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PMS: Bi-Phasic Differences in Personality and Marital Relations Among a Clinical Sample

Donna R. Rogers
Utah State University

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PMS: BI-PHASIC DIFFERENCES IN PERSONALITY AND

MARITAL RELATIONS AMONG A CLINICAL SAMPLE

by

Donna R. Rogers

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

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ABSTRACT

PMS: Bi-Phasic Differences in Personality and

Marital Relations Among a Clinical Sample

by

Donna R. Rogers, Master of Science

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Major Professor: Dr. Brent C. Miller
Department of Family and Human Development

Premenstrual Syndrome (PMS) is a controversial and widely misunderstood syndrome which encompasses mood, behavior, and physical symptoms that occur cyclically and are associated with the menstrual cycle. Many women report suffering from recurring PMS symptoms severe enough to create a temporary physical or mental incapacitation which may affect the marital relationship. A study was initiated to document bi-phasic personality and marital changes related to PMS.

This sample consisted of 119 adult females and their husbands, ranging in age between 18 and 60, who sought diagnosis and treatment at the Utah PMS Center in Salt Lake City, Utah. Within this clinical sample, comparisons were made between those who appeared to have the most positive indicators of PMS, as identified by the Dalton Diagnostic Pointer, the monthly symptom calendar, and the doctor's diagnostic impression, and those who did not, according to the same criteria. The marital relationship was assessed by both husband and wife during the follicular (approximately day 6 to day 14) and luteal (approximately day 14 to first day of menses)

phases of the menstrual cycle using the Locke-Wallace Marital Adjustment Scale. Personality changes were measured by the Minnesota Multiphasic Personality Inventory (MMPI), which was administered to the wife only during both phases.

Repeated measures analysis of variance was used to determine if 1) for the entire sample, there are differences in women's mental health, and marital adjustment (as reported by both husband and wife) between the two cyclic phases, and 2) whether or not mental health and marital adjustment changes are similar between those women with positive indicators of PMS, versus those without. Final results of this study show that, overall, the entire sample is reporting significantly less healthy personality adjustment for the wife, as well as lower marital adjustment for both husband and wife during the symptomatic phase. There are some indications that, although these changes are present in both groups (those with PMS and those without), the changes are less dramatic for those women and couples with less likelihood of PMS.

These findings have important implications for counselors and marriage therapists in that PMS has been shown to be related to psychological dysfunction and marital stress. Diagnosticians who test women during the symptomatic phase and obtain test results which are not representative of the client's overall health and well-being would also benefit from the results of this study.

(110 pages)

CHAPTER I

INTRODUCTION

Statement of the Problem and Rationale

Premenstrual syndrome (PMS) is a controversial and widely misunderstood syndrome which encompasses mood, behavior and physical symptoms that occur cyclically and are associated with the menstrual cycle. Due to problems that don't lend themselves to experimental design and to the complex nature of the syndrome, research on PMS has been scant and results have been contradictory. Pharmacological treatments have not proven to be superior to placebo in the well-controlled studies (Bernsted, Luggin & Peterson, 1984; Richter, Haltvick, & Shapiro,1984; Rubinow & Roy-Byrne, 1984), and as yet, a general consensus among researchers regarding definition, etiology, diagnosis, and treatment of Premenstrual Syndrome has not been reached. As a result, effective treatments and/or management modalities have been difficult to choose for each patient.

Frank (1931) first described PMS as the cyclic changes which occur just before menses. It is characterized by many different symptoms which vary widely with each individual. Some women manifest symptoms in mood and behavior, such as anxiety, depression, hostility, a tendency to pick fights, and aggression. Although these symptoms may appear less severe, they resemble those observed in patients with mental disorders (Endicott, Halbreich, Schacht, & Nee, 1981). Other women manifest somatic types of symptoms, such as appetite changes, weight gain, edema of the ankles, and severe headaches (Rathmann, 1983). Most, however, experience difficulty

with mood, behavioral, as well as somatic symptoms (Abplanalp, 1983a; Dalton, 1982; Laughlin, & Johnson, 1984).

Dennerstein, Spencer-Gardner & Burrows (1984) outlined four reasons why it is critical to understand how PMS influences behavior. First, the mood and behavioral symptoms mentioned earlier may be sufficiently severe to warrant referral for psychological or psychiatric treatment. Second, psychological and medical treatments may be helpful in providing care for those who suffer from these symptoms. Third, there is an increase of suicidal and antisocial behavior, as well as acute psychiatric admissions during the premenstrual phase. And fourth, there is a great deal of evidence linking personality disorders and psychological ill-health with premenstrual symptomatology. The fourth reason is the focus of the present study.

It is estimated that 40% to 90% of women suffer from recurring PMS symptoms at some time in their lives (Fuhs, 1984; Reid & Yen, 1981). Between 10% and 40% of these women have reported suffering symptoms severe enough to create a temporary physical and/or mental incapacitiation that may be linked to child abuse, marital problems, impaired social functioning, criminal behavior, difficulty and inefficiency at work, and absenteeism (Shabanah, 1963; Dalton, 1964; Reid & Yen, 1981; Sanders, Warner, Backstrom, & Bancroft, 1983; Fuhs, 1984).

Dennerstein and Burrows (1979) reported on the findings of 24 studies of affective changes which occurred during the menstrual cycle. The majority of these studies reported negative premenstrual and menstrual moods such as anxiety, tension, irritability, sleep disturbance, and depression. Several studies have also explored the relationship between premenstrual personality changes and psychiatric (more specifically affective) disorders (Dalton, 1959; Wetzel, Reich, & McClure, 1971;

Abramowitz, Baker & Fleischer, 1982). Several studies have found higher incidences of anxiety (Watts, Dennerstein & Horne, 1980), depression, affective disorders, impaired social functioning (Endicott et al., 1981; Lahmeyer, 1984), neuroticism (Watts et al., 1980; Taylor, 1979), emotional instability, suspiciousness, guilt proneness, apprehensiveness, unpretentiousness, tension and self-conflict (Taylor, 1979) in association with the symptomatic phase of PMS. (For a more complete listing of PMS symptoms, please see Appendix A.)

Taylor (1979) conducted a study in which 62 volunteer and 45 nonvolunteer subjects with an average age of 25 were administered the Eysenck Personality Inventory (EPI) and the 16PF (16 Personality Factors) during the symptomatic and asymptomatic phases of the menstrual cycle. Strong relationships were found between high levels of neuroticism and other personality characteristics as measured by the 16PF, and premenstrual symptoms as assessed by a specially designed daily symptom rating scale.

Watts et al. (1980) conducted a study in which the State-Trait Anxiety Inventory, Eysenck Personality Inventory, and a modified version of the Role Acceptance Scale were administered to 48 women (mean ages, 34 and 37 years). Again, subjects suffering from PMS were found to have significantly higher levels of trait anxiety and neuroticism.

Endicott et al. (1981) studied the differential relationship between subtypes of premenstrual disorders and subtypes of mental disorders. Fifty-eight women had a major depressive disorder, 12 had another affective disorder, 9 had nonaffective disorders, and 13 had no mental disorder. The Premenstrual Assessment Form (PAF) was used to evaluate and classify the subtypes of PMS changes. It was found that more depressive disorder and affective disorder subjects (characterized by the major depressive syndrome,

and impaired social functioning) met the criteria for the PAF categories than did subjects from the nonaffective disorder or no disorder categories. This finding suggests that premenstrual changes characterized by depression may represent a less severe, or subclinical manifestation of an affective disorder. It has been noted that PMS symptoms can reach clinical proportions during the premenstrual phase (Fuhs, 1984).

The underlying assumption of most researchers in PMS is that it is primarily a biologically based disorder with psychological symptoms as secondary (Abplanalp, Haskett & Rose, 1980; Dennerstein, et al., 1984; Abplanalp, 1983b; Fuhs, 1984). More recently researchers are beginning to suggest a dynamic interactive nature between the psychological and physiological bi-phasic changes, social learning, and situational factors (Bancroft & Backstrom, 1985; Trunnell, 1986).

The most commonly accepted theory with regards to the physiological component is that the symptoms result from an hormonal imbalance - - either too much estrogen or too little progesterone (Dalton, 1977; Laughlin & Johnson, 1984). However, due to the many methodological problems, the evidence has been conflicting. Additional causes of PMS, other than hormonal imbalance, include vitamin B_6 deficiency, altered glucose metabolism, and hypothalamic-pituitary axis neurotransmitter imbalance (Reid & Yen, 1981). Richter, Haltvick and Shapiro (1984), have also included pyridoxine deficiency, carbohydrate intolerance, derangement in fluid homeostasis, and neuropsychiatric dysfunction as possible causes.

The personality characteristics most related to the tendency to develop PMS include instability, suspiciousness, apprehensiveness, tension, anxiety and self-conflict (James & Pollitt, 1974). The woman with PMS shows an inability to cope successfully with environmental or internal stress

(Spencer-Gardner, Dennerstein & Burrows, 1983), and generally has lower self-esteem, feelings of loss of control over the events in her life, and more negative attitudes toward menstruation. The most severe sufferers of PMS have been found to be shy, self-defeating, self-doubting, and dependent on others (Gough, 1975).

Studies on "attributional patterns" or the process whereby an individual assigns blame about specific events, have connected negative mood swings to the approach and onset of menstruation. Ruble (1977) studied two groups of women who were at identical phases of their menstrual cycles. One group was led to believe that menses would begin in one to two days, while the other group believed they were mid-cycle. The first group reported a much higher level of negative symptoms. Whether these factors are the cause or the results of premenstrual syndrome, however, has not been discernable.

Few published studies, if any, have explored the actual effects of bi-phasic personality changes on the interpersonal lives of women with these symptoms. Many references to personal difficulties have been made in the literature, but they have been based upon personal or professional experiences rather than empirical research.

"Everyone in a family is affected when a woman . . . has PMS" (Laurensen & Stukane, 1983, pp. 112). It would, therefore, seem imperative that studies be done to clearly identify and define those areas of interpersonal disruption and stress created or exacerbated by PMS. Perhaps from this, it would be possible to choose and provide more effective treatment for those individuals and couples who are experiencing personal and marital problems as a result.

Definitions

The dependent variables in this study were the personality characteristics as represented by the mean scores on each scale of the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1940) for the wife, and marital adjustment characteristics as measured by the mean total score on the Short Locke-Wallace Marital Adjustment Scale (MAS) (Locke & Wallace, 1959) for both husband and wife.

These personality and marital adjustment characteristics will be measured during two phases of the menstrual cycle, the follicular phase and luteal phase. The "follicular phase" of the cycle is defined as the symptom free phase, which occurs from day 6 of the menstrual cycle to the day of basal body temperature shift (i.e., above 98º). In a regular 25 to 35 day cycle this would occur approximately 12 to 16 days before menstruation. The "luteal phase" is the symptomatic phase of the cycle and is that interval from the basal body temperature rise to the first day of menstruation. Menstruation is that interval from the onset of bleeding (day 1) to the fifth day of the cycle. These two phases constitute the first dichotomous independent variable. The second independent variable is called the Dalton's Diagnostic Pointer (DDP) (Dalton, 1981). It is also a dichotomous variable, with a rating of 65 or above as a positive indicator of PMS and 64 and below as a negative indicator for PMS. This instrument will be discussed in greater detail in Chapter III.

The third independent variable (diagnostic groups 1 and 2) is a combination of two diagnostic criteria, 1) the presence or absence of a bi-phasic pattern on the monthly symptom calendar, and 2) the overall diagnostic impression of the presence or absence of premenstrual syndrome given by one of the staff gynecologists. Diagnostic group 1 consists of bi-

phasic symptom patterns on the calendar and a positive overall clinical judgement of PMS. Diagnostic group 2 consists of one or more negative evaluations for PMS on either the calendar or doctor's impression (see Table 1). Bi-phasic symptom patterns are defined by Trunnell (1986) as those scores below 10 in the follicular phase and above 25 in the luteal phase on the monthly symptom calendar. These scores are obtained by adding the symptom severity ratings from day 6 to the rise in basal body temperature then dividing by the number of days in that phase. The score of above 25 for the luteal phase is obtained in a similar manner. The symptom severity ratings from the basal body temperature shift to beginning of menses are added and divided by the number of days in that phase. The overall diagnostic impression is based upon a number of criteria which will also be discussed in greater detail in Chapter III.

Objectives

The purpose of the present study was to investigate changes which occur between the follicular and the luteal phases of the menstrual cycle. Two kinds of changes were studied, namely 1) personality changes for the wife as measured by the MMPI, and 2) marital relationship changes for both the husband and wife, as measured by the Short Locke-Wallace Marital Adjustment Scale (MAS). These changes were then related to the differential diagnoses of women most likely to have PMS versus those who were not, as determined by the Dalton Diagnostic Pointer (DDP), and a combination of the monthly symptom calendar and the overall diagnostic impression given by a gynecologist.

The results address the question of whether or not personality and marital changes occur between the two phases of the menstrual cycle and

Table 1

Diagnostic Group 1 and Diagnostic Group 2

	Diagnostic Group 1	Diagnostic Group 2 (One or more No's)		
Doctor's overall clinical impression	Y	N	Y	N
Monthly Symptom calendar	Y	Y	N	N

whether or not the changes are greater for those with higher DDP scores and clearly defined bi-phasic calenders and a clinical diagnosis of PMS.

An overview of these variables and the relationships can be found in Figure 1.

Independent Variables   Dependent Variables

PMS Symptomatology	Personality (Minnesota Multiphasic Personality Inventory)
Dalton's Diagnostic Pointer	
Diagnostic Group	Marital Relationship (Short Locke-Wallace Marital Adjustment Scale)
Follicular/Luteal Phase	
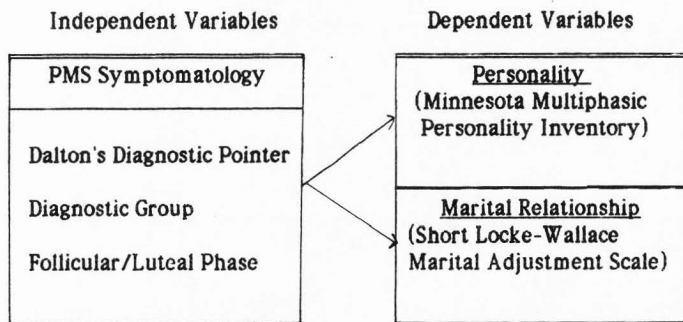
Figure 1. Major relationships between bi-phasic symptom patterns and personality and marriage adjustment scores for husband and wife.

CHAPTER II

REVIEW OF LITERATURE

Effects on Personality

As mentioned earlier, numerous studies have demonstrated a relationship between physical, behavioral, emotional and/or psychological symptoms and the menstrual cycle (Coppen & Kessel, 1963; Hain, Linton, Eber & Chapman, 1970; Halbreich, Endicott & Nee, 1983; Steege, Stout & Rupp, 1985). Many studies have explored the nature of the symptoms, their severity and bi-phasic characteristics by using a multiplicity of instruments from the Moos Menstrual Distress Questionnaire (Moos, 1968), to the Taylor Manifest Anxiety Scale (Halbreich & Kas,1977). Dennerstein et al. (1984), however, discussed the need for researchers to begin using similar assessment techniques to allow for comparison and replication between studies. The Minnesota Multiphasic Personality Inventory (Hathaway & McKinley, 1940) has become an increasingly popular part of a comprehensive program of evaluation which is administered by a multidisciplinary team of health care specialists to women with PMS related complaints (Keye, Hammond, & Strong, 1986).

Early studies on premenstrual syndrome using the MMPI were somewhat successful in describing the psychological aspects of PMS. Herzberg (1962), for example, compared 49 women with menstrual distress related to dysmenorrhea to 51 women with little or no menstrual distress. Although dysmenorrhea is etiologically unrelated to PMS (Dalton, 1982), he did find that there were significant differences between the two samples on four of the nine clinical scales of the MMPI. Those four scales were 1 (Hy),

2 (D), 4 (Pd), and 7 (Pt). The differences, however, fell within the normal range of variaton of the MMPI. Thus, this study was not a strong indicator of premenstrual personality changes.

Gruba and Rohrbaugh (1975) used the MMPI as part of a study to empirically link the Menstrual Distress Questionnaire (MDQ) (Moos, 1968), to menstrual and premenstrual symptomatology. The MMPI was administered to 100 single college students during the follicular phase of their cycle. These results indicated a relationship between scales 1 (Hs), 3 (Hy), 7 (Pt), and 8 (sc), and behavioral and affective symptoms as measured by the MDQ.

Similarly, Hain, Linton, Eber and Chapman (1970) attempted to ascertain whether or not premenstrual psychological symptoms were related to irregularity of the menstrual cycle. The MDQ and MMPI were administered to 71 first year nurses who ranged in age from 17 to 28. Out of this sample, 21 nurses had very regular menstrual cycles and 11 had very irregular cycles. Using these two groups in the analysis, results suggested that women with irregular cycles had higher MMPI mean scores than the women with regular cycles. Thus, the authors suggested that women with irregular cycles are prone to psychological distress and difficulties in interpersonal relationships.

All three of these studies, however, had methodological problems including the lack of a consistent conceptual definition of PMS, an inadequate sampling of controls, and the use of single instruments (such as the MDQ) which have limited reliability and validity. The MDQ includes measurement of symptoms related to dysmenorrhea and endometriosis, which again, are unrelated to PMS (Dalton, 1982). Thus, the MDQ may be identifying a group of women who may be experiencing menstrual related symptoms, but which are not necessarily related to premenstrual syndrome.

Five recent studies, however, have been better controlled and have provided more promising results. In 1985 Hammond and Keye published the mean raw scores of MMPI's administered to 111 women who were determined to have PMS by using a number of diagnostic criteria, including longitudinal symptom charting and extensive histories. The MMPI's were administered during both phases of the menstrual cycle. Results indicated that during the follicular phase scores were within the normal range of variation, yet during the luteal phase the mean scores were significantly higher on scales 1 (Hs), 2 (D), 3 (Hy), 4 (Pd), 6 (Pa), 7 (Pt), 8 (Sc), and 0 (Si). Only two scales were not significantly higher, 5(Mf) and 9 (Ma). During the luteal phase 5 scales showed T-scores > 70. Those scales were 2 (D), 3 (Hy), 4 (Pd), 7 (Pt), and 8 (Sc).

Stout and Steege (1985) also administered the MMPI to 100 women who sought evaluation and treatment for PMS. Although the MMPI was administered during the follicular phase only, a cluster analysis of the mean scores identified two groups of women, one which scored within 2 standard deviations of the T-score of 50, and one which reflected more severe psychological distress. The researchers also administered the Locke-Wallace Marital Adjustment Scale to 82 of those women who were involved in ongoing relationships, and 20 partners. These results showed some indication of marital distress which will be discussed in the next section. This study also had some of the same limitations in methodology discussed earlier, with the exception that sampling techniques were more complete.

In 1986 Trunnel reported significant differences in depression (D) and social introversion (Si) as measured by the MMPI in a study of 14 women who had been determined to have PMS through extensive evaluation, who were compared to 14 women without PMS. The follicular

and luteal phases were determined by blood studies of ovarian steroid hormones, and the MMPI was administered accordingly during each cycle to both study groups. This study suggested the MMPI might be useful in identifying women with PMS for both research and clinical purposes.

Keye, Hammond and Strong (1986) published a similar study in which 68 women with PMS were compared to 34 who did not, during the luteal phase. Those with PMS scored higher on eight of the 10 clinical scales than the non-PMS women. The results were similar to those reported earlier by Hammond and Keye (1985) in which the only two scales which were not significantly different were 5 (Mf) and 9 (Ma). Locke-Wallace Marital Adjustment Scales were also administered in this study. Those results also indicated some marital distress. These findings, however, will be discussed in the following section. The authors indicated that their study demonstrated that women who believe thy have PMS and seek evaluation and treatment for it, frequently have major psychological, physical and interpersonal problems. They suggested that clinical evaluations of women with PMS should be extensive and should include thorough medical and psychological examinations.

Finally, the most recent study by Chuong, Colligan, Coulam and Bergstralh (1987) investigated personality changes between 20 women with PMS and 20 women without. Results from both groups were also compared to the contemporary norms developed from the 1983 MMPI reference sample. Women from both groups completed the MMPI twice during the month, on day 7 and day 25 of the cycle. Results showed only minor changes in the MMPI from the follicular to luteal phase in the women without PMS. The PMS group, however, showed numerous significant changes between the two phases, with the only two exceptions being scales 5

(Mf) and 9 (Ma). The F scale increased significantly and K decreased significantly. No scales, however, were reported to be clinically significant with T-scores > 70. The same differences were also found between the PMS group during the luteal phase and the 1983 MMPI norm group.

These studies clearly indicate increased levels of psychological distress in women with PMS. In general, the profiles represent significant feelings of tension, stress, anxiety, concern about bodily function, oversensitivity, depression, and social isolation during the luteal phase. Studies regarding how this psychological distress affects women with PMS and their interpersonal relationships are less common.

Effects on Marital Adjustment

An examination of the literature available on marital quality and/or stability shows a paucity of research related to psychological and health factors as they influence the marital relationship. Spanier and Lewis (1980) reviewed the research which was done during the 1970's and suggested four premarital variables and nine marital variables which contribute to marital quality and stability, none of which address the effects of physical and/or psychological health.

Schaffer and Keith (1984) studied the relationship between self-concept and marital quality, and the results did in fact support a relationship between spouses' self-concept and marital quality. In other words, how one perceives how the spouse will view him/her effects how the marriage is evaluated. Because low self-esteem has consistently been reported as a common complaint in women with PMS, it would seem reasonable to generalize that low levels of self-esteem will negatively impact marital

quality. However, this has not been studied specifically with regards to PMS symptomatology, bi-phasic changes, and effects on marital quality.

The two studies mentioned earlier suggest that there are in fact greater levels of distress in the marriage when women with PMS are compared to women without PMS. Stout and Steege (1985) administered the Locke-Wallace Marital Adjustment Scale (MAS) to 82 of the 100 women who were involved in ongoing relationships and had been determined to have PMS. Twenty spouses of the sample were also given the MAS. Both men and women were tested during the follicular phase only. About 42% of the women reported marital distress. The mean score for the partners who completed the MAS was 101. Those authors reported a wide range of responses by both men and women ranging from 40-140 for the women and 39-125 for their partners. With a cut off score of 100 between distressed and non-distressed marriages, both spouses are reflecting borderline marital adjustment during the follicular phase.

These results are similar to those found in the luteal phase by Keye, et al. (1986). Sixty-eight women with PMS were administered a Locke-Wallace Marital Adjustment Scale along with 34 who did not have PMS. Results showed a significantly lower mean total score for those with PMS than those without ($\bar{x}$ = 92.5 and $\bar{x}$ = 122.6, respectively). The authors of this study indicated that more than one-third of the women with PMS had MAS scores lower than scores of women in treatment at the Sex and Marital Therapy Clinic.

Both of these studies suggest that marital distress is linked to premenstrual syndrome. Keye et al. (1986) suggested that even though psychological and marital distress is common in women with PMS, most women report they are relatively symptom free during the follicular phase.

It is clear that a study which addresses this possiblity is needed to
determine whether or not marital adjustment varies differentially not only
between phases, but between women with and without premenstrual
syndrome, and whether or not these changes are reflected by both spouses.

Table 2 is an overview of the key studies just discussed.

TABLE 2

Key Studies Examining Relations Between Personality and/or Marital

Adjustment Characteristics and Premenstrual Syndrome

Author/ Year	Sample	Results
Herzberg, 1962	49 women with PMS versus 51 women with no PMS	Significant differences on four of the nine clinical scales.
Gruba & Rohrbaugh/ 1975	100 female, single nulliparous college students	There was a significant relationship between scales 1, 7, and 8, and behavioral and affective symptoms measured by the MDQ.
Hain et al./ 1970	71 first year nurses, ages 17 to 28	Women with irregular cycles had higher MMPI mean scores than women with regular cycles.
Hammond & Keye/1985	111 women seeking treatment for PMS	Significant differences on scales 1, 2, 3, 4, 6, 7, 8, and 8 between follicular & luteal phases.
Stout & Steege/1985	100 women seeking treatment for PMS	Psychological and marital distress indicated by increased MMPI x scores and decreased MAS x scores.
Trunnel/1986	14 women with PMS versus 14 women without PMS	Increased feelings of depression and social isolation in women with PMS.

Table Continues

Author/ Year	Sample	Results
Keye, et al./ 1986	68 women with PMS versus 34 women with no PMS	All MMPI scales significantly different except 5 and 9. Marital distress indicated during luteal phase.
Chuong, et al./ 1987	20 women with PMS versus 20 women without PMS	Control group showed no cyclical change. Study group showed significant change between follicular & luteal phase.

CHAPTER III

METHODS

Objectives and Hypotheses

The objectives and accompanying null hypotheses of this study can be stated as follows:

Personality Changes

1. **Objective**: To assess personality changes between the follicular and luteal phases.

   Null hypothesis: There will be no difference between follicular and luteal mean scores on each of the MMPI scales.

2. **Objective**: To determine whether or not personality changes for both phases combined are related to high (65 or above) versus low (64 or below) Dalton Diagnostic Pointer (DDP) scores.

   Null hypothesis: Across both phases, there will be no differences between high versus low DDP scores on each of the MMPI scales.

3. **Objective**: To determine whether or not personality changes for both phases combined are related to clearly identified bi-phasic symptom patterns and clinically diagnosed PMS (diagnostic group 1) and diagnostic group 2 which consists of one or more negative evaluations for PMS on either the bi-phasic symptom calendar or the clinical diagnosis provided by the physician (refer to Table 1).

   Null hypothesis: Across both phases, there will be no differences between diagnostic group 1 versus diagnostic group 2 on each of the

MMPI scales.

4. **Objective**: To determine whether or not the personality changes
   between the follicular and luteal phases are related to high versus low
   Dalton's Diagnostic Pointer (DDP) scores.

   Null hypothesis: There will be no difference between high (65 and
   above) versus low (64 and below) DDP scores on each of the MMPI
   scales as measured during the follicular versus luteal phases.

5. **Objective**: To determine whether or not the personality changes
   between the follicular and luteal phases are related to diagnostic
   group 1 and diagnostic group 2.

   Null hypothesis: There will be no difference between diagnostic
   group 1 versus diagnostic group 2 on each of the MMPI scales as
   measured during the follicular versus luteal phases.

   Marital Adjustment Changes

6. **Objective**: To assess marital adjustment changes as obtained by the
   Short (Locke-Wallace) Marital Adjustment Scale (MAS) in the
   following contexts:

   (a) T-tests. **Null hypothesis**: There will be no differences between
       mean scores for husband during both phases; for the wife during both
       phases; and for the husband versus wife for each phase.

   (b) Between phases (repeated measures analysis of variance). **Null
       hypothesis**: There will be no difference in mean MAS scores as
       reported by the entire sample of husbands and wives during the
       follicular phase versus the luteal phase.

   (c) Between spouses. **Null hypothesis**: Across both phases, there

will be no difference between mean MAS scores as reported by wives
versus those reported by husbands.

(d) Between spouses and phases. **Null hypothesis**: There will be no
differences between mean MAS scores as reported by wives
during the follicular versus luteal phases and those reported by the
husbands during the follicular versus luteal phases.

7. **Objective**: To determine whether or not the marital adjustment
changes as measured by the MAS are related to the Dalton's Diagnostic
Pointer (DDP) scores in the following contexts.

(a) Between high (65 or above) versus low (64 or below) DDP scores.
Null hypothesis: Across the entire sample of both husbands and
wives and across both phases there will be no differences in MAS
scores between high versus low DDP scores.

(b) Between DDP scores and phases. **Null hypothesis**: Across the entire
sample of both husbands and wives there will be no differences
between high versus low DDP scores and the mean MAS scores as
reported during the follicular phase versus the luteal phase.

(c) Between DDP scores and spouses. **Null hypothesis**. Across both
phases there will be no differences between high versus low DDP
scores and the mean MAS scores as reported by the wives versus
those reported by the husbands.

8. **Objective**: To determine whether or not the marital adjustment changes
as measured by the MAS are related to diagnostic group 1 (clearly
identified bi-phasic symptom patterns and clinically diagnosed PMS)
and diagnostic group 2 (a group consisting of one or more negative
evaluations for PMS on either the bi-phasic symptom calendar or the

clinical diagnosis provided by the physician) in the following contexts.

(a) Between the two diagnostic groups. **Null hypothesis:** Across the entire sample of both wives and husbands and across both phases, there will be no differences in MAS scores between diagnostic group 1 versus diagnostic group 2.

(b) Between diagnostic groups and phases. **Null hypothesis:** Across the entire sample, there will be no differences between diagnostic group 1 versus diagnostic group 2 and the mean MAS scores as reported during the follicular phase versus those reported during the luteal phase.

(c) Between diagnostic groups and spouses. **Null hypothesis:** Across both phases there will be no difference between diagnostic group 1 versus diagnostic group 2 and the mean MAS scores as reported by wives versus those reported by the husbands.

Proposed Design

This project was a causal/comparative study which investigated the above listed eight objectives. The dependent variables in all of the objectives were personality scores (as measured by the MMPI) and the marital adjustment scores (as measured by the Locke-Wallace Marital Adjustment Scale). The independent variables included the follicular (good) and luteal (bad) phases of the menstrual cycle (Objectives 1 and 6a, and c), the Dalton's Diagnostic scores (Objectives 2, 4 and 7a, b, c), and diagnostic groups as determined by elevations of the biphasic symptom calendar and the physicians diagnostic impressions (Objectives 3, 5, and 8a, b, c).

Because there was no experimental manipulation or random assignment, this study is considered a "quasi-experimental" design. Analysis

of variance was used to investigate the main and interaction effects between the independent and dependent variables.

Subjects

The data for this study came from a clinical population that consisted of adult women and their spouses who have sought diagnosis and treatment at the Utah PMS Center in Salt Lake City, Utah for moderate to severe PMS symptoms. The sample, which included 119 adult women and their husbands, was selected randomly by using a table of random numbers from approximately 3,400 files on women who had contacted the Utah PMS Center within the last four years. Women who had not been married and/or were currently single were excluded from the sample in that the couple was a primary focus of this study. Only those who had completed all of the necessary testing and evaluation were included. The Locke-Wallace Marital Adjustment Scales and the MMPI's were considered complete if not more than three questions were left unanswered. Those subjects with incomplete responses were deleted from the sample.

Within this clinical sample, comparisons were made between those who appeared to have the most positive indicators of PMS, as identified by the Dalton Diagnostic Pointer, the monthly symptom calendar, and the doctor's diagnostic impressions; and those who did not, according to the same criteria. Table 3 is a summary of diagnostic indication for PMS on each of these three measures.

Subjects ranged in age from 22 to 53 with a mean age of 35 for the wives, and 22 to 62 with a mean age of 36 for the husbands. All of the 62% who chose to report race were caucasian. All subjects were married and 20% had been divorced at least once previously. Ninety percent of the women

Table 3

Summary of Diagnostic Indication for PMS According to Three Measures

	Yes	Valid %	No	Valid %
Calendar	97	81.5	22	18.5
Clinical Diagnostic Impression	104	87.4	15	12.6
Dalton Diagnostic Pointer	44	37.0	63	75.0

had completed one full-term pregnancy, 11% had one child, 27% had two and 52% had three or more. The mean number of children per couple, for those who had children, was 3.0. In this sample, 58% reported experiencing some difficulty during pregnancy and 41% reported either spontaneous or threatened miscarriage with 68% having had from mild to severe post-partum depression. Fifty-eight percent reported having had dysmenorrhea at some time in the past and 35% reported irregular menstrual cycles.

A large percentage (42%) of the subjects did not respond to questions regarding education. All subjects who did respond, however, had completed high school and 59% had completed some college with 11% having completed a professional degree. Forty-five percent of the women were homemakers, 54% of the women were employed outside of the home, and 17% of these were employed professionally in some capacity.

Regarding mental health, 53% reported having had some previous counseling or therapy. A large number of these women (73%) reported depression serious enough to consider suicide, and 21% had attempted suicide sometime in the past. These findings are similar to those reported by Keye et al. (1986). In that study, 75% of the PMS group reported suicide ideation, with 21% actually having attempted suicide sometime in the past. Of Keye et al's. (1986) control group, however, only 17% had thought of suicide with 3% ever having made an attempt. They also reported a similar percentage (55.9%) of PMS women who had been or were currently under psychiatric or psychological care. Where both studies were done with samples from Utah, however, it is not known whether these similarities are due to PMS, or to variables related to geographic location. Overlap in sample subjects is not likely in that the subjects for the present study were individuals seeking assessment and treatment at a clinic, whereas, the

subjects of Keye et al's. study were obtained by advertising through a local newspaper.

Procedure

It was the Utah PMS Center's policy that all clients be evaluated upon beginning assessment and before receiving treatment. Complete psychosocial, medical and menstrual histories, as well as the Dalton's Diagnostic Pointer were completed on each client during the first diagnostic session. Descriptive demographic information was collected on each subject including age, occupation, marital status, number of children, race, religion, education, number, duration and severity of symptoms, parity, types of contraceptives in use and used previously, and family history of PMS. Because the cyclical nature of PMS symptoms is so vital to the diagnosis (Greene & Dalton, 1953; Rubinow & Roy-Byrne, 1984), each patient was required to chart the symptoms on a daily basis for at least two months prior to diagnosis and treatment in order to establish baseline PMS symptomatology. As well as clearly establishing the presence of a cyclical pattern, this helps to rule out other problems which are similar to PMS but not etiologically related, such as dysmenorrhoea and endometriosis (Dalton, 1982). While charting the two calender months the patient was asked to have a complete medical examination, also to rule out any other physical abnormalities.

Each woman was asked to complete two MMPI's and two Locke-Wallace Marital Adjustment Scales (MAS). The first MMPI and MAS was to be completed during the first 6 to 12 days of the cycle, which is the follicular phase (or non-symptomatic phase), and the second MMPI and MAS was to be completed during days 20 thru 27, which is the luteal phase (or

symptomatic week). The husband or partner was also asked to complete the Marital Adjustment Scale during the same two time periods.

At the end of the two calender months, the patient returned to the clinic for final diagnosis and referral or treatment. Each subject was diagnosed for PMS based on the demographic and psychosocial data, along with the results of the MMPI, the Marital Adjustment Scale, the Dalton's Diagnostic Pointer, the daily self-report calenders, and the medical report. A clinical interview with each subject and her partner, if present, was conducted by a gynecologic nurse practitioner and a gynecologist.

Measurement

Minnesota Multiphasic Personality Inventory. The Minnesota Multiphasic Personality Inventory, or MMPI, (Hathaway & McKinley, 1940) was used to assess psychological characteristics of women who were experiencing mental or emotional distress during premenstrual changes. The MMPI is the most widely used personality inventory available and is the focus of more than 6,000 research articles (Buros, 1978). It consists of 550 statements that describe feeling, emotional, physical, and attitudinal states to which the subjects respond "true", "false," or "cannot say". These items are grouped into several scales which include three validity scales (L, F, K), 9 clinical scales (Hs, D, Hy, Pd, Mf, Pa, Pt, Sc, and Ma), a social introversion index (Si), and four new scales (IA, IR, ES, MAC) which are still under investigation and will not be used in this study. The scales cover such areas as neurological disorders; sexual, religious, political, and social attitudes; and, health and psychosomatic disorders, among others. See Appendix B for a listing of each scale by name, abbreviated name, and number.

The MMPI was developed to provide information about personality characteristics and functioning which affect personal and social adjustment. Generally, the research has shown the MMPI to be appropriate for mental health purposes, such as development of clinical hypotheses, and determination of type and severity of psychological symptoms, as well as comparative research (Anastasi, 1982).

Norms were developed from a normal population in 1930 to 1940. In 1983 Colligan, Osborne, Swenson, et al. developed a new sample from which more contemporary norms emerged. The MMPI assesses characteristics which may be unstable and validity and reliability are difficult to determine. Numerous studies have been done, however, and reported reliabilities on the scales range from .66 to .80 for both normal and psychiatric patients. Hathaway and McKinley (1983) also report a 60% agreement between MMPI mean scores and psychiatric admissions. Thus, validity appears to be acceptable for psychiatric populations. More complete validity and reliability data are also reported by those authors.

In the present study, all women completed the MMPI twice during a single menstrual cycle, once during the follicular phase and once during the luteal phase. Standardized instructions require that the MMPI be administered by a clinician. This was not followed, however, in that these inventories were given to each woman to complete at home. Even though this is a weakness in the procedures, considering the high level of distress being experienced by these women and because of the financial stipulations (the patients were required to pay for their clinical evaluations), it is probable subject motivation to respond accurately was high.

Locke-Wallace Marital Adjustment Scale. Both the husband and the wife were given the Locke-Wallace Marital Adjustment Scales (MAS) (Locke-

Wallace, 1959) to be taken home and completed during the follicular and luteal phases of the menstrual cycle.

The Marital Adjustment Scale has been one of the most widely used self-report inventories of global marital satisfaction and adjustment (Hicks & Platt, 1970). It contains 15 items which evaluate: 1) overall satisfaction with the marriage, 2) amount of disagreement between spouses in eight subareas, 3) mutual activity and decision-making between spouses, and 4) the nature of retrospection about the decision to marry. MAS scores range from 2 (high marital distress and low adjustment), to 161 (high marital adjustment and satisfaction). The cut-off score between nondistressed and distressed couples has been has been determined to be 100 (Jacobson & Margolin, 1979).

Reliability and validity studies on the MAS have shown it to be internally consistent and to be an accurate measure of non-distressed and distressed couples (Jacobson & Margolin, 1979). The questions have multiple responses which are weighted in scoring. Cronbach's Alpha was used to assess the reliability of this instrument with the present sample. During the follicular phase for the wives, the reliability coefficient was .77 and during the luteal phase it was .84. For the husbands, during the follicular phase the reliability coeficient was .69 and it was .80 during the luteal phase. These coefficients support the reliability and validity studies reported for other samples, and indicate the MAS is a reliable measure for identifying adjustment and maladjustment in couples affected by premenstrual syndrome.

Monthly symptom calendars. The calendars (see Appendix C) were evaluated by the clinical staff (the gynecological nurse practitioner and the gynecologist) at the Utah PMS Center as to whether or not bi-phasic

symptom patterns existed using the criteria discussed in the Definitions section. Where these calendars are self-report instruments regarding symptoms which are experienced differently by each individual, validity and reliability coefficients are not possible to calculate. From a methodological perspective, however, it is generally accepted by most researchers in the field of PMS that the most effective way of demonstrating a relationship between cyclical changes, such as mood or behavioral changes, and the menstrual cycle, is by longitudinal charting of symptoms over several cycles (Rubinow & Roy-Byrne, 1984). Thus, each woman was required to record symptoms over at least two cycles before a diagnosis was made.

Dalton Diagnostic Pointer. The Dalton Diagnostic Pointer (DDP) (see Appendix D) has been used in PMS centers for diagnostic purposes, but other than it's original publication by Kathrina Dalton (1981), no assertions have been made as to it's effectiveness or accuracy in identifying premenstrual syndrome.

Both the Cronbach's Coefficient Alpha and Guttman split-half reliability estimates were calculated for this sample on the DDP. The Coefficient Alpha provided a reliability coefficient of .39. The split-half reliability was .065. It is possible the Coefficient Alpha yielded a higher reliability because the DDP is not scored dichotomously, rather, each question provides a possibility of three responses. The split-half was designed for instruments with dichotomous responses.

The DDP would appear to have some face and content validity in that it contains questions regarding characteristics common to the menstrual cycle, such as hormonal changes and reproductive histories. As indicated earlier, hormonal imbalance has been one of the most frequently cited etiologies of PMS. However, the reliability is low enough that it raises

serious doubts about the usefulness of this instrument in measuring premenstrual syndrome.

Where the DDP is considered an integral part of the overall clinical diagnosis of PMS, the decision was made to include it in the present study. Caution must be noted in interpretation, however, and further study is recommended for its continued use in the clinical setting.

Clinical Diagnostic Impression. This was an overall evaluation made by the staff gynecologist at the Utah PMS Center. This impression was based upon all of the above measures, plus the types, duration, and severity of the physical, emotional, and behavioral symptoms; onset and exacerbation of the symptoms; onset of menses, physical examination and laboratory work, and emotional, social, and medical histories of each individual. Validity or reliability are not possible to determine in that it is a subjective evaluation based upon professional expertise. A diagnostic evaluation checklist is shown in Appendix E.

Plan of Analysis

Once the data were collected and entered into a data file, frequencies were run to check for missing values. Responses on the MMPI and Locke-Wallace were checked to ensure that the values were within valid ranges. Mean scores for the entire sample on each question were substituted for missing values on the same question for the Locke-Wallace Marital Adjustment Scale. There were no missing values on the MMPI.

Originally, only two instruments were to be used as indicators of PMS, the monthly symptom calendar and the Dalton Diagnostic Pointer. However, it was found that the two instruments were not consistent in identifying the same individuals as having PMS, and that all of the subjects were showing

similar symptom characteristics, whether identified as having PMS or not. In the hopes of finding a more concrete indicator of PMS, the doctor's clinical impression, which incorporates all psychosocial and physiological variables was added as a third criterion.

Crosstabulations were computed between the Dalton Diagnostic Pointer (DDP), the symptom calendar, and the overall diagnostic impression to determine whether or not the three measures were identifying the same individuals as positive versus negative for PMS. By pinpointing the same group of people, the three instruments would appear to be measuring similar characteristics. However, this was not the case. A great deal of agreement between the calendar and overall diagnostic impression was found (p = .000), but the DDP did not agree with either the calendar (p = 1.00) or the diagnostic impression (p =.55). This suggested they were measuring quite different sample characteristics. Considering the reliability coefficents for the DDP reported earlier, this may not be surprising.

Based on the Chi-square, the decision was made to combine the calendar and diagnostic impression into one variable with two levels of response, diagnostic group 1 and diagnostic group 2. Grouping only positive responses into one diagnostic category would be expected to provide a clear diagnostic indication for PMS. With the DDP and the diagnostic group variables identifying different characteristics, it was hypothesized that one may more strongly interact than the other with the particular personality and marital adjustment characteristics and changes under study. It must be noted, however, that a precise instrument was not available for clearly distinquishing between those who had PMS and those who did not. The purpose of this study was to investigate differences between phases of the

cycle, and between those most likely to have PMS according to the above clinical criteria, and those who were not.

Step 1. Paired t-tests were computed on the Locke-Wallace Marital Adjustment Scale to provide mean comparisons on a) the follicular phase versus the luteal phase for the wife, b) the follicular phase versus the luteal phase for the husband, and c) between the husband's scores and the wife's scores for the follicular phase and the luteal phase.

Step 2. The MMPI data were available only for the wife during the follicular and luteal phases, so a comparison with the husband's mean score was not possible. However a repeated measures analysis of variance was done for each MMPI scale. Main effects were determined between the two phases, the high versus low Dalton's Diagnostic Pointer scores, and diagnostic groups 1 and 2. Interaction effects were also obtained for the DDP by the two phases and for the diagnostic groups by the two phases (see Table 4).

Step 3. The third step was similar to the second. A repeated measures anova was done on the marital adjustment scores rather than on the MMPI, and was expanded to include an interaction effect between husbands' scores and wifes' scores during the two phases, the high versus low Dalton's Diagnostic Pointer and diagnostic group 1 vs. diagnostic group 2 (see Table 4).

Table 5 is a summary of the objectives of this study, measures that were analyzed, and the methods of statistical analysis.

Table 4

Analysis of Variance Models for the MMPI and the Marital Adjustment Scale

Step 2: Analysis of Variance Model for Each MMPI Scale.

	Source of Variance	df	f	p
	DDP (high vs. low)	1	x	x
	Diagnostic group (1 vs. 2)	1	x	x
error a	Subject/DDP-DG	$(n_1-1) + (n_2-1)$		
	Phases (foll. vs. lut.)	1	x	x
	DDP x phase	1	x	x
	Diagnostic group x phase	1	x	x
error b	Error	$\square$		

Step 3: Analysis of Variance for Marital Adjustment

	Source of Variance	df	f	p
	DDP	1	x	x
	Diagnostic group	1	x	x
error a	Couples/DDP-diag. grp.	$(n1-1) + (n2-1)$		
	Spouse (H vs. W)	1	x	x
	Spouse x DDP	1	x	x
	Spouse x diag. grp.	1	x	x
error b	Spouse x couple/DDP-diag. grp.	1		
	Phase (foll. vs. lut.)	1	x	x
	Phase x DDP	1	x	x
	Phase X diag. grp.	1	x	x
	Phase x spouse	1	x	x
error c	Error	$\square$		

Table 5

Objectives, Measures, and Analysis of Study

Objective	Measure	Analysis
Personality Changes		
1. Between the follicular and luteal phases (main effect for phase).	1. The MMPI administered to women during the follicular and luteal phases.	1. Repeated measures analysis of variance.
2. To assess whether or not the personality changes across the two phases are related to the Dalton's Diagnostic score (main effect for DDP).	2a. The Dalton's Diagnostic Pointer. b. The MMPI.	2. Repeated measures analysis of variance.
3. To assess whether or not personality changes are related to diagnostic group 1 vs. diagnostic group 2 across both combined (main effect for diagnostic group).	3a. Calendar and clinical impression b. MMPI	3. Repeated measures analysis of variance.
4. To assess whether or not personality changes between the phases are related to high vs. low DDP (interaction of phase x DDP).	4a. Dalton Diagnostic Pointer b. MMPI	4. Repeated measures analysis of variance.
5. To assess whether or not personality changes between the phases are related to diagnostic group 1 vs. diagnostic group 2 (interaction of phase x diagnostic group).	5a. Calendar and clinical impression b. MMPI	5. Repeated measures analysis of variance.

Table Continues

Objectives	Measure	Analysis

Marital Adjustment Changes

6a. To assess marital adjustment changes between the two phases for husband and wife.	6. MAS administered to both husband and wife during both phases.	6. Paired t-tests on the MAS to test differences between phases and spouses.
6b. To assess mean score differences across husbands and wives between the follicular versus luteal phases (main effect for phase).		6. Repeated mea-measures analysis of variance.
6c. To assess mean score differences across both phases between husband vs. wife (main effect for spouse).		
6d. To assess mean score differences between husband vs. wife and follicular vs. luteal phases (interaction for spouse and phase).		
7a. To assess mean score differences between high versus low DDP across spouse and phase (main effect for DDP).	7. MAS administered to husband and wife during both phases.

Dalton's Diagnostic Pointer | 7. Repeated mea-sures analysis of variance. |
| 7b. To assess mean score differences between high vs. low DDP scores and the two phases across both husband and wife (interaction between DDP x phase). | | |

Objectives	Measure	Analysis

Marital Adjustment Changes (cont.)

7c. To assess mean score differences between high vs. low DDP scores and husband vs. wife across both phases (interaction between DDP x spouse).

Objectives	Measure	Analysis
8a. To assess mean score differences between diag. group 1 versus diag. group 2 across both spouses and both phases (main effect for diagnostic group).	8. MAS administered to husband and wife during both phases. Calender and clinical impression.	8. Repeated measures analysis of variance.

8b. To assess mean score differences between diag. group 1 vs. diagnostic group 2 and between the two phases, across both spouses (interaction for diagnostic group x phase).

8c. To assess mean score differences between diag. group 1 vs. diagnostic group 2 and between spouses, across the two weeks (interaction for diagnostic group x spouse).

CHAPTER IV

RESULTS AND DISCUSSION

Personality Changes

An overview of the significant F-tests for the MMPI scales and all main effects and interactions can be found in Table 6.

Hypothesis 1. This hypothesis stated that there would be no difference between follicular and luteal mean scores on each of the MMPI scales. The main effect for the follicular versus the luteal phase on each of the scales are detailed in Table 7.

All mean scores between the two phases of the cycle, with the exception of Mf and Ma, reflected major differences at the $p < .001$ level (see Table 8). The means of each scale for the follicular phase fell generally within the limits of a normal profile. However, the means for the luteal phase indicated increased psychological disturbance over those of the follicular phase, and four of the scales reflected severe enough pathology, with elevated F-scores > 70 on D, Hy, Pd, and Sc, to be considered clinically significant. Table 9 is a brief analysis of these scales and the characteristics represented by the mean scores for each phase. The more pathological scales are indicated. An MMPI profile of mean raw scores for the follicular and luteal phases can be found in Figure 2.

These findings are theoretically consistent with the operational definition of PMS in that the mean profile for the MMPI during the follicular phase represents a relatively normal pattern, with adaptive and functional behavioral mechanisms. However, the profile for the luteal phase reflects

Table 6

F-tests for the MMPI Scales and All Main Effects and Interactions.

Source	L	F	K	HS	D	HY	PD	MF	PA	PT	SC	MA	SI
Phase	.001	.000	.000	.000	.000	.000	.000		.000	.000	.000		.000
DDP													
D. G.		.000	.045								.012		
DDP x Ph					.029						.041		
D.G. x Ph		.026											

Table 7

Analysis of Variance for the Main Effect of Follicular (good) Versus
Luteal (bad) Phases (Hypothesis 1).

SCALE	df, N	MS	f	p
L	1, 113	19.412	12.627	.001
F	1, 113	451.948	27.840	.000
K	1, 113	218.368	28.255	.000
1 (Hs)	1, 113	291.979	27.374	.000
2 (D)	1, 113	1449.325	58.517	.000
3 (Hy)	1, 113	492.115	38.561	.000
4 (Pd)	1, 113	676.730	50.473	.000
5 (Mf)	1, 113	13.777	1.927	NS
6 (Pa)	1, 113	171.442	20.610	.000
7 (Pt)	1, 113	1064.75	52.479	.000
8 (Sc)	1, 113	1714.744	43.954	.000
9 (Ma)	1, 113	23.245	3.547	NS
0 (Si)	1, 113	1489.668	45.662	.000

Table 8

Mean MMPI Scores for Follicular and Luteal Phases

Scale	Follicular	Luteal
L	3.83	3.11
F	6.31	9.76
K	12.56	10.16
1 (Hs)	18.01	20.78
2 (D)	26.91	33.08
3 (Hy)	26.93	30.52
4 (Pd)	23.60	27.81
5 (Mf)	39.58	38.98
6 (Pa)	11.91	14.03
7 (Pt)	32.38	37.67
8 (Sc)	30.51	37.22
9 (Ma)	18.04	18.82
0 (Si)	34.01	40.27

Table 9

Overview of Differences in Personality Characteristics Between Follicular
and Luteal Phases (K-corrected Scores).

Scale	Phase	T-Score	Description
L	F	49	No consistent significance is given. (This score is designed to identify a deliberate,
	L	45	evasive set of responses.)
F	F	58	This scale relates to validity and personality characteristics. Scores in this range
	L	65	suggest an independence of thought and, as scores increase, moodiness, and opinionated restless, and unstable characteristics. An elevated F scale often indicates severe stress.
K	F	50	These are both indicative of adaptability, ego-strength, and a positive self-image. As
	L	46	scores decrease (to T-45) there is a decrease in self-concept, and increased self-dissatisfaction. Low K scales are usually associated with relatively high clinical profiles.
Validity configuration (combination of the three above scales)			The validity configuration for the follicular phase indicates it is a valid profile and suggests good adjustment. The validity configuration for the luteal phase also indicates it is a valid profile, but it reflects low ego strength and inadequate defense mechanisms.

Table Continues

Scale	Phase	T-Score	Description
1 (Hs)	F	60	Expression of significant concern about body functioning. Diffuse, vague, non-specific complaints about health.
	L	66	May overemphasize or overreact to physical pathology.
2 (D)	F	64	Mildly depressed, worrying, pessimistic
	L	*76	Clinically significant level of depression
3 (Hy)	F	65	Friendly, enthusiastic, somewhat immature, egocentric
	L	*71	Social immaturity, inability to handle hostility toward others, strong dependency needs.
4 (Pd)	F	60	Mildly independent, conforming.
	L	*70	Rebellious, resentful, non-conforming, dissatisfied with social adjustment, acting-out, limited frustration tolerance.
5 (Mf)	F & L	**45	Average middle-class female vocational and avocational interest pattern.
6 (Pa)	F	62	Probability of oversensitivity, and rigidity with increased levels of suspiciousness,
	L	67	distrust and resentment as T-score approaches T-69.

Table Continues

Scale	Phase	*T*-Score	Description
7 (Pt)	F	61	Perfectionistic, conscientious, self-critical.
	L	69	Anxious, indecisive, tense, use of rationalization and intellectualization.
8 (Sc)	F	62	Abstract, creative, imaginative, but fairly aloof from others.
	L	*72	Aloofness increases to feelings of alienation.
9 (Ma)	F	54	Normal energy and activity levels.
	L	**55	
0 (Si)	F	61	Reserved in unfamiliar settings, hard to get to know.
	L	68	Shy, timid and retiring.

*clinically significant
**not significantly different
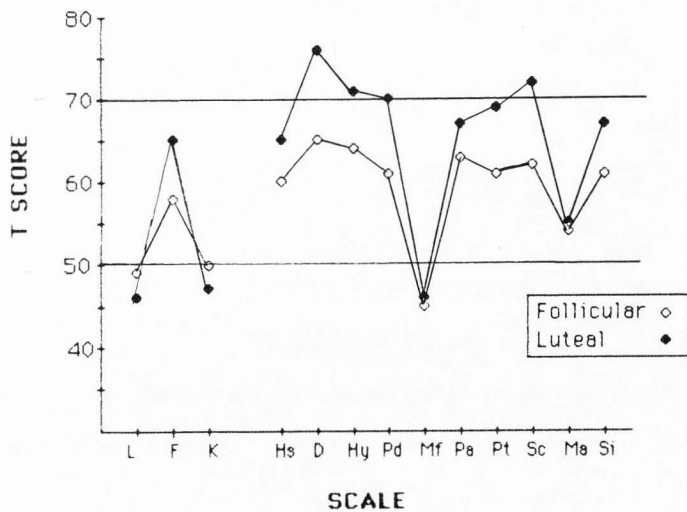
Figure 2. MMPI profile of mean raw scores for follicular and luteal phases (Hypothesis 1).

many of the same complaints women with PMS present during clinical interviews. Some of the complaints common to the findings on the MMPI during the luteal phase include the high levels of depression reported on scale 2 (D), social immaturity and the inability to handle hostility, which is indicated by scale 3 (Hy), rebelliousness and acting-out tendencies identified by scale 4 (Pd), tension and anxiety, as shown in scale 7 (Pt), and the feelings of alienation and social isolation which are indicated by scales 8 (Sc) and 0 (Si) respectively. These elevated scores during the luteal phase are all consistent with premenstrual syndrome symptomotology. The fact that scale 5 (Mf) was not significantly different by phase is also consistent in that characteristics of the traditional feminine role would not normally change between phases.

A somewhat surprising finding is that there was no significant difference in mean scores between phases on the 9 (Ma) scale, which is a measure of energy and activity levels. A common complaint of PMS sufferers is extreme, and in some cases, debilitating fatigue. It would be expected to find this decreased energy level reflected in lower MMPI scores during the luteal phase.

Hypothesis 2.   Across both phases, there will be no differences between high versus low DDP scores on each scale of the MMPI.

As shown in Table 6, the null hypothesis was not rejected. There were no differences between high (65 or more) versus low (64 or less) Dalton Diagnostic Pointer scores for the entire sample across both phases. In other words, when raw MMPI scores from both phases were combined, mean scores for each scale were the same regardless of presence or absence of PMS according the the Dalton Diagnostic Pointer.

Hypothesis 3. Across both phases, there will be no differences between Diagnostic Group 1 versus Diagnostic Group 2 on each scale of the MMPI.

Findings regarding hypothesis 3 indicate that the diagnostic group was signficicant for the F ($p < .000$), K ($p < .045$), and Sc ($p < .012$) scales (see Tables 10 & 11). As indicated earlier, the F and K scales serve as validity checks for the MMPI profile, as well as indicators of personality characteristics. Elevated F scores suggest the individual is experiencing moodiness, stress, restlessness, etc. The K scale is scored negatively in that lower scores indicate difficulties with ego-strength and self-image. Elevated Sc scores indicate feelings of personal alienation.

Across the two phases of the cycle, the means show statistically significant differences between the two diagnostic groups on three scales. However, these differences are not in the directions one would expect. Diagnostic group 2 (which consists of one or more no's for PMS on the calendar and/or clinical impression) consistently shows more distress than diagnostic group 1, which are those diagnosed with PMS. It should be noted, however, that even though the differences are statistically significant, the amount of difference between the two scores amounts to no more than 1.5 points. This amount of difference is not large enough to indicate a difference in personality characteristics between the two groups. It is not necessarily surprising that those who were not diagnosed with PMS by the calendar or clinical impression should have higher scores. Even though they were not diagnosed as having PMS, they were part of a clinical sample, and were seeking treatment for personal and/or marital distress. It is possible that the higher level of distress for non-PMS women is due to pathology which is unrelated to PMS. This would be consistent with Endicott et al's. (1981)

Table 10

Analysis of Variance for Main Effect of Diagnostic Group 1 Versus Diagnostic
Group 2 for MMPI Scales F, K, and Sc (Hypothesis 3).

Scale	df, N	MS	f	p
F (validity scale)	1, 115	475.605	13.843	.000
K (validity scale)	1, 115	129.783	4.089	.045
Sc (schizophrenia)	1, 115	885.875	6.555	.012

Table 11

Mean Scores for Main Effect of Diagnostic Group 1 Versus Diagnostic Group 2
for MMPI Scales F, K, and Sc (Hypothesis 3).

Scale	Diagnostic Group 1	Diagnostic Group 2
F (Validity Scale)	7.64	8.44
K (Validity Scale)	11.80	10.94
Sc (schizophrenia)	32.57	35.7

findings which suggested that premenstrual changes may represent a less severe manifestation of an affective disorder. Even though some premenstrual symptoms, as indicated by the previous findings, do in fact reach clinical levels, it is possible that, without controlling for change between the two phases, a greater level of pathology for non-PMS women is present because symptom characteristics did not decrease during the follicular phase. It is also possible, as mentioned earlier, that the higher mean scores for non-PMS women may be due to manifestations of more severe psychological problems which are unrelated to PMS.

If this is the case, and if the measures are valid and reliable, one would expect to find similar scores between phases for non-PMS women, and different scores between phases for PMS women. These explanatory suggestions will be discussed with regards to the findings of the following hypotheses.

Hypothesis 4. There will be no difference between high (65 and above) versus low (64 and below) DDP scores on each scale of the MMPI as measured during the follicular versus luteal phases.

This hypothesis was retained for all of the scales but two: the D scale (p < .029) and the Sc scale (p < .041) (see Table 12, Figure 3, and Figure 4).

Upon examination of the D (depression) scale, significant differences were found between the two phases for the high Dalton Diagnostic Pointer scores (positive for PMS), and for the low Dalton Diagnostic Pointer scores (negative for PMS). The depression level was higher for the non-PMS group than the PMS group during the follicular phase, but the change from the follicular to the luteal phase was not as great. The non-PMS women scored

Table 12

Analysis of Variance for Interaction Between Dalton Diagnostic Pointer

Versus Follicular and Luteal Phases (Hypothesis 4).

Scale	df, N	MS	f	p
D (depression)	1, 113	121.70	4.913	.029
Sc (schizophrenia)	1, 113	167.23	4.28	.041

SCALE D

	Follicular	Luteal
DDP ≥65	25.62	33.58
DDP ≤64	28.21	32.59

Figure 3. Mean scores for interaction between Dalton Diagnostic Pointer versus follicular and luteal phases for MMPI scale D (Hypothesis 4).

SCALE Sc

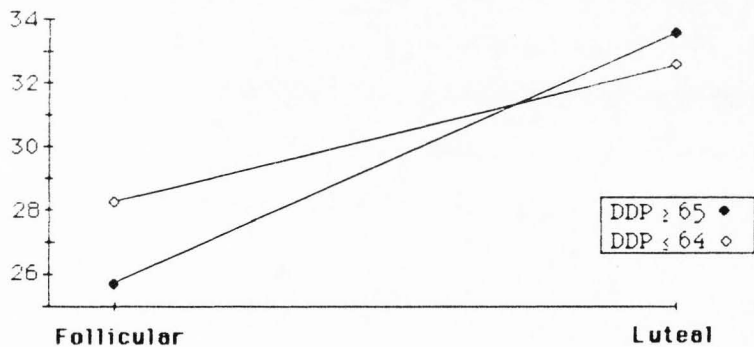|	Follicular	Luteal
DDP $\geq$65	31.11	39.92
DDP $\leq$64	29.92	34.53

Figure 4. Mean scores for interaction between Dalton Diagnostic Pointer versus follicular and luteal phases for MMPI scale Sc (Hypothesis 4).

higher on depression during the follicular phase and lower during the luteal phase than the PMS women.

The fact that the scores were lower for the PMS women during the follicular phase is theoretically consistent in that low depression scores indicate normal functioning during the follicular phase. The fact that the subjects without PMS reflected greater levels of depression, even during the follicular phase, is also theoretically consistent in that it is possible the non-PMS group may represent more extreme psychological distresses which are not related to the menstrual cycle and, therefore, would not necessarily change between phases.

The mean scores on the Sc (schizophrenia) scale also show that between the two phases (good versus bad) and between the two DDP scores (high versus low), the changes are significantly different. The 65 or above (PMS) DDP group is only slightly higher than the 64 or below group (non-PMS) during the follicular phase, but is significantly higher during the luteal phase. These means are in the theoretically expected direction. Again, the non-PMS group would be expected to change less dramatically between phases than the PMS group.

Hypothesis 5. There will be no difference between Diagnostic Group 1 versus Diagnostic Group 2 on each scale of the MMPI as measured during the follicular versus luteal phases.

Only the F Scale appeared to be significant (p < .026) in the interaction between the two phases and the two diagnostic groups (see Table 13 and Figure 5). Thus, for all other scales the null hypothesis was not rejected.

Again, for those who had been positively diagnosed for PMS, according to the calendar and clinical impression (diagnostic group 1), there was a

Table 13

Analysis of Variance for Interaction Between Diagnostic Group 1 and 2

Versus Follicular and Luteal Phases for MMPI Scale F (Hypothesis 5).

Scale	df, N	MS	f	p
F (validity)	1, 113	82.128	5.059	.026

SCALE F

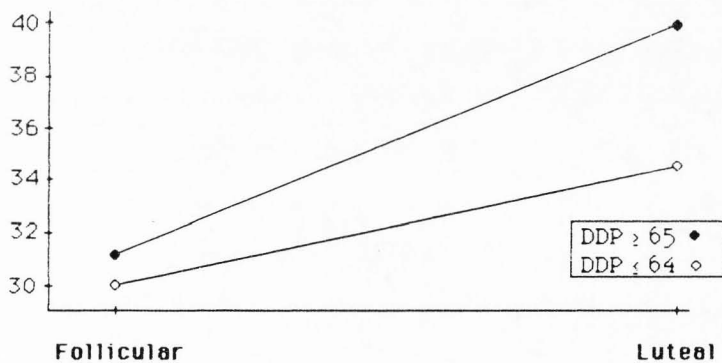|	Follicular	Luteal
Diag. 1	5.18	10.09
Diag. 2	7.45	9.42
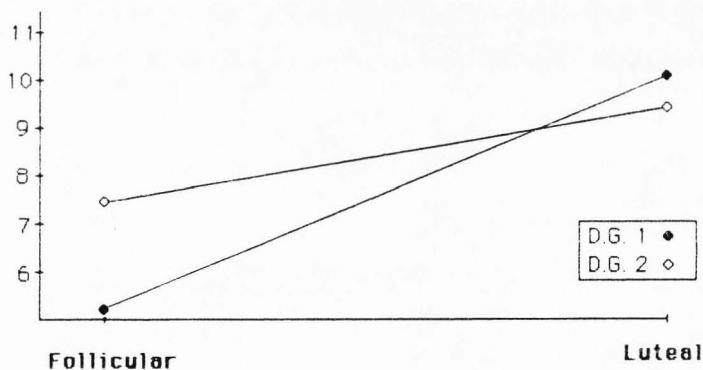
Figure 5. Mean scores for interaction between diagnostic group 1 and 2 versus follicular and luteal phases on MMPI scale F (Hypothesis 5).

significant difference in means between the follicular and luteal phase. In this particular case, the means of the two phases for those diagnosed as negative on either the calendar or the clinical diagnostic impression (diagnostic group 2), were not significantly different. Those diagnosed with PMS, on the F scale, had a lower mean score than the non-PMS group during the follicular phase, and a significantly higher mean score than the non-PMS group during the luteal phase. The non-PMS group mean score did not significantly change from the follicular to luteal phase. Thus, the calendar and clinical impression are fairly accurate in distinguishing between those who do and do not have PMS. It is unlikely that those without PMS will demonstrate a significantly different score from follicular phase to luteal phase.

A significant main effect (across both phases) was also found for diagnostic groups 1 and 2 on the F scale in Hypothesis 3. In those results, where both phases were combined, the mean scores for diagnostic group 2 were higher as compared to diagnostic group 1. In view of the interaction between diagnostic group and phase, it is now possible to see that, even though diagnostic group 2 scored significantly higher in the follicular phase than diagnostic group 1, it did not change significantly between the two phases, where diagnostic group 1 did.

Again, because of the clinical nature of this sample, it is not surprising that both groups are reporting symptoms. However, even though the entire sample is reporting symptoms, only those with PMS would be expected to report normal functioning during the follicular phase, then change dramatically from the follicular (good) phase to the luteal (bad) phase. The distresses experienced by the non-PMS group would likely continue throughout the cycle rather than occur bi-phasically.

Marital Adjustment Changes

Hypothesis 6a. This hypothesis stated that there would be no difference between mean marital adjustment scores for husband during both phases; for the wife during both phases; and, for the husband versus the wife for each phase.

The null hypothesis was rejected. The paired t-tests show significant differences between the follicular and luteal phases for both husband and wife, as well as between the husband and wife during the luteal phase, with the wife scoring significantly lower during the luteal phase than the husband (see Table 14). It was interesting to find that during the follicular phase the scores between husband and wife were not statistically different. This indicates that during the good phase, both husband and wife are seeing the marriage in much the same light. Both partners rate the marriage as above average with a mean of 111.39 for the husband and 108.26 for the wife. During the bad week, however, marital adjustment drops well below the cut-off point of 100 to 83.77 for the husband and 78.74 for the wife.

These results not only indicate a cyclical nature to marital adjustment patterns, but suggest an interactional system between husband and wife.

Hypothesis 6b. There will be no difference in mean MAS scores as reported by the entire sample of husbands and wives during the follicular phase versus those reported during the luteal phase.

An overview of the significant main effects and interactions for the Marital Adjustment Scale can be found in Table 15.

Across both spouses, the repeated measures analysis of variance also showed a significant main effect for the follicular versus luteal phases

Table 14

Paired T-Tests for Locke-Wallace Marital Adjustment Total Scores
(Hypothesis 6a).

Spouse	df, N	Mean	T Value	P
Husband/Follicular		111.39		
	121, 122		11.80	.000
Husband/Luteal		83.77		
Wife/Follicular		108.26		
	121, 122		11.99	.000
Wife/Luteal		78.74		
Husband/Follicular		111.39		
	121, 122		1.82	NS
Wife/Follicular		108.25		
Husband/Luteal		83.77		
	121, 122		2.17	.032
Wife/Luteal		78.74		

Table 15

Repeated Measures Analysis of Variance for Main and Interaction Effects for Marital Adjustment Total Scores.

Ho:	Source	df, N	MS	F	P
6b	Phase (F vs. L)	1, 230	47765.66	138.48	.000
6c	Spouse (H vs. W)	1, 115	1.261	.003	NS
6d	Phase x Spouse	1, 230	.115	.000	NS
7a	DDP (high vs. low)	1, 115	9182.27	5.269	.024
7b	Phase x DDP	1, 230	68.78	.199	NS
7c	Spouse x DDP	1, 115	16.86	.052	NS
8a	Diagnostic Group	1, 115	426.926	.245	NS
8b	Phase x Diag. Group	1, 230	3382.32	9.80	.002
8c	Spouse x Diag. Group	1, 115	14.309	.044	NS

(p < .000) (see Table 16), thus, this hypothesis was rejected.

Hypothesis 6c. This hypothesis stated that there would be no difference between mean MAS scores as reported by wives versus those reported by husbands. There was not a main effect between the spouses (see Table 16). This hypothesis was retained. The wife's mean score was slightly lower than the husband's, but not significantly.

Hypothesis 6d. There will be no differences between mean MAS scores as reported by wives during the follicular versus luteal phases and those reported by the husbands during the follicular versus luteal phase. This hypothesis was retained. There was not a significant interaction between husbands and wives for the two phases. Examination of the means (see Figure 6) show that the husband and wife were varying in exactly the same manner between phases. The mean total MAS score for the husbands dropped from 110.16 during the follicular phase to 84.14 during the luteal phase. The mean total MAS score for the wives also decreased from 105.93 during the follicular phase to 80.98 during the luteal phase. These findings support the main effect found in Hypothesis 6b, however, the interaction between spouse and phase does not indicate a difference in response between spouses. Again, these results suggest an interactional pattern of marital adjustment involving both husband and wife between the two phases.

Hypothesis 7a. Across the entire sample of both husbands and wives and across both phases there will be no differences in MAS scores between high versus low DDP scores.

This hypothesis was rejected. The main effect for DDP was p < .024. The mean scores (see Table 16) show that the Dalton Diagnostic Pointer is

Table 16

Marital Adjustment Scale Total Mean Scores for Hypotheses 6b, 6c, and 7a.

Main Effect for Phase (Hypothesis 6b)

	Follicular	Luteal
Mean Score	108.04	83.06

Main Effect for Spouse (Hypothesis 6c)

	Husband	Wife
Mean Score	97.65	93.45

Main Effect for Dalton's Diagnostic Pointer (Hypothesis 7a)

	DDP1 (≥ 65)	DDP2 (≤ 64)
Mean Score	88.57	102.53

MAS Total Mean Score

	Follicular	Luteal
Husband	110.16	84.14
Wife	105.93	80.98
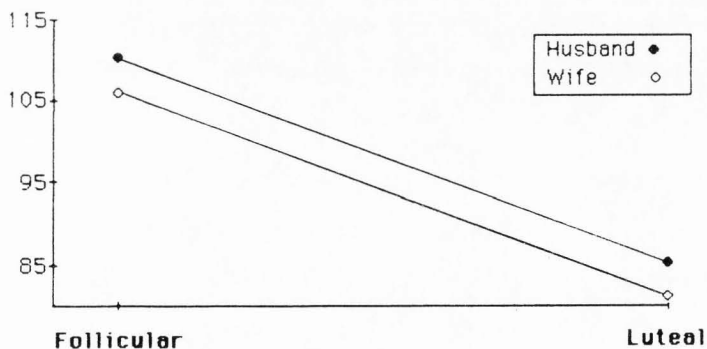
Figure 6. Marital Adjustment Scale total mean scores for interaction between husband and wife versus follicular and luteal phases (Hypothesis 6d).

theoretically consistent in that those who score 64 or less on the DDP have higher marital adjustment scores than those who have 65 or above.

In view of the results of hypothesis four (refer to Figure 3) the women reported psychological symptoms for both the follicular phase and the luteal. However, the present results indicate that women with scores 64 and below, even though they are reporting psychological symptoms, the marriage is not necessarily reflecting those problems in overall marital adjustment (x = 102), at least not to the same extent as those who scored 65 and above (x = 88.57).

Hypothesis 7b. Across the entire sample of both husbands and wives there will be no differences between high versus low DDP scores and the mean MAS scores as reported during the follicular phase versus those reported during the luteal phase.

This hypothesis was not rejected. There were no significant interactions between Dalton's Diagnostic groups one versus two and follicular versus luteal phase.

Hypothesis 7c. Across both phases there will be no differences between high versus low DDP scores and the mean MAS scores as reported by the wives versus those reported by the husbands.

This hypothesis was also retained. There were no significant interactions between DDP groups 1 and 2, and husband versus wife.

Hypothesis 8a. Across the entire sample of both wives and husbands and across both phases, there will be no differences in MAS scores between diagnostic group 1 versus diagnostic group 2.

This hypothesis was not rejected. There were no significant differences in the main effect of diagnostic group 1 versus diagnostic

group 2.

Hypothesis 8b. Across the entire sample, there will be no differences between diagnostic group 1 versus diagnostic group 2 and the mean MAS scores as reported during the follicular phase versus those reported during the luteal phase.

This hypothesis was rejected in that a dramatic difference was found between diagnostic groups one versus two during the follicular versus the luteal phases. Inspection of the mean scores show nearly identical marital adjustment for both groups during the follicular phase. However, during the luteal phase the mean scores were significantly lower for both groups, with diagnostic group 1 significantly lower than diagnostic group 2 (see Figure 7).

That both diagnostic groups exhibit some marital distress during the luteal phase may be due to the fact that 88% of the sample came into the Utah PMS Center with the belief that they had PMS. It is unknown how much this belief may be influencing or biasing responses. It is clear, however, that according to the calendar and clinical impression, there is a significant difference in scores between those who have been diagnosed with PMS, and those who have not. The PMS-couples have significantly less healthy marital adjustment during the luteal phase than the non-PMS couples.

Hypothesis 8c. Across both phases there will be no difference between diagnostic group 1 versus diagnostic group 2 and the mean MAS scores as reported by wives versus those reported by the husbands.

This hypothesis was retained. There were no differences in the interaction between the diagnostic groups and the spouses.

MAS Total Mean Score

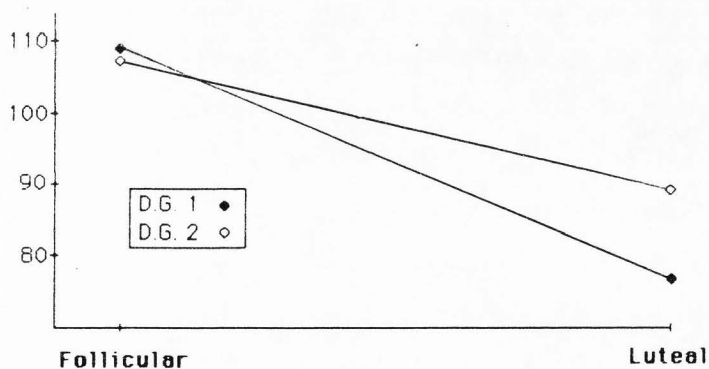|	Follicular	Luteal
Diagnostic Group 1	108.89	77.27
Diagnostic Group 2	107.19	88.86

Figure 7. Mean total scores for interaction between Diagnostic Groups 1 and 2 versus follicular and luteal phases (Hypothesis 8b).

Discussion

It is clear that there are cyclical personality and marital adjustment changes for women with PMS. These changes, in turn, effect marital adjustment for the husband. The problem becomes one of distinguishing those individuals who have PMS from those who have other types of physical/psychological symptomatology. The Dalton's Diagnostic Pointer appears to be somewhat problematic in that it's internal reliability was very low. It was successful in identifying differences in the D and Sc scales of the MMPI, but, without some theoretically consistent pattern of significant interactions between the DDP and the MMPI or the MAS, it is questionable as to whether or not the above two interactions are due to chance rather than a relationship between the variables.

Non-PMS women reported symptoms during both phases of the cycle, but they did not change significantly from the follicular to the luteal phase, where those who are diagnosed with PMS did. Hypothesis 7a also indicated that even though the non-PMS group reported distress during both phases, the marriage did not necessarily reflect that distress to such a degree that the marriage may be considered poorly adjusted.

The diagnostic groups, which were a combination of the monthly symptom calendar and the overall clinical impression, were more successful in distinguishing PMS characteristics than the DDP. There were three main effects for diagnostic group 1 versus diagnostic group 2 on the MMPI (scales F, K, and Sc) when raw scores from both phases were combined (hypothesis 3). However, it is interesting that in all three cases the non-PMS group actually scored in more clinically significant directions than the PMS group. It is probable this is because they are reporting distress during both phases

of the cycle rather than during the luteal phase only, as is the case for the PMS subjects. One of the significant main effects found in Hypothesis 3 (the F scale) was also significant in the interaction between diagnostic groups 1 and 2, and phase (hypothesis 5). The non-PMS group mean scores did not significantly change between the two phases. During the follicular phase the PMS group scored significantly lower than the non-PMS group.

Validity and reliability coefficients for the diagnostic groups, however, were not possible to obtain, due to the wide variety of variables they incorporated. It may be possible that a combination of the three criteria (the calendar, DDP, and the clinical diagnosis), might be better at identifying PMS than any of them alone. When reviewing the MMPI for significant main effects and interactions, a pattern began to emerge. Combined, the DDP and diagnostic groups showed significant bi-phasic interactions of three scale, F, D and Sc. Main effects for either the DDP or the diagnostic groups were observed in two of these interactions (refer to Table 6). That these particular scales are significant is consistent with theoretical expectations regarding PMS in that the scales are identifying moodiness, unstable characteristics, stress, decreased self-esteem, high levels of depression, and feelings of social alienation (refer to Table 9). Thus, it is possible that at least these two clinical scales and one of the validity scales of the MMPI are successful in identifying symptoms which are consistent with known PMS symptomatology, and which can be shown to be occurring bi-phasically.

The results regarding the marital adjustment scale support those found by Keye et al. (1986), and Stout and Steege (1985). Three significant findings emerged. First, there was a clear relationship between bi-phasic PMS symptoms and marital adjustment. That is, combining both husbands and wives scores, marital adjustment scores were significantly lower during

the luteal phase than during the follicular phase (Hypothesis 6b). Second, combining the scores for both weeks and both spouses, then looking only at low versus high Dalton Diagnostic Pointer scores, a strong relationship was found between low marital adjustment scores for women with high DDP scores (Hypothesis 7a). In other words, women who were diagnosed as more likely to have PMS according to the DDP had lower total mean scores for marital adjustment than those women who were not. Third, the most noteworthy interaction was found between the diagnostic groups and the two phases of the cycle (Hypothesis 8b), which indicated that couples determined to be more likely to have PMS according to the diagnostic group criteria had significantly less satisfactory marital adjustment during the luteal phase than the non-PMS groups. All of these findings were consistent with theoretical expectations.

Neither the Dalton nor the diagnostic groups proved to be strong predictors of PMS when viewed alone, but together they were successful in identifying several types of changes in personality functioning and marital adjustment.

In view of other research, there is another possibility for identifying women with PMS which may warrant further investigation. In the study by Stout and Steege (1985) in which 100 women who sought evaluation and treatment for PMS were administered MMPI's, even though they were administered during the follicular phase only rather than bi-phasically, a cluster analysis showed two types of profiles, one which fell within the normal two standard deviations, and one that reflected more severe pathology with six scales showing T-scores > 70 (D, Hy, Pd, Pa, Pt, and Sc). Interestingly, the profile patterns were very similar to the profiles obtained for the two phases in the present study (see Table 17). Similarly, upon

Table 17

MMPI *T*-Score Analyses of Three Different Studies.

Author/ Year	Phase	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
Hammond & Keye/ 1985	Follicular	62	64	70	63	43	64	63	62	55	56
	Luteal	66	*78	*73	*71	42	69	*72	*73	56	67
Stout & Steege/ 1985	Follicular	60	64	65	62	44	63	61	58	54	58
	Luteal	68	*76	*74	*70	40	*71	*73	*74	61	68
Present Study 1987	Follicular	60	65	64	61	45	63	61	62	54	61
	Luteal	65	*76	*71	*70	46	67	69	*72	55	67

*clinically significant

examination of the paper by Hammond and Keye (1985), it was found that the raw mean scores on each MMPI scale for the follicular and luteal phases were also very similar to those of the present study, and reflected five scales with T-scores > 70 (D, Hy, Pd, Pt and Sc). In the present study, four scales reflected T-scores > 70 (D, Hy, Pd and Pt), with elevations on Pa and Pt. It is possible, therefore, that further investigation may document an MMPI profile which is common to women with PMS. Figure 7 is the comparison of the mean MMPI T-score profiles for the follicular and luteal phases of each of the three studies described above.
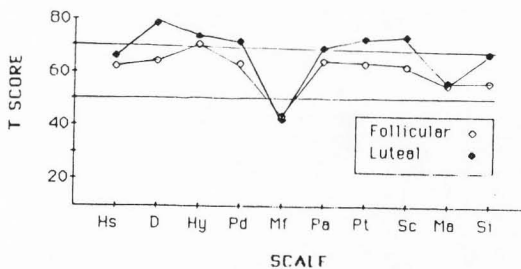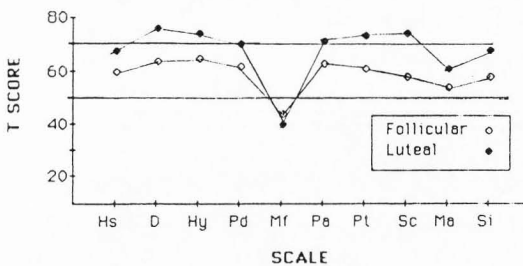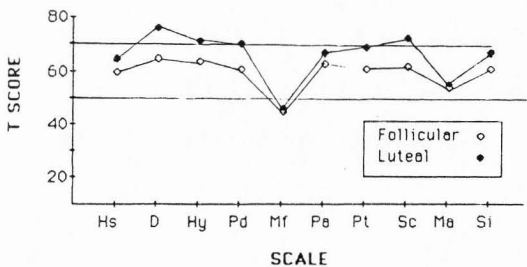
Figure 8. Comparison of mean MMPI T-scores for the follicular and luteal phases of three studies.

CHAPTER V

SUMMARY AND CONCLUSIONS

This study investigated the nature of cyclical changes in personality and marital adjustment experienced by women with and without PMS. The sample consisted of women, and their spouses who sought evaluation and treatment at the Utah PMS Center in Salt Lake City, Utah for problems possibly related to premenstrual syndrome. A random sample was taken from the records of over 4,000 women who had contacted the Utah PMS Center sometime in the last four years.

Because there may not be such a thing, a single valid and reliable measure for assessing and diagnosing PMS was not included as part of the clinical assessment of these women. Rather, several variables were evaluated, such as; type of symptomatology, cyclical nature of the symptoms, psychosocial and physiological predisposition to PMS, etc. The instruments used to evaluate these variables were the monthly symptom calendar, the Dalton Diagnostic Pointer, the MMPI and the Locke-Wallace Marital Adjustment Scale, the physical exam, and psychosocial and medical histories. The final determination of presence or absence of prementrual syndrome was made by carefully reviewing each of these in light of the individual as an integrative whole. Thus, the center from which this sample was drawn uses the Dalton Diagnostic Pointer and the monthly symptom calendar extensively as part of the diagnostic evaluation of PMS.

These two instruments were used as the independent variables in this study in order to determine the predictive relationship, if any, between them and cyclical changes demonstrated by the MMPI and the Locke-

Wallace Marital Adjustment Scale. The problem with using them as independent variables is that, in and of themselves, they are not absolute indicators of PMS and don't appear to correlate well with each other. For this reason, the doctor's clinical impression was also added as an independent variable in that it includes diagnostically relevant variables other than those addressed in the calendar and Dalton Diagnostic Pointer, such as the physical exam and psychological and physiological prediposition to PMS, as shown by the medical and psychosocial histories.

The clinical impression and symptom calendars appeared to correlate well with each other, but neither correlated well with the Dalton Diagnostic Pointer. The clinical impression and calendar were then combined into a single independet variable, which was labelled "diagnostic group". The fact that the diagnostic group did not correlate with the DDP may have been advantageous in that it was possible that the two might possibly identify different aspects of PMS. This, in fact, was found to be the case.

The findings indicated dramatic differences in personality characteristics for the entire group between the follicular and luteal phases. During the follicular phase the profile was well within the normal two standard deviations of $T=50$ range. The profile for the luteal phase, however, demonstrated marked increases in psychological disturbance, with four scales at clinically significant levels of $T > 70$. The mean scores on the luteal profile generally characterized these women as tense, anxious, moody, having low self-concepts, low ego-strength and less effective defense mechanisms, increased self-dissatisfaction, clinical levels of depression, feelings of social isolation and alienation, and the inable to handle hostility.

Regarding the diagnostic groups and Dalton Diagnostic Pointer, significant main effects were found for the diagnostic groups on scales F, K,

and Sc. There were no significant main effects for the DDP. However, statistically significant bi-phasic interactions were observed for the DDP on two scales; D and Sc. A statistically significant bi-phasic interaction was found for the diagnostic groups on the F scale of the MMPI, as well as the Marital Adjustment Scale, where husbands and wives mean scores are combined.

It is apparent from these results that the two are in fact measuring different personality and marital characteristics in that they interact with different scales on the MMPI. Used collectively, they are somewhat effective in identifying characteristics, which vary bi-phasically, and are theoretically consistent with PMS symptomatology. However, low reliability coefficients need to be taken into consideration when using the Dalton Diagnostic Pointer in the clinical setting, and the results viewed with caution. Reliability coefficients are not possible to calculate for the diagnostic groups, therefore, those results need to be viewed with caution as well.

These women came in to the Utah PMS Center reporting marital, familial, and parenting problems due to symptoms possibly related to PMS. They described episodes of hostility and fighting that "were not like them". The marital adjustment mean scores also indicated a cyclical pattern for both husband and wife in marital adjustment. Adjustment during the follicular phase was rated well within the normal range by both husband and wife. However, during the luteal phase marital adjustment mean scores dropped significantly.

These results indicate that women with premenstrual syndrome are experiencing both psychological and marital distress severe enough to create dysfunction personally and within the relationship. This cyclical distress is also experienced by the husband, as shown by the significant shift in marital

adjustment scores reported by them during the luteal phase. Even though the dysfunction is not chronic in that the women, and the marriages as rated by both spouses, are relatively free of psychological and marital distress during the follicular phase, it is still unknown how much these symptoms are adversely affecting the long-term stability of the marriage. Is it possible, for example, that cumulative conflicts which eventuate in separations and/or divorce are occurring during the luteal phase? This is yet to be determined.

Limitations of the Study

1) The most critical limitation of this study was that no single instrument was used for evaluating PMS which had been established as a valid and reliable measure. The doctor's diagnostic impression may in fact be highly reliable, but where it is based upon subjective impressions, this is difficult to determine.

2) Another critical limiation is that a control group was not used as a comparison. This study included only individuals who sought treatment for personal and marital distress, which they believed to be related to PMS. This may account for the high level of distress observed in women determined less likely to have PMS. Also, it is possible that some level of bi-phasic variation is an inherent part of every woman's physiological make-up. A symptom free control group might have provided an opportunity to establish comparisons with which to evaluate both of these issues.

3) The MMPI was not administered according to standardized procedures, which requires that the test be administered in a clinical setting. Rather, the women took the MMPI home to be completed during the specified days within the cycle. This introduces two potential problem areas:

a) The validity of the MMPI may be compromised by the uncontrolled environment, and b) the point in the phase of the cycle in which the test was completed was not controlled for.

4) Because all subjects were married, the results are not representative and cannot be generalized to other groups of women.

Implications

Research. As mentioned earlier, it is possible that conflicts, which originate during the luteal phase, may have a cumulative effect and may eventuate in separations and/or divorce. The specific elements of the marital relationship which are most at risk need to be carefully assessed. For example, the subjects of this study consistently reported decreased interest levels of sex drive at some point during the menstural cycle. It has been suggested that increased sex drive occurs during the luteal phase of the cycle (Dalton, 1982). However, this is not consistent with the findings of the present study. Rather, many women reported a decreased level of sex drive during the follicular phase. Sexual dysfunction, as it relates to the menstrual cycle, is not well understood, yet may have a significant impact on the marriage. Additional studies may be able to identify the long term effects, such as these, on adjustment and longevity of the marriage.

Another area which is not well understood is the impact of cyclical marital and personality dysfunction on the emotional stability of the children, and parenting skills. For example, alternate and unpredictable loving, or hostile and out of control, parenting styles would most likely have numerous effects on parenting, such as decreased quality of relationships between parent and child.

Clinical. It is clear that, as indicated in the Introduction, effective methods of treatment are needed for individuals, couples and families who are experiencing personal and interpersonal problems due to PMS. At this point, the syndrome is still so new that therapeutic intervention and prevention techniques for these individuals are still in their infancy. Individual and family therapy may be necessary in some cases, and medical intervention may be adequate in others. Each case needs to be considered individually, as well as within the context of the family.

These findings also have important implications for counselors and marriage therapists in that when women are tested, either by the therapist or by a diagnostician, the cyclic phase needs to be taken into consideration because test results obtained during the symptomatic phase would not be representative of overall psychological well-being.

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APPENDICES

Appendix A.
Symptomatology
of Premenstrual Syndrome

SYMPTOMATOLOGY OF THE PREMENSTRUAL SYNDROME

Water retention	Bloatedness
	Weight gain
	Oedema
	Backache
	Sinusitis
	Glaucoma
Sodium and potassium imbalance	Tension
	Depression
	Irritability
	Lethargy
Hypoglycemia	Headaches
	Epilepsy
	Fainting
	Panics
	Nausea
	Exhaustion
	Aggression
Allergy	Asthma
	Rhinitis
	Urticaria
Lowered resistance to infection	Upper respiratory infections
	Tonsillitis
	Acne
	Styes
	Conjunctivitis
	Boils
	Herpes

Fuhs, D.W., The Premenstrual Syndrome and Progesterone Therapy, The Wisconsin Pharmacist, June, 1984, p. 160-165.

Appendix B.
MMPI Scale Number,
Name, and Name Abbreviation

MMPI Scale Number, Name and Name Abbreviation

Scale	Name	Abbreviation
L	Lie Scale	
F	Frequency Scale	
K	Correction Scale	
1	Hypochondriasis	Hs
2	Depression	D
3	Hysteria	Hy
4	Psychopathic deviate	Pd
5	Masculinity-femininity	Mf
6	Paranoia	Pa
7	Psychasthenia	Pt
8	Schizophrenia	Sc
9	Hypomania	Ma
0	Social isolation	Si

Appendix C.
Utah PMS Calendar

U T A H   P M S   C A L E N D A R

Copyright 1982 by
Dr. William R. Keye, M.D.

Name _____

Month _____

Date

Day of Menstrual Cycle

Weight

Treatment

1. _____
2. _____
3. _____

Physical Symptoms

1. _____ 98.8
2. _____ 98.6
3. _____ 98.4
4. _____ 98.2
5. _____ 98.0
6. _____ 97.8
7. _____ 97.6
8. _____ 97.4
9. _____ 97.2

Mental Symptoms

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

Appendix D.
Summary of Dalton
Diagnostic Pointer

Patient's Name:_____

SUMMARY OF DALTON DIAGNOSTIC POINTER:

		YES	NO	NOT RELEVANT
A.	Adult weight fluctuation greater than 28 pounds.			
B.	Premenstrual cravings for sweets/salty food.			
C.	Premenstrual increase in sex drive.			
D.	Premenstrual alcohol intolerance.			
E.	Onset: Puberty, postpill, postpartum, amenorrhea, severe stress, or major surgery.			
F.	Increased severity: postpill, postpartum, amenorrhea, severe stress, or major surgery, tubal ligation.			
G.	Inability to tolerate birth control pills.			
H.	High blood pressure during pregnancy.			
I.	History of spontaneous or threatened miscarriage.			
J.	Postpartum depression.			
K.	Freedom from menstrual cramps (score two negatives if painful menstrual periods are major complaint.)			

TOTAL

Positive
_____ X 100
Positive + Negative

Score: _____
_____
Care Team Member Signature

Appendix E.
Diagnostic Notes

Patient's Name:_____
Date:_____

DIAGNOSTIC NOTES

PATIENT'S EXPECTATIONS:

PATIENT'S IMPRESSIONS:

Patient's Age:_____ Occupation:_____ Marital Status:

# of Pregancies:_____ # of Children: _____

LMP: _____ Day of Cycle: _____

SYMPTOMS:

☐ Single
☐ Married
☐ Separated
☐ Divorced
☐ Widowed
☐ Other
_____

Physical	Emotional	Behavioral

ONSET:

TIMING:

DURATION:

EXACERBATION:

PHYSICAL EXAM:

LAB REPORTS:

PERTINENT MEDICAL PROBLEMS:

PSYCHO/SOCIOLOGICAL HX:

DALTON'S DX POINTS:

DIAGNOSTIC NOTES (2)

MMPI: Good -

          Bad -

MARITAL ADJUSTMENT:

CALENDAR:

IMPRESSION:

PMS	Psychological Problem	Social Problems
_____	_____	_____
_____	_____	_____
_____	_____	_____

DIAGNOSIS:

PLAN:

          Prescription:

          Referral:

PATIENTS RESPONSE:

                                        _____
                                        Physician's Signature and Title

Appendix F.
Permission Letters

April 27, 1987

Dr. William R. Keye
University of Utah Medical Center
Department of Obstetrics and Gynecology
Salt Lake City, Utah

Dear Dr. Keye:

I am in the process of finishing my thesis, <u>PMS: Bi-Phasic Differences in Personality and Marital Relations Among a Clinical Sample,</u> in the Family and Human Development Department at Utah State University. I hope to be completed by Spring of 1987.

We talked at one time about my using the attached material in my thesis, but it is necessary that I have written permission. As the Utah PMS Calendar is used as part of the clinical diagnosis at the Utah PMS Center, which is where I obtained it, I am not familiar with a specific bibliographical citation in which it is referenced. If you would forward that information to me, I will be glad to include it in the citations at the end of the manuscript.

If you would please indicate your approval of this request by signing in the space provided, attaching any other form or instruction necessary to confirm permission, I would very much appreciate it. If there is a reprint fee for use of your material, would you please indicate that as well. I may be contacted at either 750-1501 or 753-2712 if there are any questions or problems. As this thesis will be bound sometime in May, it would be a help if you could return this as soon as possible.

The results of my study, by the way, were quite interesting. We hope to be submitting it for publication by this summer. If you are interested in a copy, please let me know, and I will be glad to forward one to you. Thank your for your suggestions and comments throughout this study, they have been helpful contributions.

Sincerely,

Donna R. Rogers

I hereby give permission to Donna R. Rogers to reprint the following
material in <u>PMS: Bi-Phasic Differences in Personality and Marital
Relations Among a Clinical Sample</u>.

<u>Utah PMS Calendar</u>, copyrighted in 1982 by Dr. William R. Keye
(see attached).

_____

Dr. William R. Keye

_____

Fee

April 27, 1987

Kathy Smith, Utah PMS Center
Western Institute of Neuropsychiatry
501 Chipeta Way
Salt Lake City, Utah

Dear Kathy:

I am in the process of finishing my thesis, <u>PMS: Bi-Phasic Differences in Personality and Marital Relations Among a Clinical Sample</u>, in the Family and Human Development Department at Utah State University. I hope to be completed by Spring of 1987.

We talked at one time about my using the attached material in my thesis, but it is necessary that I have written permission. As the <u>Dalton Diagnostic Pointer</u> is used as part of the clinical diagnosis at the Utah PMS Center, which is where I obtained it, I am not familiar with a specific bibliographical citation in which it is referenced. If you would forward that information to me, I will be glad to include it in the citations at the end of the manuscript. The doctor's clinical diagnosis became one of the variables in this study, thus, it became important to include a description of how the diagnosis was made. The <u>Diagnostic Notes</u> form provided just such a summary. Again, since it is part of the clinical evaluation, I am not familiar with a publication in which it might have been published. If the Utah PMS Center is not longer the copyright holder, could you please forward this letter to the appropriate person and/or institution?

Please indicate your approval of this request by signing in the space provided, attaching any other form or instruction necessary to confirm permission. If there is a reprint fee for use of this material, would you indicate that as well. I may be contacted at either 750-1501 or 753-2712 if there are any questions or problems. As this thesis will be bound sometime in May, it would be a help if you could return this as soon as possible.

The results of my study, by the way, were quite interesting. We hope to be submitting it for publication by this summer. If you are interested in a copy, please let me know, and I will be glad to forward one to you. Thank you for your cooperation throughout this study. Your contributions have been a great help, and will be acknowledged in the publications which follow.

Sincerely,

Donna R. Rogers

I hereby give permission to Donna R. Rogers to reprint the following material in PMS: Bi-Phasic Differences in Personality and Marital Relations Among a Clinical Sample.

Diagnostic Notes, copyrighted 1984 by Utah PMS Center.
Summary of Dalton Diagnostic Pointer, copyrighted 1984 by Utah PMS Center.

_____

Kathy Smith, Coordinator

_____

Fee

CURRICULUM VITA

Personal Data:	Donna Rogers 60 West 300 South Logan, Utah 84321 SSN: 528-86-5495

Education: 1983 to Present: Utah State University, Logan, Utah
Department of Family and Human Development -
Master of Science. GPA approximately 3.7.
Graduation: June, 1987.

1976 to 1980: B. A., Weber State College
Major: Psychology   Minors: Art and Sociology

Research Assistantships: December 1986 to Present: Women and Gender Research Institute. Ann Leffler, Department of Sociology, Director.

November 1986 to Present: Housing and Locational Decisions of the Maturing Population: Opportunities of the Western Region. LaRae Chatelain, Home Economics and Consumer Education.

Awards: 100% tuition waiver, academic year 1984-1985, Department of Psychology, Utah State University.

Memberships: American Psychological Association
National Council on Family Relations
Southwestern Society for Research in Human Development
National Women's Studies Association

Community Involvement: 1983: Certified to act as Guardian Ad Litem for abused children in Utah.

Manuscripts in Preparation: PMS: Bi-Phasic Differences in Personality and Marital Relations Among a Clinical Sample.

PMS and the Marital Adjustment of Husbands.

References: The following individuals may be contacted for references:
Dr. Jay Schvaneveldt, Department Head, FHD
Dr. Brent C. Miller, Professor, FHD
Dr. Ann Austin, Associate Professor, FHD
Dr. Ann Leffler, Associate Professor, SSWA
Dr. Pam Riley, Associate Professor, SSWA