Manifest Anxiety Scale ($r=.30$). Although the generalizability of the results is limited due to the sample used in the study, it does provide evidence to support the reliability and validity for the instrument.

Other studies have examined the validity of the Rotter I-E Scale with general college populations and have also found the instrument to be a valid measure of internal and external locus of control. For example, Gabbard, Howard, and Tageson (1986) gave the original Rotter I-E Scale, the Levenson's adaptation of the I-E scale, and two revisions of the Rotter I-E Scale (for use with highly religious subjects) to one hundred and fifteen adult members of a fundamentalist evangelical church and to one hundred and eighty-four undergraduates. The results found that both the Rotter I-E Scale and the

Levenson Scale were highly valid measures of locus of control in a general population of undergraduates.

Spielberger Trait Anger Scale

The Spielberger Trait Anger Scale is a portion of the State Trait Anger Scale which was developed by Charles Spielberger and his colleagues (Spielberger, Jacobs, Russell, and Crane, 1983) in order to assess general anger proneness and anger at the time of the testing. Spielberger states that there needs to be a distinction between "state anger" and "trait anger." State refers to transitory emotional states, while trait refers to "relatively stable individual differences in personality traits" (Spielberger et al., 1983, p.169). The original scale consisted of 15 items: however, in the present study, the shorter 10 item scale was used. Previous work by Spielberger (Spielberger, et al. 1983) has shown this short form to give the same information as the longer scale. "Subjects rate each item from 1 to 4 with response options ranging from 'almost never' to 'almost always'" (Thomas, 1993, p.43). Scores on the scale range from 10 to 40.

Two subscales of the Trait Anger Scale were isolated during factor analysis and labeled as Angry Temperament

(T-Anger/T) and Angry Reaction (T-Anger/R). "The T-Anger/T items describe individual differences in the disposition to express anger, without any provoking circumstances. In contrast, the T-Anger/R items describe anger responses in situations that involve frustration and/or negative evaluations" (Spielberger et al., 1983, p.176).

There have been previous measures of hostility which have been correlated to the STAS. One of the most carefully constructed psychometric measures of hostility is the Buss-Durkee Hostility Inventory (BDHI) (Buss and Durkee, 1957). Correlations done between the BDHI and the Trait anger scale (T-Anger) show a strong relationship (r=.66 to .73) (Spielberger et al., 1983).

Kroner and Reddon (1992) examined the psychometric properties of the STAS in a sample of 139 prison inmates between the ages of eighteen and sixty-two. A principal component analysis indicated three factors for the STAS which included the experience of anger and hostility, arousal of anger, and situational anger when devalued. The researchers found a factor distinction between the state and trait anger although test-retest coefficients were stronger for the state than for the trait subscale.

Although this study used a prison population as opposed to the college population used in this current study, it does lend further evidence for the validity and reliability of the STAS.

This current study used the 4 items on the Spielberger scale which related to Angry Temperament as well as the other four items relating to Angry Reaction. Although the overall dispositional tendency toward anger (Angry Temperament) was the predominant variable of interest in this study, the Angry Reaction score was also obtained to provide further descriptive data of the subjects.

Framingham Anger Scale

The Framingham Anger Scales (Haynes, Levine, Scotch, Feinlab & Kannel,1978) were developed in Framingham, Massachusetts as part of a large battery of psychosocial instruments used in a study of coronary heart disease. The Framingham Anger Scale was used in this research as it measures what a person does with anger once it is felt. There are no other instruments which measure both adaptive and maladaptive expressions of anger (Thomas, 1993). In this study on PMS, one of the questions under investigation was whether women who have PMS express

anger differently than women without PMS. Therefore, a measure was needed that considered various types of anger expression.

The Framingham Scales measure four different ways of expressing anger: anger-in, anger-out, anger-discuss, and anger-symptoms. The subject responds in a 3-point response format as to how likely she is to behave in a specified way when angry or annoyed. In the original Framingham study, the researchers assigned a score between zero and one. However, this study followed a similar scoring system used by Thomas (1993) in her studies on women's anger. They used scores of from one to three which were assigned to the responses "not too likely," "somewhat likely," and "very likely" (Thomas, 1993). Each of the modes of expression will be very briefly described.

Anger-in refers to keeping angry feelings to oneself rather than expressing anger. Anger-Out refers to venting anger by attacking or blaming others. Anger-Discuss refers to discussing one's feelings of anger with a friend or relative to get the feelings "off of one's chest." Finally, Anger-Symptoms refers to physical symptoms which can result when one is angry, such as

tension, headaches, and shakiness (Thomas, 1993). It should be noted that Hart (1992) found that subjects who scored high on Anger-Out had a tendency to make external attributions for the cause of provoking incidents, while individuals scoring low on Anger-Out were more likely to make internal attributions. Coefficient alphas for the Framingham scales were generally found to be acceptable in the study on women and anger done by Thomas (1993).

Biographical Profile

The Biographical Profile was developed by the researcher in order to gain demographic information about the subjects used in the study. The demographic information included the subject's name, birth date, marital status, race, number of children, and year in college.

The profile was also used as a screening tool in order to exclude subjects from the data analysis. The exclusion criteria were identified through subject responses to questions about having children, using oral contraceptives, participating in psychotherapy, or taking medications which affected their emotional state. If the subjects answered yes to any of these questions, they were placed in the exclusion group. Respondents who

answered no to all questions who were between twenty and twenty-seven years old were grouped according to PMS or Non-PMS symptomatology from their responses to the Women's Health Questionnaire.

The Women's Health Questionnaire

The Women's Health Questionnaire (WHQ) was designed by the researcher as a vehicle for reporting characteristics of PMS and to ascertain related health habits. There were four elements present in the construction of the WHQ: *DSM-IV* criteria, the Health Habits Scale, women's health behaviors and filler items. The WHQ contained a total of forty-six questions, seventeen of which were related to menstruation.

Each of sixteen items on menstruation reflected one of the criteria for Premenstrual Dysphoric Disorder (PMDD). The identification of PMS subjects was done by using the provisional criteria for Premenstrual Dysphoric Disorder as defined in the *DSM-IV*. The provisional criteria is the diagnosis made if a woman meets criteria A, B, and C of PMDD but the diagnosis is not confirmed with a daily rating sheet of symptoms for two consecutive cycles. In order to make a PMDD diagnosis, subjects must meet at least five out of eleven criterion as outlined in

section A of the *DSM-IV* (see Appendix C). Included in the WHQ were also four other criteria which must be met to warrant the diagnosis of PMDD. These criteria include: symptoms remitting a few days after the onset of the menstrual period, the disturbance markedly interferes with work or school, or interferes with social activities and relationships, and finally, the disturbance is not an exacerbation of another disorder such as Major Depression. These questions were also included in the WHQ.

Other items were based on questions from the Health Habits Scale developed by Williams, Thomas, Young, Jozwiak, and Hector in 1991. The scale was developed to provide an instrument that could be easily administered, was conceptually sound, and was a psychometrically adequate survey of health related behaviors. The scale has eleven health related items to which the subject responds with Never, Rarely, Periodically, Regularly and Always. The original sample consisted of 1,519 college and noncollege subjects and a second sample of 763 subjects. The validation of the instrument has been successful on a number of variables such as stress, anger, and hostility. Williams et al., (1991) predicted

that the scale would be negatively related to stress. Cronbach's alpha was .84 when compared with the Perceived Stress Scale. Therefore, the lower a respondent scored on the Health Habit's Scale, the higher their stress level and vice versa. The health habits scale has also been found to be a highly valid measure with anger and hostility as measured by the Spielberger Trait Anger Scale. Test-retest reliability produced highly stable scores over a two-or three-week period (r=.85) (Williams et al., 1991).

Six items on the WHQ were based on the Health Habits scales and were chosen if their context addressed psychological symptoms of PMS reported in the literature (e.g., Degraff-Bender, 1986). Other items on the WHQ were used because they related to stress or relaxation, exercise, or dietary habits. Previous literature has shown stress to be a factor which is related to PMS (e.g. Mitchell, Woods, and Lentz, 1994). Exercise and dietary habits have also been found to be related to PMS. Degraff-Bender (1986) reports that eating "junk food" and a lack of exercise, particularly aerobic exercise can lead to an increase in PMS symptoms.

One filler item on menstruation was included which stated "I feel more creative and sensitive during my period." This filler item was included in order to mention some positive aspects of PMS as suggested by Chrisler and Levy (1990). The remaining items of the WHQ contained some filler items generated by the researcher to disguise the intent of the focus on PMS, i.e., to keep the subjects blind to the study. These were general questions about women's health.

Data Collection Procedure

The data set for this research was gathered from students in the Colleges of Liberal Arts and Human Ecology at the University of Tennessee, Knoxville. A professor of women's studies and philosophy was contacted to gain permission and access to courses and potential undergraduate students. After initial approval, a letter of request was sent to identified professors asking for their permission to gather data in their classes. A list of fourteen faculty members was given to the researcher and six faculty members gave their permission for their classes to participate in the study. The researcher was granted compliance from the Human Subjects Committee at

the University of Tennessee, Knoxville prior to data collection (see Appendix L for compliance form).

Pilot Exercise

Prior to collecting study data, a short pilot study was conducted using six volunteers. The pilot study consisted of six Caucasian graduate students ranging in age from twenty-five through thirty-three. Upon completion of the packet of instruments, Biographical Profile, and Women's Health Questionnaire, volunteers were asked to give feedback regarding the readability of the questionnaires, instructions and instruments. Suggestions made by the students included correction of typing errors, increasing the size of the print on the instruments, and clarifying and restating some of the PMS related questions on the Women's Health Questionnaire.

The final data collection was conducted by the principal investigator in Spring of 1994. Data collection occurred during the latter part of a class session and took approximately thirty minutes. After this exercise was introduced to the class, subjects were told that the study examined women's overall emotional health and well-being. The researcher then asked the class for female

volunteers. Those who did not wish to participate were dismissed and assured that their decision not to participate would in no way affect their grade in the class. The volunteers were also told that they may stop at any time without penalty.

In order that the subjects be blind to the purpose of the research questions, no mention of PMS was made until the debriefing period following the survey collection. Studies have shown that subjects who are aware of the purpose of PMS studies tend to exaggerate their symptoms. Feldman (1988/1989) examined subjects' awareness of the purpose of PMS studies and subjects' belief regarding whether or not they had PMS. Forty-eight "Aware" and forty-nine "Blind" subjects completed five weeks of daily symptom reports on two measures of PMS. The reported PMS symptoms were averaged for five menstrual, five premenstrual, and five intermenstrual days. Separate repeated-measure ANOVAS done on the data resulted in significance for Awareness of Purpose and Belief in having PMS, indicating that there were more consistent patterns of severe symptoms premenstrually and menstrually than intermenstrually of subjects who either

were aware of the study's purpose or believed they had PMS.

For the present study, each participating student was given an informed consent form, a Biographical Profile form, Rotter's Internal-External Locus of Control, the Spielberger Trait Anger Scale, the Framingham Anger Scale, and a Women's Health Questionnaire (see Appendices). Directions were explained verbally and written instructions were also provided. Any student who needed additional help was asked to raise her hand for assistance.

Upon completion of the survey, the subjects were then debriefed by the researcher. Each participant was given a one-page debriefing form which stated the purpose of the study and was given additional information explaining locus of control and anger. See Appendix J for a copy of the Debriefing Form. After reading this sheet, subjects were then asked to fill out a one page Additional Information Sheet asking for more detailed information about themselves and their menstrual cycle. The Additional Information Sheet also asked two qualitative questions regarding the subjects' exposure to family discussions of PMS, as well as their perceptions

of mens' feelings about PMS. Participants were also told that they could receive a copy of the general results by reporting their address on the bottom portion of the informed consent sheet given out after the introduction to the study.

Subjects

The subjects were chosen from a volunteer pool of women who were currently enrolled at the University of Tennessee, Knoxville, in classes in the College of Liberal Arts and Human Ecology. The total sample consisted of one hundred thirty-seven women with forty-eight subjects in the PMS group, twenty-four in the non-PMS group, and sixty-five in the exclusion group. There were a total of seventy-two subjects in the final data analysis who were divided into the two groups. The subject pool consisted specifically of women 20 through 27 years of age.

Grouping of Subjects

All women who initially volunteered to participate in the study were asked to turn in their data. Then the subjects were divided into three groups: 1) subjects who were excluded from the study, 2) subjects who met the

criteria for PMS, and finally, 3) subjects who did not meet the criteria for PMS.

Subjects Excluded from the Study

The subjects who met the exclusion criteria were not used in the data analysis. The Biographical Profile given to each subject was used as a screening tool. Those subjects who met any of the exclusion criteria were allowed to participate but their records were removed from the data analysis. The exclusion criteria included: a) having children b) using hormonally based contraceptives and/or c) taking psychotropic medications for a psychiatric illness. Research has shown these factors to be confounding variables in studies on PMS.

This study did not use the data of those women who took hormonally based contraceptives or had children in order to be consistent with the results of other studies on PMS which also excluded these variables due to the hormonal changes influenced by these factors. Women taking psychotropic medications were also excluded as subjects because these drugs have been found to interfere with the psychological symptoms of PMS. Wood, Mortola, Chan, Moossazadeh, and Yen (1992) used fluoxetine, a serotonin uptake inhibitor, to treat eight women with

severe PMS symptoms. The drug was found to reduce behavioral scores on instruments of depression, anxiety, and anger by 75%. There is a possibility that various drugs do influence mood states and therefore their users were excluded from this study.

Subjects Having PMS

Subjects who were categorized as having PMS met the provisional guidelines for Premenstrual Dysphoric Disorder (PMDD) as outlined in the *Diagnostic and Statistical Manual-IV* (American Psychiatric Association, 1994) (see Appendix C for Criteria). This was determined by answers given by the subjects on Biographical Profile (see Appendix H) and on a Women's Health Questionnaire (see Appendix I). The provisional guidelines only include criteria A through C of the PMDD criteria. The provisional diagnosis of PMDD can be made prior to meeting criteria D which states that the symptoms of criteria A, B, and C must be confirmed by prospective daily rating sheets through two consecutive menstrual cycles. The daily rating sheets were not used in this study in order that the subjects be blind to the intent of the study.

Subjects Not Having PMS

In order to be considered in the PMS group, the subject must have circled a minimum of five out of the eleven symptoms listed in the Women's Health Questionnaire. The data which did not meet the criteria for PMDD were put into the non-PMS group. The non-PMS group was defined to be those subjects who circled three symptoms or less. The subjects who reported four symptoms did not have their data used in the data analysis due to the potential ambiguity of their reports of symptoms.

Although the data was put into the above categories (exclusion from the study, PMS, or Non-PMS) the subjects were not grouped according to race or SES. The following section provides an explanation of the exclusion of race and SES as variables in this study.

Race and SES

While this study takes into account the factor of age, the relationships of race and socioeconomic status were not examined as variables in premenstrual syndrome. Subjects were not divided by race as previous studies have shown no significant differences in the premenstrual symptoms between black and white samples. Stout, Grady, Steege, Blazer, George, and Melville (1986) administered

seven items from the Premenstrual Assessment Form (Halbreich, Endicott and Schacht, 1982) to an overall sample of 2385 respondents. There were 321 black women and 462 white women who met the criteria for PMS according to the researcher's criteria. Irritability was the most frequently reported symptom in the overall sample, followed by depression and decreased energy. "Chi-square analyses of premenstrual symptoms revealed no significant difference in positive responses between racial groups except for a higher prevalence of premenstrual food cravings among blacks" (Stout, Grady, Steege, Blazer, George, and Melville, 1986, p.1438).

The subjects were also not grouped according to their socioeconomic status (SES). There have been few previous studies examining SES in relation to PMS. One study which did examine SES as a variable found no significant differences between low and high SES groups and PMS symptomatology (Paddison, Gise, Lebovits, Strain, Cirasole and Levine, 1990). The researchers in this study hypothesized that women of low SES would have higher rates of PMS because of greater economic stressors would be greater. A battery of psychological tests were administered to one hundred and seventy-four women

seeking treatment at the Premenstrual Syndromes Program at the Mount Sinai Medical Center. Socioeconomic factors did not differ significantly in women seeking treatment for premenstrual symptoms according to demographic factors such as age, education, marital status or religion. "The psychological test scores did not differentiate high-and-low SES groups with regard to the severity of premenstrual symptoms, anxiety, or marital adjustment" (Paddison,et al., 1990, p.267). The conclusion reached by Paddison, et al. was that the premenstrual syndromes do occur in women of low-SES and that these characteristics are similar to those found in high-SES women. Therefore, this current research study did not examine SES as a variable in the data analysis but as descriptive of the two groups.

Data Analyses

Descriptive statistics on demographic information were computed for comparison purposes. The means and standard deviations were compiled for the Rotter's Locus of Control Scale, the Spielberger Trait Anger Scale, and the Framingham Anger Scale.

Research questions in the study were addressed using the following procedures:

Research Question One:

Do college women in their twenties who meet the criteria for PMS (as determined by this study) have a more external locus of control than college women in their twenties who do not meet the criteria for PMS?

A two-sample independent t-test was utilized to determine if women who met the criteria for PMS displayed a higher external locus of control than women who did not meet the criteria for PMS.

Research Question Two:

Do women with PMS display a higher "angry temperament" than women without PMS?

A two-sample independent t-test was also used to determine if women with PMS displayed a greater amount of angry temperament than women without PMS.

Research Question Three:

Do women who meet the criteria for PMS differ in modes (or styles) of anger expression from women without PMS?

Independent two sample t-tests were utilized to determine if there are differences between the two groups (PMS and Non-PMS) on each mode of expressing anger.

A significance level of .05 was used for all t-tests.

Additional Research Analyses

Additional research analysis of the data was conducted to examine the relationship between the anger variables and locus of control. A Pearson product-moment correlation was utilized to determine if there was a significant correlation between the two variables. A significance level of .05 was used for this analysis. Because this was a further analysis which was not part of the research questions, the results appear in the ancillary section of the next chapter on results.

CHAPTER IV

RESULTS

Results of the study are presented in three sections. The first section presents demographic data of the study sample. Descriptive statistics for each of the scales; the Rotter's I-E Scale, the Spielberger Trait Anger Scale (STAS), and the Framingham Anger Scale (FAS) are reported in the second section. In addition, the second section also reports the key research findings. An ancillary section presents unexpected findings related to the study.

Demographic Data

This sample represented college-age women ranging in age from twenty through twenty-seven with a mean age of 21.28 and a standard deviation of 1.60. The mean age for the women in the PMS group was 21.54 with standard deviation of 1.77, while the mean age for the non-PMS group was 20.75 with a standard deviation of 1.03. The majority of the sample were Caucasian (96%, N=69). There was one Afro-American subject (1% of the sample) and two subjects who checked other and gave their race as Asian (3% of the sample). Twenty-eight subjects listed their year in college as Sophomores, 22 as Juniors; 15, as

Seniors; and 3, as 5th year college students. Means and standard deviations for age as well as a tabulation of race is presented in Tables 1 and 2.

Subjects from Interdisciplinary Courses

The subjects were female college students from the College of Liberal Arts or Human Ecology at the University of Tennessee, Knoxville. A total of six classes were used in the study. Subjects for the study were enrolled either in one of five women's studies courses or from one religious studies class. The subjects were enrolled in the classes either to meet the requirements for their major or elected these subjects. The subjects came from a variety of majors and had chosen to enroll in interdisciplinary courses in liberal arts or human ecology. The classes used and number of subjects from each are as follows: 16 subjects from Women's Literature, 13 subjects from Women's Health, 5 subjects from a Philosophy of Feminism course, 13 subjects from Varieties of Religious Community, 16 from Marriage and Family Roles and Relationships and 8 subjects from

Table 1

Demographic Description of Sample

	Range	Mean	Standard Deviation
Age			
PMS	20-27	21.54	1.77
Non-PMS	20-24	20.75	1.03
Total	20-27	21.68	1.60

Table 2

Race of Sample

Race	Frequency
Caucasian	69
African-American	1
Other (Asian)	2

Early Childhood Education. The frequency and a tabulation of PMS and Non-PMS subjects from each of the classes is presented in Table 3.

Family Income of Subjects

Previous studies have suggested that socioeconomic status might be a variable in PMS symptomatology, although few studies have explored this possibility (Paddison et al., 1990). Data on the family income in this study was done for descriptive purposes only. The family income of origin was tabulated for each of the two groups (PMS and non-PMS). The majority of subjects listed their family income as between $61,000 and $80,000 (32% of the sample). The PMS group did have a higher number of subjects in higher income brackets than the non-PMS group. Thirty-four percent of the PMS group listed family incomes of $81,000 or above, while only 10% of the non-PMS group fell in this income group. There were very few subjects in the sample that could be classified as low income. Only two subjects checked that they came from families with an income of less than $20,000, 3% of the sample who responded to the income question (see Table 4).

Table 3

Classes Used for Sample

Class	Frequency	PMS	Non-PMS
Child and Family Studies	24	18	6
Philosophy of Feminism	5	3	2
Women's Health	13	9	4
Religious Studies	14	8	6
Women's Literature Class	16	10	6

Table 4

Income Level of Sample

Family Income	Frequency of PMS Group	Frequency of Non-PMS Group	Total
< $20,000/yr.	1	1	2
$21,000-$40,000/yr	5	5	10
$41,000-$60,000/yr	12	4	16
$61,000-$80,000/yr	11	11	22
$81,000-$100,000/yr	11	1	12
> $100,000/yr	4	2	6
	N=44	N=24	N=68

Note: Four subjects did not respond to this question

The distribution for the family income approached the normal distribution for both the PMS and Non-PMS group as well as for the total group. The majority of the subjects were in the middle income ranges of the scale with less frequent numbers of subjects within the upper or lower income level.

Geographic Location of Subjects

Previous research has suggested that women are socialized differently according to their cultural context (Hyde, 1991). This difference in socialization could result in a variations of PMS symptomatology according to geographic location. The majority of the sample (81%, n=58) reported Tennessee as their home of origin. Fourteen subjects (19%) of the sample were from out of state or from other countries. The PMS group were comprised of a large percentage of subjects coming from Tennessee (85%) as did the non-PMS group with 71% of the subjects coming from Tennessee. The majority of subjects coming from other locations were still from the Southeast region of the United States (n=5). The frequency of the geographic locations of the sample is presented in Table 5. Because of the vast majority of subjects coming from Tennessee, it was difficult to make assumptions regarding

Table 5

Geographic Location of Sample

Region	PMS n	Non-PMS n
Tennessee	41	17
Southeast	3	2
Pacific Coast	2	0
Northeast	0	3
Midwest	0	1
Other	2	1
	N = 48	N = 24

differences in socialization in various geographic locations for this sample.

Research Questions

The purpose of this study was to examine the relationship between the psychological variables of anger and locus of control and PMS in college age women. Independent samples t-tests were used to answer the three research questions using a significance level of .05. The research questions were as follows:

1. Do college age women in their twenties who meet the criteria for PMS have a more external locus of control than women in their twenties who do not meet the criteria for PMS?
2. Do women with PMS display a higher "angry temperament" than women without PMS?
3. Do women who meet the criteria for PMS differ in modes (or styles) of anger expression from women without PMS?

Question One

The first research question was "Do college age women in their twenties who meet the criteria for PMS have a more external locus of control than women in their twenties without PMS?" Analysis of the Rotter Internal-

External Scale for the PMS group yielded a mean of 11.96 (SD= 4.97). The Non-PMS group had a mean of 12.04 and a standard deviation of 4.97.

It is interesting to note that this study sample (both the PMS and Non-PMS groups) reported higher means than the original norms produced by Rotter (1966) for college-age women. The mean for the original Rotter sample was 8.42 with a standard deviation of 4.06. Philp (1987) suggests that college students may have a stronger orientation toward external control and the influence of powerful others (e.g., professors) as compared with the general population. Because this study sample reports higher mean scores on external locus of control than the average college student in the Rotter norms, alternate explanations may be necessary. It could be that either this particular sample is highly external or that female college students in general have become more external in the years since the Rotter norms were done. The mean and standard deviations of the study sample on the Rotter instrument are presented in Table 6.

Data analysis revealed no statistically significant differences between the mean scores of PMS and Non-PMS

Table 6

Means, Standard Deviations and t-test Comparisons of Groups on Locus of Control

	PMS (N=48)		Non-PMS (N=24)			
	Mean	Standard Deviation	Mean	Standard Deviation	*t*	*p*
Rotter I-E Scale	11.96	4.01	12.04	4.97	-.08	.085

Note: Score reflects the number of external responses

groups on the Rotter I-E Scale at the .05 level of confidence (see Table 6). The difference in overall external scores on the Rotter I-E Scale did not approach the .05 level of confidence (t=-.08, df=70, p< .085). Therefore, in this sample, women with PMS were not found to have a higher external locus of control than women without PMS.

Question Two

The Spielberger Trait Anger Scale (STAS) was utilized to investigate the second research question, "Do women with PMS display a higher angry temperament than women without PMS?" The mean score of the PMS group on the variable of Angry Temperament was 7.04 with a standard deviation of 2.77. The mean for the Non-PMS group was 6.04 with a standard deviation of 2.26. The group mean on Angry Reaction for the PMS group was 10.06 with a standard deviation of 2.60 and the Non-PMS group yielded a mean of 9.04 with a standard deviation of 2.44 (see Table 7).

Independent samples t-tests for unequal means on the variable of Angry Temperament, as measured by the STAS, showed no differences between the PMS and Non-PMS groups. The difference in the two groups was not found to be

Table 7

Means, Standard Deviations and t-tests on Anger Variables

Anger Variable	PMS (N=48) Mean	PMS (N=48) Standard Deviation	Non-PMS (N=24) Mean	Non-PMS (N=24) Standard Deviation	t	p
Angry Temperament	7.04	2.76	6.04	2.26	1.54	.557
Angry Reaction	10.06	2.60	9.04	2.44	1.60	.867
Anger-In	5.21	1.71	5.54	1.50	-.81	.576
Anger-Discuss	4.81	1.23	4.83	1.31	-.07	.546
Anger-Out	2.98	.978	2.66	.702	1.39	.789
Anger-Symptoms	9.81	2.54	9.54	2.81	.41	.424

statistically significant (t=1.54, d=70, p<.557) (see Table 7). Therefore, data did not show women with PMS as having a higher angry temperament than women without PMS in this study.

Question Three

The Framingham Anger Scale (FAS) was utilized to investigate the third research question, "Do women who meet the criteria for PMS differ in modes (or styles) of anger expression from women without PMS?" The means and standard deviations for the FAS are shown in Table 7. The means for the PMS group and the Non-PMS group on the variable of Anger-in were not statistically significant (5.21 and 5.54, respectively). The means of the PMS and Non-PMS group on the variables of Anger-Discuss (4.81 versus 4.83), Anger-Out(2.98 versus 2.66), and Anger-Symptoms (9.81 versus 9.54) found no differences great enough to permit any meaningful inferences.

Analysis of T-tests between the mean scores on the variables of Anger-In, Anger-Discuss, Anger-Out, and Anger-Symptoms for the two groups (PMS and Non-PMS) showed no significant differences. The difference in the two groups were not significant for all variables of Anger-In (t=-.81, df=70, p< .576), Anger Discuss (t=-

.07, df=70, p<.546), Anger-Out (t=1.39 df=70, p<.789), and Anger-Symptoms (t=.41, df=70, p<.424) (see Table 7). It was found that women with PMS did not differ in their reported modes of anger expression from women without PMS.

PMS Related Findings

Self Diagnosis and *DSM-IV* Criteria

In addition to answering the three research questions, this study also sought to examine the symptoms described in the *DSM-IV* criteria of Premenstrual Dysphoric Disorder and their relationship to social conditioning and cognitive processes. Carol Tavris asked the question "What are the other things going on in a woman's life that might be manifesting as severe premenstrual moodswings or pain? How is she thinking about her symptoms?" (cited in De Angelis, 1993, p.32). The Additional Information Sheet given out after the debriefing asked the subjects if they believed they had PMS. In other words, they were to self diagnose themselves as to whether or not they had PMS. This information may help other researchers to understand the faulty cognitive processes that women might have regarding PMS symptomatology.

The majority of the subjects answered "yes" to the question, "Do you have PMS?" Out of the seventy-two subjects used in the final data analysis, 65 (or 89%) of the subjects believed they had PMS, and only 8 (or 11%) of the sample believed they did not have PMS. This self diagnosis of PMS was not always correct as 16 women (or 22%) of the sample believed they did have PMS when (at least, according to the *DSM-IV* criteria for Premenstrual Dysphoric Disorder) they did not. On the other hand, 100% (N=8) of the women who said they did not have PMS diagnosed themselves correctly, as they all fell into the Non-PMS group. Forty-seven (67%) of the subjects were accurate in believing they did have PMS, as they did meet the criteria and were put into the PMS group (see Table 8). This large number of subjects who believed they had PMS suggests one of two possibilities. It could be that college age women do suffer from a higher degree of PMS symptomatology or it could point to an inadequacy in the criteria of the *DSM-IV*. The latter possibility seems more plausible as so many of the subjects did meet the criteria for PMDD (69%). The erroneous belief by 22% of the sample also warrants further investigation for a better understanding of the cognitive processes and

Table 8

Sample's Belief that They Do or Do Not Have PMS

	PMS Group	Non-PMS Group	Total
Women who believe they have PMS	47	16	63
Women who believe they do not have PMS	0	8	8
			N=71

Note: One subject did not respond to this question

social conditioning which might have led so many of the sample to believe they have PMS.

Stress and PMS

The influence of stress as a possible factor which might interact with personal reports of PMS was also addressed in this study. Stress has been shown in the literature to play a role in the increase of PMS symptomatology (Mitchell, Woods, and Lentz, 1994). Because stress may affect how women perceive their premenstrual time, subjects were asked to rate how much stress they had in their life. They were asked, "I have a great deal of stress in my life" and were to answer with Always, Sometimes, Occasionally or Never on the Women's Health Questionnaire. Sixty-three percent of the PMS group responded with always or sometimes, while 38% said occasionally or never. In contrast, 54% of the Non-PMS subjects responded that they always or sometimes had a great deal of stress in their life and 46% answered never or occasionally. A higher percentage of PMS subjects had a great deal of stress in their lives. This finding appears to be consistent with the literature which links stress to increased premenstrual symptoms. Mitchell, Woods and Lentz (1994) found that stress played

a role in the increased severity of PMS symptoms. They hypothesized that younger women, because they are younger and less experienced may be more vulnerable to the negative effect of stress in their lives. This sample might be in an especially vulnerable time in their life, given that the subjects are in college which in itself can produce a great deal of stress (see Table 9). This was certainly the case for one subject from a Philosophy of Feminism class who stated, "I only have PMS during the school year, once summer comes, my PMS is gone!"

Exercise and PMS

There has been previous research linking good health habits to increased well-being (Williams, et al, 1991). Lack of exercise and poor eating habits have been found to increase PMS symptomatology. Aerobic exercise has been found to be the most beneficial type of exercise in reducing PMS symptoms, especially if engaged in three times per week (Degraff-Bender, 1986). Exercise habits were asked of the subjects on the Women's Health Questionnaire. Forty-six percent of the PMS group engaged in aerobic exercise at least three times per week as compared to only 34% of the Non-PMS group (see Table 10).

Table 9

PMS and Non-PMS Subjects in Sample Who Say They Have Stress in Their Lives

	Never	Occasionally	Sometimes	Always
PMS (N=48)	0	18	18	12
Non-PMS (N=24)	1	10	7	6

Table 10

PMS and Non-PMS Subjects in Sample Who Engage in Aerobic Exercise

	Never	Occasionally	Sometimes	Always
PMS (N=48)	11	15	9	13
Non-PMS (N=24)	7	9	3	5

This higher rate of exercise was unexpected as good exercise and diet habits are treatments used to improve PMS symptoms. One would expect the PMS group to engage in less exercise than the Non-PMS group.

Diet and PMS

Health habits related to diet have also been found to play a role in PMS symptomatology. Negative eating habits such eating junk food can cause a rise in blood sugar leading to increased irritability and anger during the premenstrual time (Degraff-Bender, 1986). The subjects were asked if they ate junk food. The dietary habits between the PMS and Non-PMS group were found to be similar. Sixty-five percent of the Non-PMS group admitted to eating junk food as compared to 61% of the PMS group (see Table 11).

Anger and Locus of Control

In addition to the research questions, further data analysis was conducted in order to determine the relationship between the anger variables and locus of control. Because this analysis was not part of the original research questions, the results will be reported in this section on ancillary findings.

Table 11

PMS and Non-PMS Subjects in Sample Who Eat Junk Food

	Never	Occasionally	Sometimes	Always
PMS (N=48)	3	16	17	12
Non-PMS (N=24)	1	7	10	5

Note: 1 subject did not respond to this question

A Pearson product-moment correlation was utilized to determine if there was a relationship between the two variables of locus of control and the anger. Analysis of the data showed no significant correlations between locus of control and anger variables for both the PMS and Non-PMS group. The relationship between the variables on the PMS group ranged from r =-.0844 to r =.2254. The Non-PMS group showed similar results with correlations ranging from r=-.3108 to r =.2299. The homogeneity of the sample scores on both the anger instruments and the locus of control scale might have resulted in lower correlations, which in turn may have resulted in the lower r values. The correlations of the anger variables and locus of control are presented in Table 12.

Qualitative Questions Related to PMS

Two qualitative questions were asked on the Additional Information Sheet given to the subjects after they had been debriefed about the study intent. These questions were asked in order to provide better understanding of the subjects' first experiences and discussions about PMS, as well as their perceptions about the way that men feel about PMS.

Table 12

Correlations of Locus of Control and Anger Variables

	Locus of Control			
	PMS (N=48)		Non-PMS (N=24)	
Anger Variable	r	p	r	p
Angry Temperament	.2254	.123	-.3108	.139
Angry Reaction	.0453	.760	.0465	.829
Anger-In	.0137	.926	.2299	.280
Anger Discuss	.0501	.735	-.1864	.383
Anger-Out	.2061	.160	.1788	.403
Anger Symptoms	-.0844	.568	.1042	.628

α=.05

The first question was " Was there any discussion in your family about menstruation or PMS? If yes, please describe." The majority of the women in the Non- PMS group were told about menstruation or PMS by their mothers (63%). Four percent were told by their sisters, 4% by their school, and 29% had no discussion at all. In contrast, only 40% of the PMS group were told about menstruation by their mothers. Seventeen percent were told by outside family members such as an aunt, 4% by their sisters, 2% by friends, 2% by their school, and 35% had no discussion at all. It is interesting that 9 subjects or 19% of the PMS group mentioned a family history of PMS as opposed to only 4% of the Non-PMS group. The PMS group also made more negative statements in their descriptions of their discussion about PMS. For example, one PMS subject said that her mother warned her after she started her period that she could "look forward to always being in a bad mood for the rest of her menstrual life." Another PMS subject said that she was given severe warnings by her mother about the negative symptoms of PMS.

The second qualitative question asked "How do the men in your life feel about PMS? Describe your

relationship to the man." The majority of the Non-PMS group did not discuss PMS with men (38%). Twenty-nine percent saw men as supportive during their premenstrual time, 16% said that men actively avoided them during their premenstrual time as they were too irritable to be around, and 17% of the Non-PMS group stated that the men in their lives saw "PMS as a joke." In contrast, only 15% of the PMS group held no discussions with men about PMS. Forty-two percent felt men were sensitive to their PMS, 19% thought that men avoided them, 19% said that men got angry and blamed them for their PMS and 5% felt that men "saw PMS as a joke."

Several of the PMS women described negative statements regarding the men in their lives feelings about PMS. One woman said that her boyfriend "made her feel like an animal out of control" and another said most men made her feel "like a monster with a disease in her body."

CHAPTER V

SUMMARY, IMPLICATIONS and RECOMMENDATIONS

The purpose of this study was to examine the relationship between the psychological variables of anger and locus of control and PMS in college age women. Social Learning Theory, particularly the theories of Albert Bandura (1977, 1978) and Julian Rotter (1954, 1966) was employed as the theoretical framework for understanding women's locus of control and expression of anger in relation to Premenstrual Syndrome.

Subjects were 72 female undergraduates in the College of Liberal Arts and Human Ecology at the University of Tennessee who were between the ages of twenty and twenty-seven. Each subject completed a Biographical Questionnaire, the Rotter Internal-External Locus of Control Scale, the Spielberger State-Trait Anger Scale, the Framingham Anger Scale and a Woman's Health Questionnaire. The provisional criteria for Premenstrual Dysphoric Disorder in the *DSM-IV* were used in formulating some of the questions in the WHQ. Independent two sample t-tests were utilized in the data analyses. Results of the study showed there to be no significant differences between the PMS and Non-PMS group on the variables of

locus of control or anger expression. Ancillary findings revealed a high percentage of the subjects who believed they had PMS (89%). A higher percentage of the PMS group perceived themselves to have a higher amount of stress in their lives. They also exercised more but showed similar patterns in their dietary habits to the non-PMS group.

The following discussion will focus on the summary of findings from each of the research questions as well as the ancillary findings, and how these findings relate to previous research. This section will also discuss the limitations of this study, implications for research and practice, and recommendations for future research.

Summary of Findings

Locus of Control and PMS

Data analysis revealed no statistically significant difference between the PMS and Non-PMS group on the variable of locus of control. This finding contradicts previous studies examining locus of control and PMS (e.g., O'Boyle, Severino & Hurt, 1988; Christensen, Board, and Oei, 1992; Harding, 1989). In these studies, women with PMS were found to have a higher external locus of control than the Non-PMS group. These women may have been different from the study sample of college students

who were in their twenties. It may be that women who are older and are not college students may have a different locus of control orientation. As pointed out earlier in this study, it may be that college students in general have a higher external locus of control. Another possible explanation for this difference may result from the particular subjects used in this study. It could be that the study sample may be a self-selected group which may be different from the general population of college women. Because the sample came from only two colleges, Liberal Arts and Human Ecology, it could be that the classes taken by the study subjects may reflect particular types of students. Because the sample was drawn from classes such as Marriage and Family Roles and Relationships and Introduction to Early Childhood, they might attract a different student than a class in business administration or engineering. This difference may be in the type of personality and belief systems that led one student to choose a class exploring family relationships as opposed to one which taught how to understand the theory of mechanical engineering.

Angry Temperament, Anger Expression and PMS

There was no significant difference between the PMS and Non-PMS groups on the variables of Angry Temperament and Angry Reaction. This finding was not consistent with that of Van Der Ploeg (1987) who administered the STAS to 844 women. Results of his study showed that women without PMS scored lower on the variables of anger, anxiety, and depression than women with PMS. However, in women who met the criteria for PMS there was significant increase in their scores during the premenstrual period. There could be several explanations for the discrepancy between this study and that of Van Der Ploeg. The difference could stem from his different criteria for PMS. His subjects were categorized as either having PMS or not having PMS based on a menstrual distress questionnaire, as contrasted to the *DSM-IV* criteria used in the current study. This difference in methodology may have effected the outcome of the study.

The variable of anger-in was not found to be significantly different between the two groups of PMS and Non-PMS. This finding contradicts the Stout and Steege study (1985). Their study found that women with PMS tended to hold anger in more than women without PMS. This

finding suggests that the repression of anger may not be a variable associated with PMS symptoms.

DSM-IV Criteria and PMS

This study was one of the first studies to operationalize the *DSM-IV* criteria for identification of PMS subjects. Subjects were divided into the PMS and Non-PMS groups based on this criteria. Those subjects who met at least five or more out of eleven criteria were put in the PMS group, and those meeting three or fewer were put in the Non-PMS group. However, many of the subjects of the Non-PMS group believed that they had PMS and had marked two or three of the criteria. It is possible that the two groups were too much alike, which resulted in there being no significant difference between their mean scores on the variables. On the other hand, rather than a flaw with the study sample, this finding (of a majority of the sample meeting the criteria for PMDD) may indicate that the *DSM-IV* criteria are inadequate and indicates a need for less vague criteria for categorization of women with and without PMS. The wording of the criteria for PMDD may be too vague and allow those women who may not actually have PMS to be categorized based on semantics of language rather than on their actual symptoms. For

example, one of eleven criteria for PMDD is a subjective feeling of feeling overwhelmed and out of control. This criteria is vaguely worded and difficult to operationalize. Feeling out of control is a very different experience for each individual. A women who is afraid to express her feelings may feel out of control if she raises her voice. The PMDD criteria may need refinement which could include statements of behavior which can be observed by others and operationalized in behavioral terms.

Belief in PMS and Health Habits

In order to better understand the relationship between health habits and belief in PMS, the Women's Health Questionnaire and the Additional Information sheet were used. The majority of the sample believed that they had PMS. This finding was similar to the one found by Feldman (1988). The Feldman study also found an unexpectedly high rate of women who met the diagnosis for PMS (38% of 98 subjects). Although this was a high rate, it was less than that found by this study which was 67% of the sample meeting the criteria for PMS. The Feldman study also found that women who knew the purpose of the study and/or believed they had PMS tended to exaggerate

their symptoms. Although it is a possibility that this particular study sample did actually have more PMS symptoms than average, the high rate of subjects with PMS might also suggest other explanations. It could be that like the subjects in the Feldman study, the study sample exaggerated their symptoms. This exaggeration of symptoms might have resulted in many of the subjects meeting the criteria for PMDD even though they did not actually have the symptoms listed in the PMDD criteria. Perhaps the *DSM-IV* criteria needs a more comprehensive approach to a diagnosis of PMDD. This might include using more than one assessment tool such as charting PMS symptoms in addition to filling out a menstrual distress questionnaire.

The stress levels of the subjects with and without PMS were also found to differ. The women with PMS perceived that they had higher levels of stress in their life. This result was similar to that found by Mitchell, Woods, and Lentz (1994) who found that women with higher premenstrual symptoms perceived that they had a higher level of stress in their life than women with low symptoms. Therefore, it could be that perceived stress is a variable which may cause an increase in PMS symptoms.

The exercise and diet habits of the sample were also investigated with the Women's Health Questionnaire. The exercise habits were actually better in the PMS group than the Non-PMS group. This finding contradicts previous studies which found women with PMS to be more sedentary (DeGraff-Bender, 1986). This contradiction may be due to the education level of the sample used in the study. Women in college are more likely to read or be educated about various treatments for PMS than the general population. Therefore, it could be that women with PMS in this sample may compensate for their symptoms by exercising more (and gaining an increased feeling of well-being from increased endorphin levels). This might result in gaining some relief from their PMS symptoms.

The dietary habits of the two groups was found to be similar. Again this contradicts the literature as many studies show women with PMS to consume more junk food and sugar (DeGraff-Bender, 1988) than women without PMS. It could be that college students as a whole eat more junk food than the general population which could result in the similarity between the two groups.

Limitations of the Study

The study has a number of limitations. Results cannot easily be generalized to populations other than college age women in Liberal Arts and Human Ecology. The subjects are also mostly white, middle class females from the Southeast. Other studies done with women from different backgrounds and majors may not have similar results as found in this study. Also, the instruments used in the study are retrospective ways of gaining information as to subject's feelings and experiences, which may or may not be accurate. A woman may believe she has PMS which can cause an exaggeration of symptoms (Feldman, 1988). As a result, a woman might meet the provisional criteria for Premenstrual Dysphoric Disorder even though she does not actually have the symptoms she reported. Another limitation results from the criteria used for the categorization of subjects into PMS and Non-PMS groups. The *DSM-IV* criteria for Premenstrual Dysphoric Disorder have just recently been developed. The criteria have not been subjected to empirical review across sufficient numbers of studies. This makes the new

criteria of PMS less reliable and valid than other criteria which have been through more rigorous testing.

Implications

The key findings in this study have relevance for research. Data analysis found no significant differences between the PMS and Non-PMS groups on external locus of control, anger temperament and anger expression. These findings suggest that college students in their twenties may present a different psychological profile then the population of women in general. Previous studies have not explored the possibility that younger women may require separate studies in order to understand their psychological profile. Another possibility is that PMS is a physiological disorder which affects particular women. If so, more medical research is required to understand which medications or change of diet and exercise habits are most suited in reducing PMS symptoms.

Because so many of the sample met the criteria for PMS, it is possible that younger women who are in college do have more PMS symptoms. It could also mean that the *DSM-IV* criteria are inadequate and may include normal changes for some women during their PMS time. If this is so, then the *DSM-IV* criteria need to be re- evaluated and

further studies done to determine which of the criteria is too vague and not comprehensive enough.

The findings on locus of control and anger also have implications for practitioners. Since women who had PMS did not differ from women without PMS on the variables of locus of control and anger expression, it could be possible that these are psychological variables which might not be helpful to explore in the treatment of college age women with PMS. Perhaps it would be more helpful to focus on the relationship of stress to PMS and look further at the health habits of women.

The numerous subjects who believed that they had PMS also has implications for practitioners working with college age women with PMS. Practitioners might be aware of the tendency for women who believe they have PMS to exaggerate their symptoms. This might call for a more comprehensive evaluation to determine if a women does suffer from PMS. This assessment might include family members' evaluations of the client's symptoms in the home and at school and other menstrual distress questionnaires in addition to the *DSM-IV* criteria and daily charting of symptoms. This data suggests that psychotherapists and others who treat women's emotional and physical health

should not be too hasty to agree with their clients if they believe they have PMS. Self diagnosis is not always accurate as evidenced by the 22% of the women in this study who believed they had PMS, when they did not meet the criteria for PMDD. Many times, medical doctors will prescribe medications on the basis of their patients' self diagnosis. Further in-depth information should be gathered, including using more efficient assessment and a daily rating sheet of menstrual symptom severity. Therapists and diagnosticians should be extremely cautious when making a provisional diagnosis of Premenstrual Dysphoric Disorder without the use of further information.

Recommendations for Future Research

PMS research is in its early stages and mental health practitioners and researchers are just beginning to examine the psychological variables related to PMS. In the future, research is needed to address the following issues:

1. Further testing of the *DSM-IV* criteria on other groups of women needs to be done to determine what percentages of women meet the criteria for PMS. If there are results similar to this study, than the

DSM-IV criteria might possibly be too vague and may need to be redefined or make use of more comprehensive assessment in order to warrant the diagnosis of PMDD.

2. Research exploring locus of control orientation and anger and PMS might use a larger sample than the current study. Further research should sample more of the population of women in general rather than a narrower population such as the college students used in the current study.

3. Researchers might also want to compare groups of subjects in college who have dissimilar majors such as the current subject pool (in this study) as compared to women in non-traditional majors such as business administration or engineering. There may be a greater likelihood that these groups would be more diverse and therefore the relationship of the variables of locus of control and anger might be different than the present investigation revealed. A college sample of women could also be compared to young working women who are not in college to determine if there are differences in the

psychological profiles in subjects with and without PMS.

4. Further research on the relationship of stress and PMS needs to be conducted to determine if perceived stress is a factor in increased PMS symptoms. It should be noted that research is ongoing as evidenced by the study done by Mitchell, Woods, and Lentz (1994). They found that women with premenstrual magnification (PMM) perceived that they had more stress in their lives than did women with PMS symptoms or low symptoms. As a result of their findings, Mitchell et al. (1994) are continuing their investigation to determine if women with PMM react to stress differently than do women with PMS or low symptoms.

5. Since respondents reported different experiences with maternal descriptions of premenstrual distress, it is possible that there is a correlation between maternal attitudes and symptomatology. Research should thus look at the mother/daughter relationship to determine if mothers' perceptions of menstruation play a role in daughters' later symptomatology.

6. This study only addressed men's perceptions by way of women's reports of men's reaction to their premenstrual period. A study directed at men, in which male respondents were specifically asked about their female partners' behavior and symptoms and their own experiences, might produce interesting insights not reflected in current literature.

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APPENDICES

APPENDIX A

THE MENSTRUAL CYCLE AND PMS

THE MENSTRUAL CYCLE AND PMS

Explanation of the Menstrual Cycle

There are numerous changes that take place in a woman's body during the menstrual cycle. Each month, her body must prepare for pregnancy--and then, if pregnancy does not result, must start over. The result is a flood of hormones resulting in both physiological and psychological changes.

The duration of the menstrual cycle averages about 28 days, with normal women's cycles varying between 20 and 45 days (Guyton, 1986). The menstrual cycle is typically divided into four phases. The first stage is called the follicular phase which usually begins around 4 to 14 days after menstruation begins. In this phase, a follicle (a group of cells in the ovary that encapsulates an egg) matures and swells. This phase ends with the rupturing of the follicle and the release of an egg (which is the second phase known as the ovulatory phase). The third phase is known as the luteal phase; a group of reddish yellow cells (called the corpus luteum) form in the ruptured follicle. The last phase, which is characterized by menstruation, involves the sloughing off of the endometrium (inner

lining) of the uterus which previously had been built up in anticipation of nourishing a fertilized egg (Hyde, 1991).

APPENDIX B

DSM-III-R CRITERIA FOR LATE LUTEAL PHASE DYSPHORIC DISORDER (LLPDD)

DSM-III-R CRITERIA FOR LATE LUTEAL PHASE DYSPHORIC DISORDER (LLPDD)

There has been a great deal of controversy over the inclusion of PMS as a mental disorder to be investigated in Appendix A of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (Third Edition-Revised,* 1987). The symptoms related to the menstrual cycle are referred to as "Late Luteal Phase Dysphoric Disorder (LLPDD). The *DSM-III-R* criteria for diagnosis of "Late Luteal Phase Disorder include:

A. In most menstrual cycles during the past year, symptoms occurred during the last week of the luteal phase and remitted within a few days after onset of the follicular phase. In menstruating females, these phases correspond to the week before, and a few days after onset of menses. (In nonmenstruating females who have had a hysterectomy, the timing of luteal and follicular phases may require measurement of circulating reproductive hormones.)

B. At least five of the following symptoms have been present for most of the time during each

symptomatic late luteal phase, at least one of the symptoms being either (1),(2),(3), or (4):

(1) marked affective lability, *e.g.*, feeling suddenly sad, tearful, irritable, or angry

(2) persistent and marked anger and irritability

(3) marked anxiety, tension, feelings of being "keyed up" or "on edge"

(4) markedly depressed mood, feelings of hopelessness, or self deprecating thoughts

(5) decreased interest in usual activities, e.g., work, friends, hobbies

(6) easy fatigability or marked lack of energy

(7) subjective sense of difficulty in concentrating

(8) marked change in appetite, overeating, or specific food cravings

(9) hypersomnia or insomnia

(10) other physical symptoms, such as breast tenderness or swelling, headaches, joint

or muscle pain, a sensation of "bloating," weight gain

C. The disturbance seriously interferes with work or with usual social activities or relationships with others.

D. The disturbance is not merely an exacerbation of the symptoms of another disorder, such as Major Depression, Panic Disorder, Dysthymia, or a Personality Disorder (although it may be superimposed on any of these disorders).

E. Criteria A, B, C, and D are confirmed by prospective daily self-ratings for at least two symptomatic cycles. (The diagnosis may be made provisionally prior to this confirmation.) (American Psychiatric Association, 1987, pp. 367-369).

APPENDIX C

DSM-IV CRITERIA FOR PREMENSTRUAL DYSPHORIC DISORDER (PMDD)

DSM-IV CRITERIA FOR PREMENSTRUAL DYSPHORIC DISORDER (PMDD)

The newest edition of the DSM is the Diagnostic and Statistical Manual (Fourth Edition, 1994) which came out in May of this year. In this edition, Late Luteal Phase Dysphoric Disorder was be replaced by the diagnosis of Premenstrual Dysphoric Disorder (PMDD). The diagnosis of PMDD is made if a woman meets five out of eleven symptoms. These symptoms include:

A. In most menstrual cycles during the past year, at least five of the following symptoms (which markedly interfered with functioning) were present for most of the time during the last week of the luteal phase, began to remit within a few days after the onset of the follicular phase, and were absent in the week post-menses with at least one of the symptoms being either (1), (2), (3), or (4):

(1) markedly depressed mood, feelings of hopelessness, or self-deprecating thoughts

(2) marked anxiety, tension, feelings of being "keyed up," or "on edge"

(3) marked affective lability (e.g., feeling suddenly sad or tearful or increased sensitivity to rejection)

(4) persistent and marked anger or irritability or increased interpersonal conflicts

(5) decreased interest in usual activities (e.g., work, school, friends, hobbies)

(6) subjective sense of difficulty in concentrating

(7) lethargy, easy fatigability, or marked lack of energy

(8) marked change in appetite, overeating, or specific food cravings

(9) hypersomnia or insomnia

(10) a subjective sense of being overwhelmed or out-of-control

(11) other physical symptoms, such as breast tenderness or swelling, headaches, joint or muscle pain, a sensation of "bloating," weight gain.

Note: The luteal phase corresponds to the period between ovulation and the onset of the menses. The follicular phase begins with menses. In nonmenstruating females,

e.g. those who have had a hysterectomy, the timing of luteal and follicular phases may require measurement of circulating reproductive hormones.

B. The disturbance markedly interferes with work or school or with usual social activities and relationships with others (e.g. avoidance of social activities, decreased productivity and efficiency at home and at work or school).

C. The disturbance is not an exacerbation of the symptoms of another disorder, such as Major Depression, Panic, Dysthymic, or Personality Disorders (although it may be superimposed on any of these disorders).

D. Criteria A, B, and C must be confirmed by prospective daily ratings during at least two consecutive symptomatic cycles. (The diagnosis may be made provisionally prior to this confirmation.) (American Psychiatric Association, Appendix B, in press).

APPENDIX D

INFORMED CONSENT

INFORMATION AND REQUEST FOR PARTICIPATION IN STUDY

You are invited to participate in a research study on women's experiences and emotions. The purpose of the study is to gain a better understanding of women's emotional health. If you decide to participate in the study, your involvement will take no more than 30 minutes of your time. You will be asked to complete a brief autobiographical profile. Then you will fill out surveys that will be explained to you.

Your participation is completely voluntary and you will be free to refuse or stop at any time without penalty. Your grades or class standing will not be affected in any way if you decide to stop. **All information will be number coded and strictly confidential. Your identity will not be revealed without your written consent.**

If you have questions, please feel free to contact me for more information:

Helen Smith, MA, LPE
Educational and Counseling Psychology
108 Claxton Education Building
University of Tennessee
Knoxville, TN 37996
(615) 974-5131

_____

By signing this form I am indicating my willingness to participate in this research project. Any and all questions have been answered to my satisfaction.

Signature_____ Date_____
Investigator_____ Date_____

If you would like information regarding the results of this study, please complete the section below, asking for your address, and a summary of its findings will be mailed to you.

Name_____

Address_____

APPENDIX E

ROTTER INTERNAL-EXTERNAL SCALE

ROTTER ATTITUDE INVENTORY

Subject #_____

This inventory consists of a number of pairs of statements. Please choose the statement in the pair which is most characteristic of what you believe and circle the letter on this sheet which corresponds to the statement you have chosen.

Example:

14. A. There are certain people who are just no good.
    B. There is some good in everybody.

You may believe both A and B are true, or neither A nor B is true. In either case, you must choose the statement with which you agree most. There are no right or wrong answers, so your choice should reflect your beliefs.

1. A. Children get into trouble because their parents punish them to much.
   B. The trouble with children nowadays is that their parents are too easy with them.

2. A. Many of the unhappy things in people's lives are partly due to bad luck.
   B. People's misfortunes result from the mistakes they make.

3. A. One of the major reasons why we have wars is because people don't take enough interest in politics.
   B. There will always be wars, no matter how hard people try to prevent them.

4. A. In the long run people get the respect they deserve in this world.
   B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. A. The idea that teachers are unfair to students is nonsense.
   B. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. A. Without the right breaks one cannot become an effective leader.
   B. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. A. No matter how hard you try some people won't like you.
   B. People who can't get others to like them don't understand how to get along with others.

8. A. Heredity plays a major role in determining one's personality.
   B. It is one's experiences in life which determine what they're like.

9. A. I have always found that what is going to happen will happen.
   B. Trusting to fate has never turned out as will for me as making a decision to take a definite course of action.

10. A. In the case of the well prepared student there is rarely, if ever, such a thing as an unfair test.
    B. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. A. Becoming a success is a matter of hard work; luck has nothing to do with it.
    B. Getting a good job depends mainly on being in the right place at the right time.

12. A. The average citizen can have influence in government decisions.
    B. This world is run by the few people in power, and there is not much the little guy can do about it.

13. A. When I make plans, I am almost certain that I can make them work.
    B. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.

14. A. There are certain people who are just no good.
    B. There is some good in everybody.

15. A. In my case getting what I want has little or nothing to do with luck.
    B. Many times we might just as well decide what to do by flipping a coin.

16. A. Who gets to be the boss often depends on whowas lucky enough to be in the right place first.
    B. Getting people to do the right thing depends upon ability; luck has little or nothing to do with it.

17. A. As far as world affairs are concerned, most of us are victims of forces we can neither understand, nor control.
    B. By taking an active part in political and social affairs the people can control world events.

18. A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
    B. There really is no such thing as luck.

19. A. One should always be willing to admit mistakes.
    B. It is usually best to cover up one's mistakes.

20. A. It is hard to know whether or not a person likes you.
    B. How many friends you have depends upon how nice a person you are.

21. A. In the long run the bad things that happen to us are balanced by the good ones.
    B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. A. With enough effort we can wipe out political corruption.
    B. It is difficult for people to have much control over the things politicians do in office.

23. A. Sometimes I can't understand how teachers arrive at the grades they give.
    B. There is a direct connection between how hard I study and the grades I get.

24. A. A good leader expects people to decide for themselves what they should do.
    B. A good leader makes it clear to everybody what their jobs are.

25. A. Many times I feel that I have little influence over the things that happen to me.
    B. It is impossible for me to believe that chance or luck plays an important role in my life.

26. A. People are lonely because they don't try to be friendly.
    B. There's not much use in trying too hard to please people; if they like you, they like you.

27. A. There is too much emphasis on athletics in high school.
    B. Team sports are an excellent way to build character.

28. A. What happens to me is my own doing.
    B. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. A. Most of the time I can't understand why politicians behave the way they do.
    B. In the long run the people are responsible for bad government on a national as well as on a local level.

APPENDIX F

STATE-TRAIT ANGER SCALE

STAS

Subject #_____

Rate yourself according to how you generally feel. Circle your responses.

	Almost Never	Sometimes	Often	Almost Always
1. I have a fiery temper	1	2	3	4
2. I am quick-tempered	1	2	3	4
3. I am a hot-headed person	1	2	3	4
4. It makes me furious when I am criticized in front of others	1	2	3	4
5. I get angry when I'm slowed down by others' mistakes	1	2	3	4
6. I feel infuriated when I do a good job and get poor evaluation	1	2	3	4
7. I fly off the handle	1	2	3	4
8. I feel annoyed when I am not given recognition for doing good work	1	2	3	4
9. When I get mad, I say nasty things	1	2	3	4
10. When I get frustrated, I feel like hitting someone	1	2	3	4

APPENDIX G

FRAMINGHAM ANGER SCALE

Subject #_____

Please circle your responses to the items below. Answer in terms of how likely you are to behave in the way described. Be as honest and accurate as you can. Do not let your answer to one question influence your answers to other questions. There are no correct or incorrect answers.

When really angry or annoyed, do you:	Not to likely	Somewhat likely	Very likely
try to act as though nothing much happened?	1	2	3
keep it to yourself?	1	2	3
apologize even though you are right?	1	2	3
get it off your chest?	1	2	3
talk to a friend relative?	1	2	3
take it out on others?	1	2	3
blame someone else?	1	2	3
get tense or worried?	1	2	3
get a headache?	1	2	3
feel weak?	1	2	3
feel depressed?	1	2	3
get nervous or shaky?	1	2	3

APPENDIX H

BIOGRAPHICAL QUESTIONNAIRE

BIOGRAPHICAL PROFILE

Subject # _____

Name_____

Phone number_____

Date of Birth_____ Race_____

Marital Status_____

Number of Children_____

What year are you in college? _____

How would you rate your current health status? (Please circle).

Excellent Good Fair Poor

If you have current health problems, please describe:

_____

Do you take any hormonally based contraceptives (e.g. oral contraceptives)? _____

Have you ever been in psychotherapy (for serious emotional problems) for longer than six months?

_____

Do you take any medications that affect your emotional state?_____ If so , what type(s)?_____

APPENDIX I

WOMEN'S HEALTH QUESTIONNAIRE

WOMEN'S HEALTH QUESTIONNAIRE

Subject #_____

This form contains health related questions that are relevant to women's overall health and well being. Please circle the number that most closely matches your experience.

	Never	Occasionally	Sometimes	Always
1. I engage in aerobic exercise 20-30 minutes 3 times per week.	0	1	2	3
2. I engage in anaerobic exercise. (e.g. weight lifting)	0	1	2	3
3. I feel lethargic, fatigued or a lack of energy prior to or during my period.	0	1	2	3
4. I drink 6 or more glasses of water a day.	0	1	2	3
5. I do yoga or stretching exercises.	0	1	2	3
6. I am aware of symptoms of my approaching menstrual period.	0	1	2	3
7. I feel better a few days after my period starts.	0	1	2	3
8. I drink caffeinated beverages.	0	1	2	3
9. I perform stress reduction exercises.	0	1	2	3
10. I take time out daily for being alone or "me" time.	0	1	2	3
11. I feel more creative and sensitive during my period.	0	1	2	3

	Never	Occasionally	Sometimes	Always
12. I eat red meat.	0	1	2	3
13. I eat junk food.	0	1	2	3
14. I feel persistent anger or increased interpersonal conflict prior to or during my period.	0	1	2	3
15. At times, my menstrual period interferes with my work.	0	1	2	3
16. I eat at least three regularly scheduled meals per day.	0	1	2	3
17. I discuss stressful situations with others.	0	1	2	3
18. My menstrual period interferes with my social activities or relationships.	0	1	2	3
19. I feel happy and content.	0	1	2	3
20. I eat fruits and vegetables daily.	0	1	2	3
21. I eat whole grains and breads daily.	0	1	2	3
22. I have a great deal of stress in my life.	0	1	2	3
23. I take minerals.	0	1	2	3
24. I feel less productive and efficient at work or home prior to or during my period.	0	1	2	3
25. I cry or feel sad and tearful or sensitive to rejection prior to or during my period.	0	1	2	3

	Never	Occasionally	Sometimes	Always
26. I practice meditation or relaxation regularly.	0	1	2	3
27. I sleep 7 to 8 hours daily.	0	1	2	3
28. I feel a decreased interest in my usual activities at work or school prior to or during my period.	0	1	2	3
29. I take vitamins.	0	1	2	3
30. I feel anxious and keyed up prior to or during my period.	0	1	2	3
31. I smoke cigarettes.	0	1	2	3
32. I feel like avoiding friends and family prior to or during my period.	0	1	2	3
33. I am within the normal weight range for my height.	0	1	2	3
34. I feel physical symptoms prior to or during my period such as breast tenderness, bloating, headaches and/or weight gain.	0	1	2	3
35. I drink alcoholic beverages.	0	1	2	3
36. I feel depressed and hopeless prior to or during my period.	0	1	2	3
37. I snack more than once daily.	0	1	2	3
38. I have difficulty concentrating prior to or during my period.	0	1	2	3

	Never	Occasionally	Sometimes	Always
39. I am aware of the sources of stress in my life.	0	1	2	3
40. I spend time with close friends.	0	1	2	3
41. I feel overwhelmed or out-of-control prior to or during my period.	0	1	2	3
42. I read books and magazines on health.	0	1	2	3
43. I get regular Pap smears.	0	1	2	3
44. My appetite changes prior to or during my period and I overeat or get food cravings.	0	1	2	3
45. I sleep too much prior to or during my period or not enough.	0	1	2	3
46. I feel I have supportive friends and/or family.	0	1	2	3

APPENDIX J

DEBRIEFING FORM

DEBRIEFING FORM

Dear Participant:

Thank you for your participation in this study. This study, in addition to exploring women's emotional health, is being done to explore some of the psychological symptoms of Premenstrual Syndrome (PMS). You were not initially told about the nature of the study because research has shown that women tend to give biased answers when they have previous knowledge that they are being questioned about premenstrual syndrome. Specifically, the purpose of the study is to examine the relationship between the psychological variables of anger and locus of control and PMS in college age women.

The locus of control theory suggests that people have generalized expectancies or beliefs about the world with regard to whether or not rewards or success are dependent on one's own behavior or are controlled by external forces. If rewards are thought to be controlled by external forces the person is said to have an external locus of control. However, if the person believes that her success depends on her own behavior, the person is said to have an internal locus of control.

Based on related research, it is possible that women with and without PMS tend to have different thoughts and beliefs about the world and differ in their locus of control orientation. It is also possible that women with PMS express anger differently than women without PMS. For example, this study hypothesizes that women with PMS symptoms may hold anger in-that is-they may not express anger or let others know that they are angry and may therefore experience more anger symptoms-headaches, stomach aches etc.

All women may potentially benefit from the results of this study as up to 90% of all women have reported having some type of premenstrual symptoms.

Please fill out one final form asking more specific information about your menstrual cycle and more information about yourself.

If you have any further questions about the research study, please contact me for more information:

Helen Smith, MA, LPE
Educational and Counseling Psychology
108 Claxton Education Building
Knoxville, TN 37996
(615) 974-5131

APPENDIX K

ADDITIONAL INFORMATION SHEET

ADDITIONAL INFORMATION SHEET

Subject #_____

1. Do you have PMS? Yes_____ No_____

2. How long does your period last? _____

3. What is the number of days from the start of one period to the start of your next period?

   _____

4. Are you from Tennessee? Yes_____ No_____

   If not, where are you from?_____

   How long have you lived in Tennessee?

   _____

5. What is the annual household income of your family of origin? (Please check the appropriate box):

Less than $20,000_____	$61,000-$80,000 ____
$21,000-$40,000_____	$81,000-$100,000____
$41,000-$60,000_____	Greater than $100,000____

6. Was there any discussion in your family about menstruation or PMS? If yes, please describe.

7. How do the men in your life feel about PMS? Describe your relationship to the man.

APPENDIX L

HUMAN SUBJECTS APPROVAL FORM

HUMAN SUBJECTS APPROVAL FORM

03/30/94

CRP # 4376 A

Title: Angry Temperament and Locus of Control in Young Women With and Without Premenstrual Syndrome

Smith, Helen
Educ. & Counsel. Psy.
7532 Deane Hill Dr.
Knoxville, TN 37919

Kasworm, Dr. Carol
Educ. & Counsel. Psy.
212 Claxton Ed. Bldg.
Campus

The project listed above has been certified exempt from review by the Committee on Research Participation and is approved.

This certification is for a period ending one year from the date of this letter. Please make timely submission of renewal or prompt notification of project termination (see item #2 below).

Responsibilities of the investigator during the conduct of this project include the following:

1. Prior approval from the Coordinator of Compliances must be obtained before any changes in the project are instituted.

2. Submission of a Form D at 12-month intervals attesting to the current status of the project; renew with no change, renew with change, or project is terminated.

We wish you success in your endeavors.

Sincerely,

Edith M. Szathmary

Edith M. Szathmary
Coordinator of Compliances

cc: Dr. Mark Hector
108 Claxton Ed. Bldg.

Attachment: Form A

VITA

Helen Smith was born in Berkeley, California in the early 1960's. She moved to Knoxville with her family at the age of three. Ms. Smith graduated from the University of Tennessee with a Bachelor's degree in Academic Psychology in 1983.

She attended the New School for Social Research where she received a Master's degree in Clinical Psychology in 1986. She received a Postmaster's degree in Clinical-School Psychology from the City University of New York in 1990. She worked in Manhattan and Brooklyn for several years as a psychotherapist at the Whitman Institute for Counseling and Psychotherapy and at the Fifth Avenue Center for Counseling and Psychotherapy, mainly with women with eating disorders. She also worked for the state of New York at United Cerebral Palsy as an Applied Behavioral Specialist.

She started the Ph.D. program at the University of Tennessee in the Department of Educational and Counseling Psychology with a major in School Psychology (with a supporting specialization in Clinical Interventions) in August of 1990.

Ms. Smith is a licensed psychological examiner in Tennessee with competency areas in both school and clinical psychology. She also is certified to work as a School Psychologist in New York State. She is

currently working at Applied Psychological Services in Knoxville where she will continue to work following graduation in August of 1994.