

THE MENSTRUAL CYCLE AND AGGRESSION

by

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ABSTRACT

At least 50 studies have been conducted since Frank (1931) first recognized premenstrual tension in 1931. Researchers agree that premenstrual tension is a problem, though it is not clear whether premenstrual tension is found in a specific group of women, or if it is a phenomenon which occurs in all women. Women appear to be more aggressive premenstrually, however, the causes or sources of this aggression are not well understood. It would appear that PMS is related to chemical changes immediately preceding and during the early phases of menstruation and several studies lead to the conclusion that some women tend to be violent during the premenstrual phase. In general, premenstrual women are more likely to become involved in socially unacceptable, angry, possibly aggressive behavior. To the extent there is a functional relationship between hormones and irritability the following hypothesis was proposed:

Women in the premenstrual and menstrual phases of the menstrual cycle are more aggressive than women in other phases.

There are several explanations that could be offered for the observed relationship between PMS and violence. Hands et al., (1974) suggested that women who are extremely aggressive in the premenstrual and menstrual phases are

probably more emotionally disturbed than other women:
menstruation serves as a catalyst for the perpetuation of
unacceptable behavior in women who already have problems.
It was also hypothesized that:

Aggressive women in the premenstrual and menstrual
phases of the cycle exhibit more psychopathology
than aggressive and nonaggressive women in other
phases of the menstrual cycle.

The subjects for this study were women from the urban area
of Youngstown, Ohio and students from Youngstown State
University. They were between the ages of 16-45, did not
have menstrual problems, were not pregnant, or had not had
hysterectomies. The subjects were divided into groups
depending on their location in the menstrual cycle, pre and
menstrual (defined as intermenstrual). The Q-Scale and
MMPI (Hathaway & McKinley, 1943) were administered to
measure aggression and psychopathology. A t-test was
conducted to test the hypothesis that women in the
paramenstrual phase are more aggressive than women in other
phases of the menstrual cycle. No significant difference
was found. A repeated measures t-test was used to assess
within subject differences in level of aggression during
the two defined menstrual phases (intermenstrual and PMP).
No significant difference was found. An ANOVA was
conducted to test the hypothesis that aggressive women in
the premenstrual and menstrual phase of the cycle exhibit

more psychopathology than aggressive and nonaggressive women in other phases of the cycle. Aggressive PMP women were found to be significantly ($p < .05$) higher on two subscales of the MMPI: Headache Proneness and Neurodermatitis. Depression, Psychomotor Retardation, Aggression, Hysteria Social Anxiety, and Hypomania were confirmed at $p < .10$. These findings are supported by the work of reaearchera (Dalton, 1961; Mooa, 1969; Morton, 1953; and Lamb, 1953). A Pearson's r was run and no significant correlations were found.

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CHAPTER I

OVERVIEW

Frank first recognized premenstrual tension in 1931, and since then at least 50 studies have been conducted. In the majority of these studies researchers agree that premenstrual tension is a problem. However, there is difficulty with the definition of the term. Premenstrual tension has been defined as the re-occurrence of any symptom which always occurs at the same time in the menstrual cycle (Dalton 1954), as well as any combination of emotional or physical features which occur cyclically in the female immediately preceding menstruation (Sutherland and Stewart 1965). Moos (1969) found over 150 symptoms associated with the menstrual cycle, including elation, depression, back pain, increased aggression, increased sexual desire, less specific behaviors, and other inferred psychological states.

It is known that most women experience some problems premenstrually, and it has been demonstrated (d'Orban and Dalton 1980) that women who commit crimes are likely to be in the premenstrual stage of the cycle. However, this finding does not lead to the converse, that all women in this phase of the menstrual cycle are more likely to commit crimes. Handa et al., (1974) suggests a particular group of women, those who exhibit disturbed behavior, may exhibit this behavior because of premenstrual tension. Schonberg

et al., (1976) found that college students were more aggressive premenstrually than at any other time of the cycle. Thus it is not clear whether premenstrual tension is found in a specific group of women or if it is a phenomenon which occurs in all women.

The causes of aggressive behaviors in women are important to the field of criminal justice. If it is true that women, in general, are more aggressive premenstrually, it could have an impact on attempts to prevent female aggressive acts. In addition, knowledge of the physiological catalyst for aggression could affect the adjudication and treatment of women who have perpetuated harm.

The first chapter provides the reader with the concepts necessary to understand premenstrual aggression, The chapter is divided into two basic areas: an explanation of the menstrual cycle and how researchers locate women in it, and a review of the current literature concerning premenstrual tension and aggression. Chapters Two and Three explain the methods used in the present study, and the findings derived from the statistical analyses that were conducted.

INTRODUCTION

In humans the menstrual cycle is controlled by a delicate interplay between the hypothalamic,

adenohypophyseal, and ovarian hormones. Adenohypophyseal hormones are **luteinizing** hormones (LH) and follicle stimulating hormone (FSH). The ovarian hormones are estrogens and progestins. The menstrual phase usually lasts four to seven days and is considered the beginning of the menstrual cycle. A follicular (days 6-13), ovulatory (day 14), and luteal phase (days 15-28) normally follow (Turner and Bagnara, 1976).

The hormonal pattern through the 28 day period is cyclical in nature (Figure 1).

During this cycle follicle stimulating hormone (FSH), and luteinizing hormone (LH), both gonadotropin hormones which originate in the anterior pituitary glands, stimulate the development of several mature follicles in the ovaries. As the follicle ripens, ovarian estrogen is produced by granulosa cells. High levels of estrogen exert a negative feedback on FSH, inhibiting multiple follicular development and causing an increase in LH levels (this represents the follicular phase of the menstrual cycle). As estrogen suppresses FSH, the actions of LH predominate and the mature follicle bursts, the oocyte, along with the coronal radiata, is ejected from the follicle. Normally, the ovum is then transported through the fallopian tube towards the uterus.

Following ovulation, the follicle collapses, and the luteal stage of the menstrual cycle occurs. Progesterone

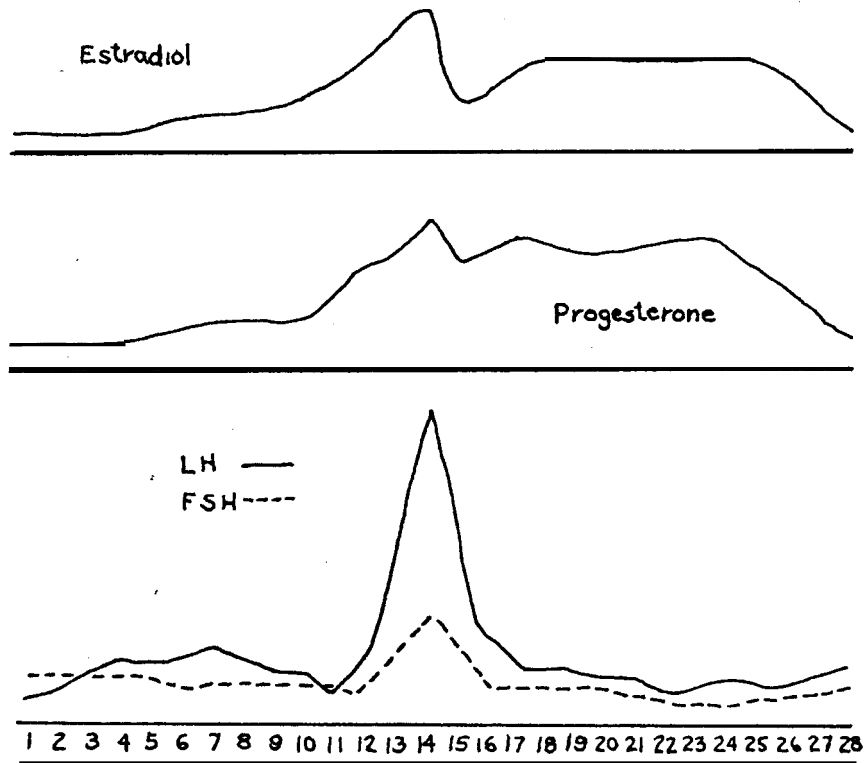


Figure 1. Diagram of monthly hormone variations. (Redrawn from Turner and Bagnara, 1976, p. 479).

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is secreted from the corpus luteum (a rapid accumulation of blood fluid forms this mass). If fertilization does not take place, the corpus luteum atrophies, and is replaced by white scar tissue. The level of progesterone falls, the hormonal support of the myometrium is withdrawn, and menstruation occurs, after which the process begins anew (Porth, 1986).

Researchers have used various methods for locating women in the menstrual cycle. Dalton (1961) divided the menstrual cycle into seven four-day periods, as shown in Table 1.

Table 1

Dalton's Division of Menstrual Cycle

Day	Phase
1 - 4	Menstrual
5 - 8	
9 - 12	
13 - 16	Intermenstrual
17 - 20	
21 - 24	
25 - 28	Premenstrual

d'Orban and J. Dalton (1980) followed Dalton's method of dividing the menstrual cycle into seven four-day

periods, but then grouped days 25-28 and days 1-4 and used the term paramenstruum to cover these two phases of the menstrual cycle. When the cycle length varied from 28 days, the cycle day on which the crime was committed was adjusted to a standard 28-day cycle by the formula:

$$\text{Adjusted cycle day} = \frac{\text{total number of days in cycle}}{\text{actual cycle day}}$$

The majority of researchers follow Dalton's method for locating a women's phase in the menstrual cycle. The premenstrual phase (days 25-28) of the menstrual cycle has been designated as a time when women experienced increased tension.

A review of literature leads to the suggestion that women, in general, are more aggressive in the premenstrual phase. Oleck (1981) goes beyond this general premise when he states that courts should recognize premenstrual aggression as a form of temporary insanity: that a woman involved in a crime, during the premenstrual period, should not be held fully responsible for her actions. In France premenstrual tension is recognized as a form of legal insanity (Press 1983). Dalton (1981) reviewed three cases in England, where premenstrual tension had been used as a legal defense: a woman accused of manslaughter, another of arson, and a third of assault. All three cases

successfully pleaded diminished responsibility, due to premenstrual tension.

LITERATURE REVIEW

There are several ways to consider the research that has been conducted on premenstrual tension and aggression. For present purposes, the literature can be divided by the amount of control the researchers exercised over the subjects. Thus there are naturalistic observations, controlled observations, and experimental studies.

NATURALISTIC OBSERVATIONS

In naturalistic observations, Dalton (1979), Mandell (1967), Tonks (1867), May (1976), and Dan (1976) made observations of naturally occurring phenomena, over which they had little or no control. Women gave self-reports of their location in the menstrual cycle, with no possible verification by the researcher. A major limitation in all of these studies was noted by The World Health Organization (1981) where it was found that women's ability to recall previous menstrual dates was not perfect. Retrospective information is not always the best data gathering procedure, but keeping prospective records is expensive, time consuming, and administratively difficult.

Dalton (1979) investigated premenstrual tension as a possible cause of child abuse. In her prior research Dalton (1966) drew attention to the idea that mothers may be more likely to abuse their children during the premenstruum. In her subsequent studies, Dalton (1975) saw women who had been referred because they abused their children immediately preceding or during menstruation. Other women, seen by Dalton, who suffered from premenstrual tension also admitted abusing their children. Dalton thought that menstrually related child abusers genuinely love their children but due to premenstrual irritability lose control and injure their children. For the rest of the menstrual cycle these women are normal mothers. All of the women observed by Dalton were suffering from premenstrual tension; therefore, her observations are only descriptive for those who exhibit or report premenstrual tension. Further research is needed to determine the incidence and prevalence of child abuse during the menstrual cycle. It would seem that aggressive tendencies are present premenstrually, as demonstrated by the results of a study of the menstrual cycle and suicide attempts which was conducted by **Mandell** and **Mandell** (1967).

In the Mandells' study, telephone workers at a suicide prevention center were asked to fill out a standard form containing questions about the menstrual cycle for all

women who telephoned for help. Subjects in the study were not selected with regard for the menstrual cycle. Subjects were asked for the date of the onset of the next expected menstrual period, and the usual length of their menstrual cycle. The greatest number of suicide telephone calls were recorded during early days of menstruation; the second greatest number were recorded during the premenstrual period. The authors conclude that the early days of the menstrual periodic flow were most disturbing for these women.

Tonks (1967) looked at the relationship of attempted suicide, the menstrual cycle, and premenstrual tension. The subjects in this study were females who ranged in age from puberty through menopause. All subjects had been admitted to a hospital after perpetuating deliberate acts of self-injury. Subjects reported the date of their last menstrual period, the date of the attempted suicide, usual length of bleeding and total length of their period. They also reported their age, marital status, the number of children they had given birth to, and birth control (oral contraceptives). It was reported if they were admitted as psychiatric patients and premenstrual symptoms of tension. Patients who were pregnant, or whose cycles were very irregular were excluded; however, irregular cycle was not defined. Information was obtained on ninety-five subjects who had attempted suicide.

A large number of suicide attempts occurred on the seven premenstrual days (36.8 percent, $p < 0.02$).

Both Mandell and Tonks found that thoughts of suicide as well as actual attempts increased during the premenstrual phase. However, the investigators relied on self-reports of the subjects with regard to subjects' location in the menstrual cycle when these thoughts and actions occurred.

In a study conducted by May (1976) the reasons for the disturbed thoughts and actions prior to menstruation were further studied. Subjects were placed into one of three groups. The first group consisted of women who were the most likely to feel depressed premenstrually, the second group consisted of women who were likely to feel depressed during menstruation, and the third group consisted of the remaining subjects, who were likely to feel depressed midcycle. May concluded that different attitudes existed among the groups, particularly the premenstrual and menstrual classifications.

The women who were more depressed premenstrually were found to be more assertive, held less traditional attitudes and values, and had fewer social and physical inhibitions than the menstrual group. The premenstrual group viewed menstruation as a sign of helplessness, of being controlled by bodily processes in a way that removes

freedom of choice. They emotionally rejected menstruation and felt that it was foreign to them.

The women who are likely to be depressed during menstruation were more conservative, with a traditional outlook on life. The menstrual group felt that menstruation was both dangerous and dirty, and viewed it as an unclean, shameful process.

May (1976) thinks that the menstrual cycle, and its hormonal changes, do not cause premenstrual syndrome. May believes the data leads to the conclusion that menstrual symptoms and depression are caused by an individual's cultural training. Premenstrually depressed women dread the coming of the menstrual period because of a perceived loss of self control. Menstrually depressed women are depressed by the physical aspects of the menstrual period. This depression is due to cultural and psychological factors, rather than uncontrollable physical factors.

May reports personality differences in the premenstrually and menatrually depressed women. However, he cites no support for his theories and other investigators disagree with May's hypothesis concerning the relationship of general emotion adjustment to menstruation.

In another study Dan (1976) went beyond May, finding no changes in women's behavior because of hormonal changes

or cultural beliefs. She studied the proposition that women show a global quadratic pattern of change over the menstrual cycle, affecting much of their behavior and emotional reactivity. This pattern predicts poor functioning during menstruation, good functioning again during the premenstrual phase. From this proposition it was predicted there would be poor psychological and social functioning during the premenstrual period. However, no global pattern was found.

Dan thought the most important point confirmed by her study was the lack of generality in the menstrual cycle effects and of the variability in adjustments. The study provided no support for the hypothesis of deficits in normal women at certain points of the menstrual cycle, as compared with men. Normal women were not significantly more hostile, or less active, or less fluent at any phase of the cycle than their husbands were. However, it is not clear whether the husbands' attitudes covaried with the wives' attitudes in this study. Women, regardless of the circumstance, are not as aggressive or violent as men.

Dalton (1979), Mandell (1967), and Tonka (1968) found an increase in tension and aggression premenstrually, which they primarily attribute to the hormonal changes of the menstrual cycle. May (1976) found differences in the thinking of premenstrual and menstrual women which he attributed to cultural beliefs. However, he showed no data

hypothesis concerning womens' irritability during the premenatrual period leada to the prediction that one should find "aggressive" PMS women exhibit pervasive peraonality differences relative to "nonaggressive" PMS women at any time in the menstrual cycle. On the other hand, Dan's work leads to the conclusion that pervasive differences do not exist. Therefore, she tentatively concluded that something, poaaibly hormonal inbalance, leads to a heightened state of irritability in aggressive women who exhibit PMS. Dan waa looking at differences between men and women, and this decreases the ability to find within sex behavior changes due to hormonal fluctuations. Therefore, it would seem more likely that the work of Dalton, Mandell, and Tonka has reached the better conclusions.

CONTROLLED OBSERVATIONS

In controlled observations, the studies were conducted under more atringent conditions, where the subjects' behavior could be more closely observed. Some verification of the subjects' menstrual cycle was possible. These include Hands, Herbert, and Tennent (1974), Dalton (1961), Singh (1982), Ellis and Auatin (1971), d'Orban and Dalton (1980), and Morton et al. (1953).

Hands, Herbert, and Tennent (1974) studied the correlation between menstruation and behavior in an English "special" hospital where overt behavior could be well controlled.

The most disturbed or violent women were maintained on one ward where treatment could be provided under secure conditions. When subjects displayed disturbed social behavior, or when they physically acted out, subjects were isolated for short periods of time. These confinements were noted in the hospital register, from which researchers obtained their data. Information concerning the behavior of 23 women confined in seclusion for at least 20 days as a result of aggressive behaviors was obtained. Subjects exhibited an average age of 23, and had been in the hospital for at least six months. Each subject's menstrual cycle was divided into the seven days prior to menstruation, seven days after the end of the period, and "other" days which appears to be all days not otherwise classified.

The secluded days were not evenly distributed. For eleven women, the days in seclusion were unaffected by menstruation. Six women experienced a significantly greater proportion of secluded days before the week of menstruation. Six women had fewer secluded days in the week before menstruation. The researchers concluded that

findings demonstrate a relationship between menstruation and a increase in aggressive behavior.

In a similar study Dalton (1961) observed women in a English prison. Dalton determined the subjects' age, duration of menstruation, length of menstrual cycle, date of the last menstrual period, and amount of uncomfortableness the women experienced before or after menstruation. She conducted similar interviews with all women reported for rule infractions.

Dalton found that of 386 new prisoners, 284 (74 percent) were menstruating regularly. Of these, 156 committed the offense for which they were incarcerated in the previous 28 days. Dalton found that nearly 49 percent of the women's crimes were committed in the menstrual or premenstrual days (paramenstruum). In a normal distribution it could be expected that 29 percent of the offenses would have occurred during these eight days by chance. The probability of finding 49 percent when 29 percent is exected by chance is less than 1/1000 ($p < .001$).

Ninety-four of the women reported for rule infractions were menstruating regularly. Among the 54 individuals reported for misconduct on one occasion, 43 percent of the rule infractions occurred during menstruation or the premenstruum. Of the 40 individuals breaking rules more than once, 70 percent occurred during

menstruation or the premenstruum. Singh (1982) duplicated these results in a study conducted in the jails of India.

The convicted women in Singh's study were contacted within one month of their arrest. The study covered a four year time period and included 125 women who could clearly remember their menstrual history. Of these 125 women, 95 were menstruating regularly. Singh found that nearly 53 percent of the crimes were committed during menstruation, or in the premenstruum. The expectation from the normal distribution would be that 29 percent of the crimes would occur during these eight days ($p < .001$).

Menstruation seems to be of more importance in crimes of violence. Sixty percent of the crimes of violence took place in the menstrual and premenstrual period. Singh thinks that the premenstruum is the most stressful period for women. Fifty-three percent of the women committed their crimes of violence at this time.

Ellis and Austin (1971) concurred with Singh's findings. Ellis and Austin conducted their study in a North Carolina prison for women where there were 360 inmates. The subjects selected were between 20 and 45 years of age, incarcerated for a sentence of at least 6 months, and had a nonpathological menstrual cycle. The researchers limited the study to 45 women, chosen randomly from the pool of 139 eligible women.

The following data were collected from the subjects: dates of beginning and end of at least three menstrual flows, a list of symptoms and emotional moods experienced daily during the three cycles, and the daily frequency of aggressive acts during the three cycle period. The information for the first two variables were collected from the subjects. They were told the study concerned the effects of changes in climate on prison work tasks, health, and social behavior. Information on daily aggressive acts came from the Daily Record Sheet.

Forty-one percent of the aggressive acts occurred in the premenstrual and early menstrual days ($p < .001$). Women, in general, appeared to be more aggressive during the premenstrual and menstrual days of the cycle in this incarcerated environment.

d'Orban and Dalton (1980) found similar results in a study conducted with 50 women found guilty of violence against people or property. To be included in the study, the women had to admit to committing the act of violence, know the exact date of their offense, have a regular menstrual cycle, be able to state the date and length of their last menstrual period, and not suffer from any physical illness. The mean age for the women was 24.6 years.

Subjects' premenstrual symptoms were rated by the Menstrual Distress Questionnaire. In addition, the women

were asked if they thought their menstrual periods had any effect on their offense. Only two individuals thought the menstruation had affected their behavior. Forty-four percent of the women committed their offense during the menstrual or premenstrual days of their cycle ($p < .001$).

d'Orban and Dalton state that it would be wrong to assume that women in general are more likely to commit violent crime during certain phases of their menstrual cycle. The authors conclude that violence is an option for a group of women who are prone to unstable and aggressive acts at other times. In addition, these researchers state that women who commit violent crimes during critical periods of the cycle do not complain of premenstrual tension, and in general, are not aware of the significance of the menstrual cycle. These findings certainly add credence to the idea that aggression is driven by hormonal imbalances. It is likely that large hormonal imbalances can be catalytic.

Another study which confirmed the relation between the menstrual cycle and aggression was conducted by Morton, Addison, Additon, Hunt, and Sullivan (1953) at Westfield State Farm, a state prison for women in New York.

The objectives for this study were to determine the incidence and severity of premenstrual symptoms; to determine the effect of premenstrual tension on social attitudes, behavior, and work output; and to determine the

relationship between the time of the commission of the crime for which the inmate was imprisoned and the phase of the menstrual cycle. Subjects of this study were 131 inmates who volunteered to participate. They were serving time for grand larceny, burglary, felonious assault, manslaughter, and murder.

Morton reviewed the records of the subjects' menstrual cycle and the dates of their crimes. It was found that 62 percent of the crimes were committed in the premenstrual week, with 17 percent occurring in the menstrual week ($p < .001$). Volunteers were given a list of symptoms and asked to circle symptoms they experienced during the days preceding their menstrual period. Subjects were asked to rate symptoms as "none," "mild," or "severe." The obtained results supported the hypothesis of periodic emotional tension and aggression.

From these five wide-ranging observational studies on the relationship of pre-and menstrual symptoms of irritability, aggressive and criminal activity it is noted that all investigators found a relationship significantly beyond chance expectations. It can be concluded that PMS is related to aggression and it is suspected that PMS is related to criminal activity. The nature and source of this relationship needs to be explored in experimentally controlled studies, where outside influences on the subject

can be limited, and exact location in the menstrual cycle can be controlled.

EXPERIMENTAL STUDIES

In experimental studies, researchers had control over the actions of the subjects and their location in the menstrual cycle during testing. It was possible to manipulate and control aggression experimentally. Schonberg et al. (1976) conducted a controlled double blind experiment designed to produce aggression. Gruba and Rohrbaugh (1975) tested women for psychopathology (MMPI) and menstrual distress (Moo's Menstrual Distress Questionnaire-MDQ) in the laboratory at a certain point of their menstrual cycle.

Schonberg, Costanzo, and Carpenter (1976) knew it would be impossible to test for violent aggressive acts in a laboratory under controlled conditions, therefore, in their study females were tested for symbolic aggression during various phases of the menstrual cycle. Subjects' aggression was assessed in a controlled double blind training task which involved experimentally induced frustration which had been found to generate aggression.

Schonberg et al. compared the strength of women's frustration generated behaviors to their location in the menstrual cycle. It was hypothesized that subjects who were in the premenstrual phase of the cycle would show more

aggression (administering higher levels of shock). Subjects attempted to train a male learner by means of administering varying levels of shock when mistakes were made. The subjects were frustrated when the learner (a confederate) would not learn the correct procedure. The shock level selected by subjects was the measure of aggression.

The female subjects filled out a questionnaire after the experiment. From the questionnaire the phase of the menstrual cycle was determined: premenstrual, menstrual, or intermenstrual. The examiner was unaware of what phase of the menstrual cycle the subject was located in while participating in the study.

The greatest amount of aggression was demonstrated by the subjects in the premenstrual phase. Initially, premenstrual subjects selected the highest average level of shock and continued to use higher levels of shock. The subject in the menstrual phase of the cycle began at the next highest shock level and continued with high levels. The intermenstrual subjects began at the lowest levels of shock and did not use shocks as severe as the premenstrual and menstrual groups. The intermenstrual group experienced the frustration effect, and they increased the shock level when the learner confederate repeatedly made mistakes.

Subjects in the premenstrual phase demonstrated the highest level of aggression by persistently administering

high-intensity shocks. Therefore, the statistically significant findings in this study support earlier investigations which indicate women are more aggressive in the premenstrual portion of the menstrual cycle than at any other time.

This study was conducted as a double-blind training task in the laboratory, where behaviors could be closely observed and controlled. It was possible to locate the subject exactly in the menstrual cycle. In another experimental study, Gruba and Rohrbaugh (1975) were able to test subjects for menstrual distress and psychopathology under controlled conditions.

Gruba and Rohrbaugh (1975) administered Moo's Menstrual Distress Questionnaire (MDQ) and the Minnesota Multiphasic Personality Inventory (MMPI) to a group of single, nulliparous college women. They were asked to report to a designated office within the week following their menstrual period in order to complete the research questionnaires. All women took the tests at the same time of their menstrual cycle. The testing took approximately two hours.

Gruba and Rohrbaugh found that psychological factors are more closely related with some areas of menstrual symptomatology than with others. MMPI scales correlated significantly with subjects' reports of cramps, headaches, fatigue, general aches and pains, behavior changes such as

school or work performance, napping, avoidance of social activity, tension, irritability, mood swings, dizziness, nausea and hot flashes. They found little correlation between personality variables and physical symptoms such as weight, swelling, painful breasts and sexual arousal.

Gruba (1975) among other results found a positive correlation between phase of the menstrual cycle, tension, and irritability. This finding corresponds with the results of the majority of other researchers.

From the findings of the studies reviewed, it is known that the menstrual cycle is cyclical in nature with fluctuations in the levels of LH, FSH, estrogen and progesterin. These fluctuations can contribute to cyclical changes in women's behavior. A majority of the researchers (Table 2) found a relationship between premenstrual characteristics and aggression.

TABLE 2
Researchers Findings on PMS

Type	Study	Physical Basis (Yes)	(No)	Aggression (Yes) *(No)
Natural	Dalton(1979)	X		b
	Mandell(1967)	X		b
	Tonks(1967)	X		c
	May(1976)		X	X
	Dan(1976)	X		X
Controlled	Hands(1974)	X		b
	Dalton(1961)	X		b,c
	Singh(1982)	X		c
	Ellis(1971)	X		b,c
	d'Orban(1980)	X		c
	Morton(1953)	X		c
Experimental	Schonberg(1976)	X		b
	Gruba	X		

*type of aggression

a. mild - (i.e., arguing)

b. minor - slap, hit, rule violations

c. major - criminal offense

SUMMARY

Women appear to be more aggressive premenstrually. However, the causes or sources of this aggression are not clear. From the studies reviewed it would appear that PMS is related to hormonal changes that affect a woman immediately preceding and during the early phases of menstruation. While some investigators, notably Dan, could find no pervasive differences between males and females, it is noteworthy that Dan conducted a cross sex study which would militate against finding within sex differences. Several studies lead to the conclusion that some women tend to be violent during the premenstrual phase. It would appear that women in general are more likely to become involved in socially unacceptable, angry, possibly aggressive behavior. To the extent there is a functional relationship between hormones and irritability the following hypothesis is proposed:

Hypothesis 1: Women in the premenstrual and menstrual phase are more aggressive than women in other phases of the menstrual cycle.

Acceptance of this hypothesis would contribute to a better understanding of the generality of the more dramatic finding. If the hypothesis is supported it would be possible to study the nature of the relationship in the general population.

There are several explanations that could be offered for the observed relationship between PMS and violence. Hands et al (1974) suggested that women who are extremely aggressive in the premenstrual and menstrual phase are probably more emotionally disturbed than other women. In essence menstruation serves as a catalyst for the perpetuation of unacceptable behavior in women who already have problems. This plausible conjecture can be recast in the following hypothesis:

Hypothesis 2: Aggressive women in the premenstrual and menstrual phase of the cycle exhibit more psychopathology than aggressive and nonaggressive women in other phases.

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CHAPTER II

METHODOLOGY

This chapter considers the operational definitions and the research methodology employed in the study. In Chapter III the limitations of the study, results, discussion, and recommendations for future research are presented.

Subjects

The subjects for this study were women from the community of Youngstown, Ohio and students from Youngstown State University. They were between the ages of 16-45, had no menstrual problems, were not pregnant, and had not had hysterectomies. They were told that participation in the study would originally take one hour with a short follow-up survey in approximately two weeks.

Instruments

Q-Scale

The Q-scale (Appendix A) questionnaire was developed to measure the amount of aggression present in the subject. Other questions were included in the instrument so the subject would remain unaware of the nature of the study.

Minnesota Multiphasic Personality Inventory

The MMPI (Hathaway and McKinley 1943) was designed to provide an objective assessment of the major forms of psychopathology that affect personal and social adjustment. Subjects at least 16 years of age with a minimum of a sixth grade reading level can be expected to complete the MMPI without serious difficulty. The instrument contains 556 questions, covering a wide range of subject matter. A variety of scales and subscales can be used to measure the degree of psychopathology present (Waldron and Sutton 1984; see Appendix B).

Procedure

The subjects for this study were women from the Youngstown, Ohio community and students from Youngstown State University. The volunteers from the community were told that a study was underway in the Forensic Research Lab concerning women's responses to various issues. They were tested in their homes, and told that participation in the study would originally take one hour with a short follow up survey in approximately two weeks. The release form (Appendix C) was explained and signed by the subjects who were told that they would be informed of the meaning of the study as well as the part they played in it when the study was completed. The subjects were administered the MMPI and the Q-Scale (the Q-Scale was administered twice, once at

the original testing, and again during the follow up survey). Subjects were asked for the dates of their last three menstrual periods and from this report the length of their menstrual cycle was calculated.

Students were approached as volunteers for the study in criminal justice and psychology classrooms, the Women's Resource Center, sign-up sheets on bulletin boards, and through the student newspaper. Ten students from one class received extra credit; the remaining subjects received no credit or compensation. Subjects from the University were tested either individually in a faculty type office or in a group in a conference room. The release form was explained and signed, and the MMPI and Q-Scale were administered. At the conclusion of testing, subjects were asked to the office on a particular date (two weeks later) to fill out a brief follow up questionnaire (the Q-Scale).

The completed questionnaires were kept in a file cabinet in a locked office. As soon as testing was completed, subjects' names were removed from the questionnaires and a case number was assigned. To preserve the anonymity of the volunteers, no one (other than the present author) had access to the data until the names were removed.

In this study, the researcher attempted to look at the relationship between aggression and the menstrual

cycle. Aggression is the intent or attempt to physically harm another person or property. An aggression score was obtained by summing the points earned from the answers given to questions asked on the Q-scale and reproduced below.

In the last week have you yelled at people who really did not deserve it?	Pts
yes, three times or more	3
yes, two times	2
once	1
no	0

In the last week, how often have you argued with people?	
3 times a day or more	3
2 times a day (2 points)	2
once a day (1 point)	1
hardly ever (0 point)	0

During the last week, have you done any of the following: kicked or hit the walls, slammed doors?	
yes, 3 times or more a day	3
yes, 2 times a day	2
once a day	1
hardly ever	0

During the last week, have you lost control of your temper?	
3 times or more a day	3
2 times a day	2
once a day	1
hardly ever	0

During the last week, has anyone made you mad enough to hit them?	
yes	1
no	0

The median score on the aggression scores was approximately four. A median split was performed on the derived scores. If the subject's score was zero to four, she was assigned to the non-aggressive group. If the

score was between five and eleven, she was assigned to the aggressive group.

Subjects were tested during different phases of the menstrual cycle. Researchers have divided the menstrual cycle in different ways, including Dalton's (1961) seven four-day periods, and d'Orban's (1980) grouping of pre- and menstrual days to form the paramenstrual phase.

The Q-Scale requested data from the subjects for the previous week (seven days); therefore, in the analysis of data, subjects were assigned to the intermenstrual group if they were tested on days 14-25 of the menstrual cycle, where day one represents the beginning of menstruation. These days were assigned so that subjects were in the intermenstrual phase of the menstrual cycle for at least 5 of the days for which the report was given (IMP). Subjects tested on days one through seven of the menstrual cycle were assigned to the pre- and menstrual group because for at least five of the last seven report days, they were located in the premenstrual or menstrual phase of the menstrual cycle (PMP). (See Table 3)

TABLE 3
Phase of Menstrual Cycle for Data Collection

Phase	Day	Test Data From	Days in Phase
Menstrual	1	Day 23-Day 1	5 PMP*
	2	Day 24-Day 2	6 PMP
	3	Day 25-Day 3	7 PMP
	4	Day 26-Day 4	7 PMP
Intermenstrual	5	Day 26-Day 4	6 PMP
	6	Day 28-Day 6	5 PMP
	7	Day 1 -Day 7	5 PMP
	14	Day 8 -Day 14	7 IMP*
	15	Day 9 -Day 15	7 IMP
	16	Day 10-Day 16	7 IMP
	17	Day 11-Day 17	7 IMP
	18	Day 12-Day 18	7 IMP
	19	Day 13-Day 19	7 IMP
	20	Day 14-Day 20	7 IMP
	21	Day 15-Day 21	7 IMP
Premenstrual	22	Day 16-Day 22	7 IMP
	23	Day 17-Day 23	7 IMP
	24	Day 18-Day 24	7 IMP
	25	Day 19-Day 25	6 IMP

*PMP - pre and menstrual phase (25, 26, 27, 28, 1, 2, 3, 4)

*IMP - intermenstrual phase (5 - 24)

The subjects were also administered the MMPI (Hathaway and McKinley 1943). The subjects were grouped according to the phase of the menstrual cycle, pre- and menstrual (paramenstrual), or intermenstrual phase. The amount of psychopathology present in each group of the menstrual cycle was studied. It was hypothesized that aggressive women in the pre- and menstrual phase of the menstrual cycle display the most psychopathology.

Rejection of the null hypothesis leads to the conclusion that PMS is confounded with emotional disturbance and supports the idea that menstrual phase is

catalytic. In addition, the analysis should provide some insight into the nature of emotional disturbance that is most influenced by menstrual phase.

SUMMARY

In this chapter the definitions and methodology along with the procedures used in the study were presented. The data was divided into groups depending on subjects' location in the menstrual cycle; pre and menstrual, or intermenstrual. The Q-Scale and MMPI were administered to measure aggression and psychopathology. It was hypothesized that PMP women would be more aggressive and these aggressive PMP women would exhibit more psychopathology than women in other phases of the menstrual cycle. Chapter III presents the results of the analyses' conducted for this study.

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CHAPTER III

ANALYSIS OF RESULTS

A t-test was conducted on the aggression scale to test the hypothesis that women in the premenstrual and menstrual phase are no more aggressive than women in other phases of the menstrual cycle.

Subjects were placed in one of two groups according to their location in the menstrual cycle when tested for aggression. Subjects were assigned to the pre- and menstrual group (PMP) if they were tested on days one through seven of the menstrual cycle. If the subjects were tested for aggression on days 14 through 25 of the menstrual cycle, they were assigned to the intermenstrual group (IMP) (See Table 4).

Table 4

Group T-Test: \bar{x} Agg (PMP) > \bar{x} Agg (IMP)

Group	Mean	St Dev	St Error	t-value	Deg Fr	Prob
Grp. IMP	4.777	1.734	.409	-.75	28	NS
Grp. PMP	5.333	2.309	.667			

No significant difference was found. The hypothesis of no difference cannot be rejected in this between subjects analysis.

A repeated measures t-test analysis was conducted in which each subject was used as their own control. This more powerful procedure allows one to exercise greater control over random error.

Twenty-one subjects were administered the Q-Scale on two separate occasions: during the PMP and the IMP phases of the menstrual cycle. No significant differences were found ($p < .05$, see Table 5).

TABLE 5

Within Subject T-test: x Agg (PMP) > x Agg (IMP)

Mean	St Dev.	St Error	t-value	DF	Prob
.7143	1.765	.385	1.85	20	NS

The hypothesis that aggressive women in the premenstrual and menstrual phase of the menstrual cycle exhibit no more psychopathology than aggressive and nonaggressive women in other phases of the menstrual cycle was tested using a 2 (menstrual phase) x 2 (aggression) ANOVA. Psychopathology was measured by T-score elevations on the 89 scales of the Waldron & Sutton (1984) MMPI scoring program.

The subject data was first divided into phase of the menstrual cycle (phase). Premenstrual phase (PMP) was defined as protocols in which the subject had reported on the Q-Scale for days 1-7 of the cycle. Intermenstrual Phase (IMP) subjects reported for days 14-25.

Subject data for this group were based on the Q-scale aggressiveness score at the time the MMPI was administered (Agg.). Subjects were assigned to the low aggression group if they scored below the median on the aggression scale. Subjects assigned to high aggression scored above the median.

When these subject assignment procedures were used and the analysis was restricted to acceptable protocols wherein the subject completed the Q-scale and the MMPI on the same day, there were 61 usable data sets.

ANOVA's were conducted for the 89 subscales of the MMPI. Aggressive PMP women were found to be significantly ($p < .05$) higher on two subscales of the MMPI: Headache Proneness (See Table 6 and Neurodermatitis (See Table 7).

TABLE 6

Analysis of Variance with Headache Proneness
(subscale 81 of the MMPI) as dependent variable

Source	MS	df	F	P
Main Effects	212.782	2	2.157	NS
PER	.118	1	.001	NS
AGG	417.343	1	4.231	.05
two-way				
interactions	4.024	1	.0431	NS
PER AGG	4.024	1	.041	NS

TABLE 7

Analysis of Variance with Neurodermatitis
as dependent variable (subscale 82 of MMPI)

Source	MS	df	F	P
Main Effects	118.277	2	2.238	NS
PER	220.707	1	4.344	.05
AGG	2.632	1	.052	NS
two-way interactions	12.705	1	.250	NS
PER AGG	12.705	1	.250	NS

Tests for trend indicated differences between groups with regard to Depression, Psychomotor Retardation, Inhibition of Aggression, Hysteria, Denying Social Anxiety, Hypomania, and Psychomotor Acceleration ($p < .10$).

In addition to ANOVA's, Pearson's r 's were calculated to determine if there was any relationship when the independent variable and the dependent variable were measured at interval level (See Table 8). No significant correlations were found.

Table 8
Correlations for MMPI Variable to Levels of Aggression
and Pearson's Variables

CAN NOT SAY	-.03	Soc Alienation	-.00	Defect Inhibition	.03
LIE	-.10	Self Alienation	-.01	Bizarre Sensorary	-.83
FAKE	-.00	Overt Hostility	-.03	Soc Alienation	.04
CORRECTION	.02	Delinquency	.04	Schiz/Conduct	.01
HYPOCHONDRIASIS	.03	Authority Problem	-.00	HYPOMANIA	-.11
Physical Maladiua	.01	Soc Reaponsib	-.00	Hypomania-Obvious	-.11
Somatic Complaint	-.00	Alcoholism	.04	Hypomania-Subtle	-.05
DEPRESSION	.01	MASCULINITY		PsyMotor Accelera	-.02
Dep-Obvious	-.00	FEMININITY	-.07	Ego Inflation	.00
Dep-Subtle	.14	Sensitivity	.04	Imperturbability	.01
Subjective Depres	-.01	Sexual Identity	-.06	Amorality	-.22
Psymotor Retard	.06	PARANOIA	-.05	SOC INTROVERSION	-.02
Mental Dullness	-.49	Paranoia-Obvious	.06	Doninance	-.08
Brooding	-.06	Paranoia-Subtle	-.20	Status	-.00
Inhibit aggress	-.08	Persecutory Ideas	-.02	Ego Strength	-.04
Dependency	-.02	Poignancy	.05	Neurotic Undercon	.03
HYSTERIA	.01	Naivete	-.10	Psychiatric Contr	.03
Hysteria-Obvious	.02	Rigidity (M)		Irreg Med Dischar	.17
Hysteria-Subtle	-.01	Rigidity (F)	.10	Prognosis for ECT	.02
Deny Soc Anxiety	.08	Prejudice	-.01	Low Back Pain	.00
Need Affection	-.04	Paranoid Defense	.08	Ulcer Personality	-.08
Lassitude	.08	PSYCHASTHENIA	.11	Headache Proneness	-.04
Emotional Immatur	.04	IQ Efficiency	.02	Neurodermatitus	-.06
Pharisaic Virtue	-.04	Fundamentalist	-.23	Hypoglycemia Neur	-.09
PSYCH DEVIANCY	-.02	EgoMastery Cog	.01	Caudality	-.01
Psych Dev-Obvious	-.05	Tired Housewife	-.00	Epilepsy	.02
Psych Dev-Subtle	.12	Worried Husband	-.00	Soc Desirability	.05
Family Discard	-.06	SCHIZOPHRENIA	.01	# True Answers	-.01
Soc Imperturbabil	.07	Emotional Alien	.02	Welsh A	.01
		EgoMastery Conat	.10	Welsh R	.07

CHAPTER IV

SUMMARY

At least 50 studies have been conducted since Frank (1931) first recognized premenstrual tension in 1931. Researchers agree that premenstrual tension is a problem, though it is not clear whether premenstrual tension is found in a specific group of women, or if it is a phenomenon which occurs in all women. Women appear to be more aggressive premenstrually, however, the causes or sources of this aggression are not well understood. It would appear that PMS is related to hormonal changes immediately preceding and during the early phases of menstruation and several studies lead to the conclusion that some women tend to be violent during the premenstrual phase. In general, premenstrual women are more likely to become involved in socially unacceptable, angry, possibly aggressive behavior. To the extent there is a functional relationship between hormones and irritability the following hypothesis was proposed:

Women in the premenstrual and menstrual phases of the menstrual cycle are more aggressive than women in other phases.

There are several explanations that could be offered for the observed relationship between PMS and violence. Hands et al., (1974) suggested that women who are extremely aggressive in the premenstrual and menstrual

phases are probably more emotionally disturbed than other women: menstruation serves as a catalyst for the perpetuation of unacceptable behavior in women who already have problems. It was also hypothesized that:

Aggressive women in the premenstrual and menstrual phases of the cycle exhibit more psychopathology than aggressive and nonaggressive women in other phases of the menstrual cycle.

The subjects for this study were women from the urban area of Youngstown, Ohio and students from Youngstown State University. They were between the ages of 16-45, did not have menstrual problems, were not pregnant, or had not had hysterectomies. The subjects were divided into groups depending on their location in the menstrual cycle, pre- and menstrual (defined as intermenstrual). The Q-Scale and MMPI (Hathaway & McKinley, 1943) were administered to measure aggression and psychopathology. A t-test was conducted to test the hypothesis that women in the paramenstrual phase are more aggressive than women in other phases of the menstrual cycle. No significant difference was found. A repeated measure t-test was used to assess within subject differences in level of aggression during the two defined menstrual phases (intermenstrual and PMP). No significant difference was found. An ANOVA was conducted to test the hypothesis that aggressive women in the premenstrual and menstrual phase of the cycle exhibit

more psychopathology than aggressive and nonaggressive women in other phases of the cycle. Aggressive PMP women were found to be significantly ($p < .05$) higher on two subscales of the MMPI: Headache Proneness and Neurodermatitis. Depression, Psychomotor Retardation, Aggression, Hysteria Social Anxiety, and Hypomania were confirmed at $p < .10$. These findings are supported by the work of researchers (Dalton, 1961; Moos, 1969; Morton, 1953; and Lamb, 1953). A Pearson's r was run and no significant correlations were found.

DISCUSSION

The present study was limited to primarily young, white, middle class, well educated women who volunteered to participate. To the extent that these qualities are not the "norm" for women, the generalizability of this study to other women is limited. Compounding this limitation, the small sample size of this study precludes reaching definite conclusions not included in this study.

The majority of researchers have found that aggression is related to the menstrual cycle (See Table 3). However, they studied the more physical forms of aggression: suicide attempts, child abuse and other violent crimes. The present study was concerned with mild forms of aggression; bad temper, yelling and anxiety. It might be

necessary to measure mild forms of aggression more accurately to identify differences in subjects.

The Q-Scale used self-reporting methods, while other researchers used controlled observations. Many problems can arise from the use of subject self-reports. For instance, subjects were reporting on past behavior when they were in a different phase of the cycle. It is possible that current reporting is affected by current emotional state and thus the obtained level of aggression was confounded, and it would appear that controlled observations might be preferable.

Researchers have defined three basic causes of aggression: internal, external, and learned social behavior. Pre- and menstrual aggression seem to be related to external aggression, or drive theories of aggression.-

Dollard, Doob, Miller, and Sears (1939) originated the drive theory of aggression in their book, "Frustration and Aggression". Dollard et al., define aggression as a response having as its goal the injury of a living organism; and frustration as the blocking of some form of ongoing, goal directed behavior.

Their hypothesis of frustration-aggression is dominated by two proposals: frustration always leads to some form of aggression, and aggression always stems from frustration. Dollard et al., believe that frustration does not induce aggression directly, but that it begins a

process which moves towards aggression, that then encourages aggressive behaviors. Aggression can be blocked by the fear of punishment, but the feelings remain.

From the present research, it would appear that the milder forms of aggression that occur in the paramenstrual phase of the menstrual cycle can not be defined in the same manner as more serious criminal acts of aggression. A narrower definition of aggression is needed as well as more accurate measurement of aggression.

It would seem that Dollard et al., (1939) in defining aggression as an action that follows frustration (frustration generated behavior) have more accurately described the mild aggression which often occurs in the paramenstrual phase of the menstrual cycle. Dollard et al., (1939) made the point that while frustration sees to facilitate aggression, the actual occurrence of an aggressive act is partially dependent on the magnitude of the frustration that is experienced. The greater the amount of frustration that is experienced, the more likely aggressive acts are to occur. Schonberg et al., (1976) concurred with this idea, finding that women in the paramenstrual phase of the cycle, when experimentally frustrated showed higher levels of aggression than women similarly frustrated while located in different phases of the menstrual cycle. Their aggression was demonstrated when the women administered high levels of shock to a

learner (a confederate) who failed to learn a specified training task.

In humans the menstrual cycle is controlled by a delicate interplay between hypothalamic, adenohipophyseal, and ovarian hormones. When a woman is in the pre- and menstrual phase of the cycle, these hormonal changes seem to provide the impetus for premenstrual tension and aggression. It seems possible that these hormonal changes also affect a woman's ability to manage frustration. A situation which normally would generate a small amount of aggression, now is experienced as an event of far greater magnitude. As Dollard et al., (1939) stated, the greater the magnitude of frustration, the more likely aggressive acts are to occur. Therefore, more aggressive acts could be expected in these pre- and menstrual women. Much more research is needed on the concept of frustration generated mildly aggressive acts which occur in women located in the pre- and menstrual phase of the menstrual cycle.

CONCLUSIONS

From the previous review of the literature, it is suggested that women are more aggressive in the paramenstrual phase of the menstrual cycle (see Table 3). The causes or sources of this aggression are not clear. It would appear that premenstrual tension and aggression are related to chemical changes that affect women immediately

preceding and during the early phases of menstruation. However, in the present study, no difference was found in the level of aggression in the subjects of this study, and only trivial differences were found in the amount of psychopathology exhibited by these pre- and menstrually aggressive women. This difference in findings raises many questions.

It is suggested that future researchers need to look at the milder forms of aggression. Possibly, aggression is the wrong term for the irritable acts which occur with greater frequency in the paramenstrual phase of the cycle. The definition of aggression needs revision to accurately describe these mildly aggressive acts.

Aggression which occurs paramenstrually should be conceptualized as frustration generated behavior. The greater the magnitude of frustration, the more likely an aggressive behavior is to occur. This aggression is not the same as goal-directed behaviors (robbery, shoplifting, arson, and murder) which many researchers have studied. The intent to aggress, which appears to be present in goal-directed aggression, is missing in frustration generated aggression. The woman is acting to remove or stop the frustrating event. This differs from the goal-directed aggression, in which the woman has a clear intent to commit aggression. This narrower redefinition of aggression might lead to findings which concur with the

results in previous research of increased levels of aggression paramenstrually.

In subsequent research, there is a need to more clearly define the phase of the menstrual cycle the subject is located in when data is gathered. This could be accomplished by keeping prospective records of the subjects' data. Currently, retrospective record keeping was employed and this may have led to the results obtained. The greater cost, administrative difficulty, and time involved in keeping current records would be defrayed by the greater accuracy of the data. Observational methods allow for the best control in research.

Keeping the previously documented limitations in mind, the findings of this study should not necessarily be interpreted as confirming a lack of paramenstrual aggression and accompanying psychopathology. Many other research projects have confirmed the presence of paramenstrual aggression; therefore, much more research is needed in this area before substantive conclusions can be reached about paramenstrual aggression.

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APPENDIX A

Q SCALE

e _____ Date ____ / ____ / ____
 ephone Number _____

tructions:

d each question and decide which response ir **best** for you. Circle
number of the responae. Please try to repond to **every** question.

In the last week, have you yelled at people who really did not deserve it?

- | | |
|-----------------------------|---------|
| 1. yea, three tinea or more | 3. once |
| 2. yea, two tines | 4. no |

Do you uaually eat breakfaat?

- | | |
|--------------|-----------------|
| 1. regularly | 3. occarionally |
| 2. often | 4. hardly ever |

Write in the number of children. who lived, that you have given birth to. ____

(00 = no children, 61 = one child)

Do you feel irritable this week?

1. very irritable, any little thing could upset me
2. somewhat irritable, something could upset me
3. a little irritable, a major evrnt could upset me
4. not very irritable, not much could upset ma

How often do you eat foodr that havr sugar ar a major ingredient?

- | | |
|----------------|----------------------|
| 1. quite often | 3. only occarionally |
| 2. often | 4. almost never |

During the last week, have you found it easy to laugh?

- | | |
|---------------|----------------------|
| 1. quite easy | 3. only occarionally |
| 2. easy | 4. almort never |

During the last week, haa anyone made you mad enough to hit them?

1. yes, had to hit one or more of my children
2. yes, my huaband or boyfriend
3. others _____
4. no

Within the last week. havm you spoken to your mother?

1. yea-on the phone
2. yea-viaited re
3. no

During the last week, how many hours have you watched television?
 _____ hours.

Do you often feel angry?

- | | |
|-------------------------------|------------------------|
| 1. yes, 3 times or more a day | 3. at least once a day |
| 2. yea, 2 times a day | 4. hardly evrr |

Have you ever taken birth control pills?

- 1. yes
- 2. no

If yes for number 11, are you currently taking birth control pills?

- 1. yes
- 2. quit within the last two months
- 3. quit more than two months ago

Do you attend church?

- 1. regularly
- 2. often
- 3. occasionally
- 4. almost never

Do you participate in any of the following sports on a regular basis?

- 1. bowling
- 2. soccer
- 3. softball
- 4. golf
- 5. swimming
- 6. jogging
- 7. other

During the last week, how many enjoyable conversations have you had with someone?

_____ conversations

How long does your menstrual period usually last?

_____ days

How many times a day have you cried in the last week?

_____ days

During the last week, how late have you stayed up at night?

- 1. 10:00 PM
- 2. 11:00 PM
- 3. 12:00
- 4. 1:00 AM
- 5. other _____

During the last week, how many times have you had sexual intercourse?

_____ times

How do you feel about your menstrual period?

- 1. dread its arrival
- 2. dislike the inconvenience
- 3. doesn't make any difference
- 4. look forward to its arrival

During the last week, have you done any of the following: kicked or hit the walls, alarmed doors?

- 1. yes, 3 times or more a day
- 2. yes, 2 times a day
- 3. occasionally
- 4. hardly ever

During the last week, have you missed a day of work, or had to stay in bed because of menstrual problems?

- 1. yes
- 2. no

What was the date of the first day of your last menstrual period?

In the last week, how often have you argued with people?

- 1. 3 times or more a day
- 2. 2 times a day
- 3. once a day
- 4. hardly ever

25. If you do argue. who are you most likely to argue with? Check 1 or more.
- | | |
|-------------------------|--------------|
| 1. husband or boyfriend | 4. friends |
| 2. children | 5. coworkers |
| 3. mother or father | 6. others |
16. If you have children, during the last week, how often did you have to verbally discipline (yell at) then?
- | | |
|--------------------------|----------------|
| 1. 3 times a day or more | 3. once a day |
| 2. 2 times a day | 4. hardly ever |
17. During the last week, how often did you have to physically discipline them (hit)?
- | | |
|--------------------------|----------------|
| 1. 3 times a day or more | 3. once a day |
| 2. 2 times a day | 4. hardly ever |
18. How many times have you left your house to participate in social activity this week?
_____ times
9. Do you grind your teeth?
1. yes
 2. no
0. During the last week, have you lost control of your temper?
- | | |
|--------------------------|----------------|
| 1. 3 times or more a day | 3. once a day |
| 2. 2 times a day | 4. hardly ever |
1. During the last week, have you nagged someone?
1. yea
 2. no
2. If you answered yea to 31, who are you most likely to nag?
- | | |
|-------------------------|-----------------|
| 1. husband or boyfriend | 4. coworkers |
| 2. children | 5. others _____ |
| 3. mother or father | |
3. Has there been a major crisis in your family in the last week?
1. yea
 2. no
4. Which of the following symptoms do you associate with the menstrual and premenstrual period? Check those that apply.
- | | |
|--------------------|---------------------|
| 1. breast swelling | 5. fatigue |
| 2. bloating | 6. depression |
| 3. headache | 7. general lethargy |
| 4. irritability | 8. feel aggressive |
5. How honest have you been in answering these questions?
1. very honest
 2. somewhat honest
 3. not very honest

APPENDIX B

Can not say--the count of the items the subject did not answer "true" or "false." If there is no reading problem present, the subject may be obsessional, or have over intellectualized thinking processes which can lead to indecision, paranoia, or inflexible or legalistic orientation.

L or lie scale--this scale consist of 15 items which identify people who have an overly perfectionist view of themaelvea. High acorea can be indicative or rigidity, conscious deception, or naivete. High scores are predictice of underachievement.

F or fake scale--The items in this scale were almost always answered in the aame way by the standardization sample. High scores are associated with one or more of the following: lack of understanding by the petient, lack of cooperation and random or haphazard responaea, distortion due to confusion, delusional thinking, psychotic processes, and falsely claiming mental symptoms.

K or correction scale--The 30 items in this scale are a result of the search to design a scale that reflects the subjects defensiveness. K is a suppressor variable, similar to L except that it is more subtle. Subjects with elevations can't stand the thought that they are insecure. They have difficulties in social relationa, though they often live well-ordered, controlled lives.

1 or Hypochondrias (Ha)--This scale contains 33 items which are related to bodily function and malfunction. An elevated score reflects vague, nonspecific complaints. It primarily assesses character traits, but you can also get elevations from individuals who are experiencing real physical distress. Subjects with high scores are typically sour on life, whiny and pessimistic, and tend to handle hostile feelings by making those around them miserable. They use somatic complaints to control other people. Subscales are Physical Malfunction and Somatic Complaints.

2 or Depression (D)--This scale consists of 60 items that reflect worry, discouragement, low self-esteem, and a pessimistic outlook on life. It is the most frequent peak scale in psychiatric patients and is highly sensitive to mood changes and the meaning tends to depend on the remainder of the scale. Subscales are Subjective Depression, Psychomotor Retardation, Mental Dullness, Brooding, Inhibition of Aggression, and Dependency.

3 or Hysteria (Hy)--This scale consists of 60 items that tap somatic complaints, as well as items which assess denial of emotional difficulty. In normal people these sets of items are not related, but they seem to be related in persons who are somewhat hysterical. Subjects are likely to be naive and self-centered, demanding and often manipulative. Subscales are Denial of Social Anxiety, Need

for Affection, Lassitude-Malaise, Emotional Immaturity, and Pharisaic Virtue.

4 or Psychopathic Deviancy (Pd)--This scale consists of 50 items that are best labeled as a criminality scale. It measures the social adjustment, complaints against the family, boredom, lack of pleasant feelings, and group alienation. Subjects with high scores are not necessarily psychopathic, but can be characterized as angry people with poor social identification. Alcohol abuse, marital difficulties, as well as poor work histories are prevalent. Subscales are Familial Discord Social Imperturbability, Social Alienation, Self-Alienation, Overt Hostility, Delinquency, Authority Problems, Social Responsibility, and Alcoholism.

5 or Masculinity/Femininity (M/F)--This scale contains 50 items that are related to vocational interests, aesthetic preferences, and an activity-passivity dimension. It is constructed to measure homosexuality in both sexes, but it has been found that evaluations are equally likely to reflect one's intelligence and educational background. Homosexuals who wish to conceal their sexual preference can easily do so. Subscales include Sensitivity and Sexual Identity.

6 or Paranoia (Pa)--This scale contains 40 items that tap a variety of processes including persecutory ideas, poignancy, naivete, rigidity, prejudice, and

paranoid defensiveness. This is one of the least effective of the MMPI clinical scales, at least from the viewpoint of performing its intended function. Many people who are clinically paranoid show no elevation of this scale. Subjects who have high scores are suspicious, brooding, harbor grudges, and feel they are being taken advantage of. Subscales are Poignancy, Naivete, Rigidity, Prejudice, Paranoid Defensiveness, and Persecutory Ideas.

7 or Psychasthenia (Pa)--This scale consists of 48 items that assess anxiety, irrational fears, and self-devaluation. It is a general measure of rumination and self-doubt; high scorers are extremely tense and indecisive. Subjects with low scores are relaxed, self-confident, and secure. Subscales are Intellectual Efficiency, Fundamentalist Religiosity, Lack of Egomastasy Cognitive, Tired Housewife, and Worried Breadwinner.

8 or Schizophrenia (SC)--This scale contains 78 items that measure a variety of processes. It should not be interpreted too narrowly. Subjects with high scores almost always feel alienated, misunderstood, and out of touch with the social environment. They lack the basic skills for socialized living, are withdrawn, and occupy themselves with autistic fantasies. This scale is sensitive to the subjects use of hallucinogenic substances, and to "faking" a bad response. Negro subjects obtain higher scores on this scale due to subcultural beliefs in

out of the body experiences, fundamentalist religious experiencea, as well as feelings of cultural alienation. Subscales include Emotional Alienation, Mastery-cognitive, Defective Inhibition, Bizzare Sensory Experiences, Social Alienation, Schiz-Conduct Disorder Differentiation.

9 or Hypomania (Ma)--This scale contains 49 items that assess expansiveness, egotism, and irritability. Subjects with high scores are warm and outgoing, uninhibited, and are likely to become easily offended. They have the capacity for sustained activity, and may seem to be tense and hyperactive. A low score is suggestive of listless depression. Subscales include Psychomotor Acceleration, Ego Inflation, Imperturbability, and Amoralilty.

0 or Social Introversion (Si)--This scale was developed later than the other clinical scales, and is not based on psychiatric symptoms. This scale assesses the subject's level of social participation and comfort in personal relations. High scorers are withdrawn, aloof, and anxious in the social setting. Extremely low scorers reflect flightiness and superficiality in relationships. They rely on other people for approval and for feelings of self-worth.

Medical Scales--These are scores and interpretations for some medical research scales. These are presented primarily to stimulate others to conduct research using

different samples of patients and to collect information concerning their validity. Subscales include Neurotic Undercontrol, Psychiatric Control, Irregular Medical Discharge, Prognosis for ECT, Low Back Pain, Ulcer Personality, Headache Proneness, Neurodermatitis, Hypoglycemia Neurosis.

Obvious/Subtle Subscales (0/5)--Dominance, Status, Ego Strength.

APPENDIX C



Forensic Research Laboratory 2081 Cusawa Hall Phone 742-3230
INFORMED CONSENT

The FRL is constructing a computerized testing machine that will be used to assist doctors in the diagnosis of various mental health problems and to identify people that do not have clinically significant problems. To construct this machine we need to test a variety of procedures to find out which ones will be of most use in the diagnostic process. You can assist us in this research by answering questions: solving puzzles at a computer terminal; and through completing paper and pencil instruments.

Your job is to follow the directions provided. Answer questions as honestly as possible, and complete the puzzles as well as you can. During the time that you are working at the computer we will (not) be monitoring your physiological state.

There are no physical personal or social risks to you in any of the procedures that will be used. Alternate procedures are not available unless indicated by the researcher. The potential benefit that accrue to you include the experience that you gain from seeing now a research study is conducted from the viewpoint of a research participant and the satisfaction that you gain from participating in a worthwhile endeavor. With a little luck, and a lot of work. we may be able to improve upon the diagnostic procedures used in the provision of mental health services.

Your signature below indicates that you are willing to participate in the research as described here. You may withdraw your permission to participate in the studies at anytime. People sometimes begin to participate in a study and then find the study is not what they had expected. If you want to withdraw from the study at ANYTIME please tell us you want to stop. We will destroy all information collected from you, and we will thank you for the assistance that you aid provide. While we think that you will find this project interesting, perhaps enjoyable, we realize that some people, for whatever reason. just don't want to go on.

At the end of your participation we will give you a receipt that indicates the amount of time that you spent in the research studies. Professors who allow extra credit for research participation in the FRL studies are listed on the office door. You can turn your slip into any of these professors as proof of participation and will receive credit as you have been instructed in the class.

If you have any problems with the research methods or if you simply have a question that you would like the project leader to answer please request to speak with the FRL Director. We will make every effort to be available to answer any of your questions concerning the studies you are participating in. Without you we would not have a vigorous research program. Thank you for your assistance.

Yours truly, J. Waldron, Ph.D., Associate Professor. Director of the FRL

I hereby give my consent to participate in this research until such time as I verbally state that I withdraw permission.

Research Participant

Witness ___ / ___ / ___