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THE INFLUENCE OF DEMAND CHARACTERISTICS AND PSYCHOSOCIAL
STEREOTYPES ON MENSTRUAL CYCLE MOOD FLUCTUATIONS
AND THE MENSTRUAL DISTRESS QUESTIONNAIRE

A Thesis

by

KAY RUBLE

Submitted to the Graduate School

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in partial fulfillment of the requirements for the degree of
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June 1985

Major Department: Psychology

THE INFLUENCE OF DEMAND CHARACTERISTICS AND PSYCHOSOCIAL
STEREOTYPES ON MENSTRUAL CYCLE MOOD FLUCTUATIONS
AND THE MENSTRUAL DISTRESS QUESTIONNAIRE

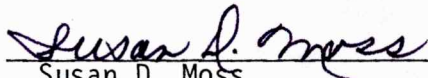
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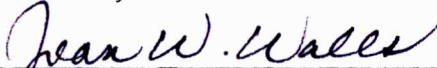
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THE INFLUENCE OF DEMAND CHARACTERISTICS AND PSYCHOSOCIAL
STEREOTYPES ON MENSTRUAL CYCLE MOOD FLUCTUATIONS AND
THE MENSTRUAL DISTRESS QUESTIONNAIRE. (June 1985)

Kay Ruble

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Three hundred and fifty-three undergraduates from a state university were given the Depression Adjective Checklist (DACL), the State form of the State-Trait Anxiety Inventory, the Menstrual Distress Questionnaire (MDQ), and the MMPI Hypochondriasis scale. Subjects told that the study involved men and women's health issues participated in the Unaware condition. Subjects told that the study involved menstrual cycle experiences, particularly premenstrual experiences and premenstrual problems, participated in the Aware condition. A 2 x 3 analysis of variance (Awareness X Phase) yielded significant main effects for awareness on the MDQ control and water retention factors. A significant main effect for phase on the water retention factor was also found. In addition, significant interactions between phase and awareness were found on the MDQ water retention factor and the MMPI Hypochondriasis scale. It was concluded that cultural stereotypes and demand characteristics may exacerbate the reporting of menstrual and premenstrual complaints. Future

research should continue to probe the effect of awareness on menstrual cycle research so that the previous findings of menstrual cycle studies can be accurately interpreted.

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INTRODUCTION

Premenstrual Syndrome (PMS) was first described in 1931 by Frank as "premenstrual tension," an effective syndrome occurring 7 to 10 days before menstruation. Premenstrual tension was characterized by a "feeling of indescribable tension...unrest, irritability." In 1953, Dalton coined the term premenstrual syndrome. Some 150 symptoms have been associated with PMS by various authors including tenderness of breasts, migraine-like headaches, craving for sweets, thirst, weight gain, abdominal bloating, nausea, vomiting, increase in libido, emotional instability, lack of concentration, insomnia, hand tremors, swelling of ankles, and mental confusion. Reports of emotional PMS symptoms have led a number of researchers to investigate the relationship between PMS and mood changes using various affective measures. Two aspects of PMS research that have not received much attention in the research designs reported in the literature are the effects of demand characteristics and psychosocial stereotypes about the menstrual cycle on responses during testing for mood swings in the premenstruum. Researchers have either not reported or have not attempted to control for the possibility that subjects' knowledge of the purpose of a PMS study could affect their test responses and consequently could affect the conclusions drawn about women's emotional status across the menstrual cycle. Some

attention, however, has been given to demand characteristics and stereotypic response bias in a commonly used method of assessing premenstrual and menstrual symptoms, the Menstrual Distress Questionnaire (MDQ).

REVIEW OF THE LITERATURE

Demand Characteristics

The effect of demand characteristics in experiments first came to the attention of researchers in a review of literature by Rosenthal (1964) pointing to possible experimenter outcome-orientation bias on the results of psychological experiments. Rosenthal examined a number of studies in which the outcome orientation of the experimenter may have affected the performance of subjects. He cautioned future researchers to remember that even the experimenter's subtle gestures or the atmosphere of the study can bias the performance of subjects.

Orne and Evans (1965) supported Rosenthal's ideas in a study of hypnosis designed to investigate the role of social control in the psychological experiment. They found that not only would hypnotized subjects perform such actions as holding a snake and throwing acid at the experimenter, but nonhypnotizable subjects and waking control subjects performed these actions upon the request of the experimenter as well. One of the conclusions reached by Orne and Evans was that an experimenter could predetermine the behavior of subjects by subtly communicating to the subject any expectations of failure or compliance.

The Menstrual Distress Questionnaire

With the growing recognition that many women are handicapped by premenstrual and menstrual distress, a reliable method of assessing symptomatology, as well as degrees of distress, was needed. In an attempt to meet this need, Moos (1968) developed a Menstrual Distress Questionnaire which has been widely used in PMS research since its development. A list of 47 symptoms was obtained by asking women open-ended questions about menstrual cycle symptoms and reviewing previous research on the menstrual cycle. Eight hundred and thirty-nine wives of graduate students were asked to rate their experience of the 47 symptoms on a scale of 1 to 6 ranging from no experience of the symptom to a disabling experience of the symptom. The 47 symptoms were intercorrelated and factor analyzed for the menstrual, premenstrual, and intermenstrual phases of the cycle. Eight factors emerged: pain, concentration, behavioral change, autonomic reactions, water retention, negative affect, arousal, and control. Means and standard deviations were calculated for each factor in the menstrual, premenstrual, and intermenstrual phases. Correlations between the phases a woman was in when she filled out the questionnaire and symptom scale scores revealed that the scores were not affected by the phase a woman was in when she filled out the questionnaire ($p < .05$).

Demand Characteristics and the Influence of Menstrual Cycle Stereotypes

Ruble (1977) demonstrated that stereotypes of premenstrual and menstrual symptoms have an effect on the outcome of PMS research.

Forty-four undergraduate women were deceived about the timing of their next menses. By being told that a new technique had been developed to predict the expected date of menstruation using an electroencephalogram (EEG). After the experimenter made an experimental run of the EEG for each subject, the subject was told that her period would begin in one or two days (the premenstrual group), that her period would begin after a week or 10 days (the intermenstrual group), or she was given no information about the date of her next period (the control group). The Menstrual Distress Questionnaire (MDQ) was then administered and each subject was questioned about her suspiciousness with regard to the true intent of the study. Student t tests revealed that symptom ratings on the MDQ of women who believed they were premenstrual were higher than the symptom ratings of those women who believed they were intermenstrual. The four variables of the MDQ achieving significance were water retention ($p < .01$), change in eating habits ($p < .025$), pain, and sexual arousal ($p < .05$). Ruble concluded that psychosocial factors can influence reports of premenstrual symptoms. She pointed to demand characteristics inherent in the MDQ as an influence on reports of premenstrual symptoms.

Brooks, Ruble, and Clark (1977) further examined the attitudes and expectations of college women concerning menstrual related changes. One hundred and ninety-one undergraduate women completed the Menstrual Distress Questionnaire (MDQ) and a 46 item questionnaire used to assess beliefs about physiological and psychological concomitants of menstruation, styles of dealing with menstruation,

menstrual-related effects on performance, and general evaluations of menstruation. Dependent t tests indicated that women reported less concentration and arousal as well as more behavioral change, autonomic reactions, pain, negative affect, and water retention during the premenstrual phase with pain, negative affect, and water retention showing the greatest difference between the premenstrual and intermenstrual phases ($p < .001$). Furthermore, women who indicated that menstruation was debilitating and predictable had higher symptom scores for the premenstrual phase than women who did not think menstruation was debilitating and predictable. Brooks et al. concluded that the reporting of premenstrual symptoms may be affected by stereotypic expectations although they admit that other explanations are possible.

Woods, Most, and Dery (1982) conducted a comparison of the MDQ and a daily diary as a method of measuring menstrual distress. Seventy-three women, 18 to 35 years of age, kept a daily health diary for two consecutive months. In the diary the women were asked to report any health problems and care they received on a day to day basis. The only reference to menstruation was an item asking the women to put an X if they were menstruating. If the women were told the purpose of the study it is not reported. After completing the daily diary for two months, the subjects were asked to fill out the Menstrual Distress Questionnaire. A greater prevalence of symptoms was found on the MDQ as opposed to the daily diary with the greatest difference between the two methods being more prevalent reports of water retention and negative affect symptoms on the MDQ. The only

statistically significant concordance of symptom reporting across the two measures were menstrual cramps ($p < .021$) and premenstrual backache ($p < .036$). The authors concluded that the results of this study support the notion that menstrual stereotypes as well as recall bias affect retrospective symptom reports. This writer also considers possible demand characteristics inherent in the MDQ, mentioned earlier by Ruble (1977), as a possible influence over more prevalent symptom reports on the MDQ.

Menstrual-Related Symptoms and Mood Fluctuations

The MDQ has become widely used as a means of assessing premenstrual symptomatology. However, with the exception of the previously mentioned studies, the possibility of demand characteristics and stereotypic bias has not been considered in menstrual cycle research designs. Gruba and Rohrbaugh (1975) investigated the correlations between different aspects of menstrual distress and the MMPI by administering Moos' Menstrual Distress Questionnaire (MDQ) and the MMPI to undergraduate women. The women were told in an initial meeting that the study involved menstrual experiences. The results of partial correlations showed a significant correlation between MMPI scales and premenstrual pain, menstrual behavior change, and premenstrual negative affect as measured by the Moos questionnaire ($p < .01$ and $p < .05$). No significant correlations, however, were found between the MMPI scales and water retention and arousal. Where correlations did occur between the MMPI and the MDQ during the premenstrual phase the Hs, Hy, Pt, and Sc scales of the MMPI were involved. The pain factor on the MDQ correlated significantly with

the Sc scale of the MMPI ($p < .05$). The behavioral change factor correlated significantly with the Hs, Hy, Pt, and Sc MMPI scales ($p < .05$). Autonomic reactions correlated significantly with the Hs and Sc MMPI scales and negative affect correlated significantly with the Hs, Hy, Pt, and Sc MMPI scales ($p < .05$). In addition, the control factor correlated significantly with the Hs, Pt, and Sc scales ($p < .05$). These results, however, cannot be considered apart from possible demand characteristics inherent in the MDQ as well as the fact that the subjects' knowledge that the study involved menstrual experiences could have influenced their responses to the MMPI.

Golub (1976) assessed the intensity of premenstrual anxiety and depression by obtaining anxiety and depression measures for a sample of 30 to 45 year old women and comparing the results to normative data. The Menstrual Distress Questionnaire (MDQ) was used to assess menstrual cycle symptoms and the Depression Adjective Check List and the State-Trait Anxiety Inventory were used to assess depression and anxiety, respectively. The women were tested in two groups during the premenstrual and intermenstrual phases which were counterbalanced to control for practice effects. The results of an analysis of variance showed higher depression and anxiety scores in the premenstrual phase than in the intermenstrual phase ($p < .01$). In comparing the anxiety and depression scores with normative data it was found that although anxiety and depression were greater during the premenstrual phase, the changes were different from psychiatric illness or the changes that occur under unusual stress. In addition, no significant correlation was found between premenstrual anxiety or

depression and trait anxiety. While subjects were recruited to participate in a series of studies involving female physiology, personality, and creativity, the intent of the study does not appear to have been very well disguised. The MDQ was given to elicit information about menstrual cycle schedule without informing subjects about the purpose of testing session timing. However, given the explanation of the study, the MDQ, the testing session timing, and no follow-up interview to determine the subjects' suspiciousness about the true purpose of the study, the true purpose of the study could have been fairly transparent to the subjects allowing for demand characteristics and stereotypic response to limit interpretation of the results. Possible demand characteristics and stereotypic response bias in the MDQ must also not go unnoticed in the interpretation of the results.

Halbreich and Kas (1977) examined variations in the Taylor Manifest Anxiety Scale (TMAS) of women with premenstrual syndrome as opposed to a control group of women having no premenstrual complaints. The TMAS was administered to 19 to 45 year old women four times during a three week period including two administrations during the premenstrual period. The results of a t test showed significantly higher TMAS scores for the women with premenstrual syndrome than the control group throughout the menstrual cycle ($p < .01$). It was also found that TMAS scores for the women with premenstrual syndrome rose significantly during the premenstrual period while the scores of the control group did not change ($p < .01$). Once again, however, the credibility of the results is limited by possible demand

characteristics and stereotypic bias. The subjects were referred to Halbreich and Kas by physicians and gynecologists because they had premenstrual complaints. Therefore, it is likely that the intent of the study was not disguised and in the event it was it is not reported.

Watts, Dennerstein, and De L. Horne (1980) conducted a psychological evaluation of women experiencing premenstrual syndrome. The State-Trait Anxiety Inventory, the Eysenck Personality Inventory, and the Role Acceptance Scale were administered to 67 women with 42 comprising a Premenstrual Syndrome Group and 23 comprising a Control Group. The PMS Group was recruited through a radio announcement to participate in a drug trial to examine the effects of Ponstan on premenstrual syndrome. The women who participated in the PMS Group also agreed to be interviewed about their premenstrual problems. Those who were diagnosed as having premenstrual syndrome participated in the remainder of the study. The 23 controls were described as nonpatient contacts of the author. Student t tests revealed that women with premenstrual syndrome had significantly higher levels of trait anxiety and neuroticism ($p < .01$). A Mann-Whitney U-test indicated that women with premenstrual syndrome had more negative attitudes toward their bodies, genitals, sex, and masturbation than did controls ($p < .01$). Furthermore, premenstrual syndrome sufferers and controls both held negative attitudes toward menarche and menses. It is, therefore, necessary to consider whether or not negative attitudes toward menses could affect the responses of women during

testing for PMS research if they are aware of the purpose of the study.

Haskett, Steiner, Osmen, and Carroll (1980) attempted to delineate the various aspects of severe premenstrual syndrome. The Visual Analogue Scale, Menstrual Distress Questionnaire, Multiple Adjective Checklist, State-Trait Anxiety Inventory, Hamilton Depression Scale, and Carroll Depression Scale were administered during the follicular phase and the premenstrual week to 42 women with moderate to severe premenstrual symptoms. Item analyses revealed significant differences between scores obtained during the follicular phase and scores obtained during the premenstrual week on the Hamilton Depression Scale, the Carroll Depression Scale, and the State Anxiety Inventory ($p < .001$). The Trait Anxiety Inventory showed no significant difference between the two menstrual cycle phases. Item analysis of the Menstrual Distress Questionnaire indicated that irritability, mood swings, tension, and restlessness were the most prominent emotional symptoms of premenstrual syndrome. Analysis of the MDQ also indicated that decreased efficiency, accidents, difficulty in concentration, distractability, lowered motor coordination, and lowered work performance were the most prominent physical symptoms of premenstrual syndrome. These results, however, must be considered in light of the way subjects were recruited. Subjects were selected from physician referrals and volunteers responding to newspaper advertisements requesting women suffering from severe premenstrual symptoms who wished to participate in drug treatment trials. The subjects were interviewed on several occasions

about the effects of premenstrual symptoms on their lives making it unlikely that possible demand characteristics and stereotypic bias could not have affected subjects' responses to the affective measures as well as the MDQ. Additional findings indicated that the MDQ Form T for rating symptoms on the day the Questionnaire is filled out and the MDQ Form A-B requiring a retrospective rating of premenstrual symptoms correlated well ($r = .72, p < .001$). This finding corroborates Moos' discovery that women report the same severity of symptoms regardless of when the MDQ is administered.

In a subsequent study modeled after Golub (1976), Golub and Harrington (1981) investigated premenstrual and menstrual mood changes in adolescent women. The 15-16 year old subjects were first given the Menstrual Distress Questionnaire (MDQ) and were told that the menstrual experiences of high school students were being investigated. The word "distress" was eliminated from the title of the MDQ to cut down on negative stereotypes about menstrual experiences. Three weeks later the State-Trait Anxiety Inventory and the Depression Adjective Checklist were administered during classes to the female students who had all previously filled out the MDQ and the male students. No connection was made between the testing session and the study of menstrual experiences. Twenty-nine females were tested within four days before menstruation (the premenstrual group) and 23 females were tested within the first four days of menstruation (the menstrual group). The male students served as a control group. Within-group comparisons using correlated t tests showed no significant differences in anxiety or depression during

either the premenstrual or the menstrual phases despite the reporting of premenstrual and menstrual distress on the MDQ. Significant differences in depression and anxiety were also not found in the control group. Golub concluded that adolescent women are different from women over 30 who did show significant changes in depression and anxiety during the premenstrual phase using the same measures in her earlier study (Golub, 1976). While adolescent women do tend to report less severe premenstrual symptoms than older women, an alternative conclusion might have been reached by Golub and Harrington. They may have failed to find significant differences in depression and anxiety during the premenstruum because unlike the subjects in Golub's earlier study, it is not likely that the subjects in this study knew the true intent of the testing.

Abramowitz, Baker, and Fleischer (1982) studied the onset of depressive and schizophrenic crises during the menstrual cycle by comparing the case records of women admitted to a psychiatric facility over an 18 month period. Chi-square analyses indicated that depressed women had a higher rate of psychiatric admissions during two specified days of the paramenstruum, i.e., the day before the onset of menstruation and the day of menstruation, than during the 20 days of the nonparamenstruum ($p < .001$). The depressed women also showed a moderately higher rate of admissions on the six other days of the paramenstruum. When depressed women were compared to schizophrenic women, however, the schizophrenic women showed a significantly different pattern of admissions without a higher rate of admissions during the two specified paramenstruum days ($p < .05$). While this

study does not allow for the possibility of demand characteristics and stereotypic response bias in its design, it remains possible that stereotypes about the premenstruum are still operating. Psychosocial expectations about the emotional state of women during the premenstruum may be responsible for higher rates of depression during the premenstruum and consequently higher psychiatric admission rates during the premenstruum.

Lahmeyer, Miller, and DeLeon-Jones (1982) studied anxiety and mood fluctuation during the normal menstrual cycle using the Menstrual Distress Questionnaire (MDQ) and the State-Trait Anxiety Scale. Subjects were told initially that the study involved biochemical aspects of the normal menstrual cycle. Eleven women with an average age of 23 participated after having been screened to rule out psychopathology. Analyses of variance determined that while scores on the MDQ peaked during the premenstrual phase, only water retention showed a significant elevation during the premenstrual phase ($p < .05$). Likewise on the State-Trait Anxiety Scale, state anxiety peaked during the premenstrual phase, but an analysis of variance did not indicate a significant increase in anxiety during the premenstruum. The authors report, however, that none of the subjects complained of premenstrual problems yet anxiety and total MDQ scores still peaked at the premenstruum with water retention peaking significantly. Thus, demand characteristics and stereotypic response bias appear to be possible influences on the anxiety measure and the MDQ.

Control of Demand Characteristics and the Influence of Menstrual Cycle Stereotypes

Some attempts have been made to determine the extent to which demand characteristics and stereotypes about the menstrual cycle may have biased other PMS research. Englander-Golden, Chang, Whitmore, and Dienstbier (1980) investigated variations in self-reported female sexual arousal in women who were aware of the purpose of the study versus women who were not aware of the purpose of the study. Sixty female undergraduates comprised the Unaware and Aware conditions. In the Unaware condition subjects were told that the study concerned biological rhythms which males and females might have in common. Over an 11 week period each evening the subjects were asked to fill out an 80 item daily mood questionnaire which included a sexual arousal factor. In the Aware condition subjects were told that in order to analyze data common to males and females, the effects of menstruation had to be factored out. The subjects were then asked to fill out the same questionnaire they had been filling out daily, but this time to give answers based on how they remembered feeling during the premenstrual, menstrual, and luteal (days 13 through 7 prior to the onset of menstruation) phases of their most recent menstrual cycle. At the end of the study subjects were questioned about any suspicions concerning the true purpose of the study and none reported any suspicions. A 2 x 3 analysis of variance with aware versus unaware and premenstrual, menstrual, and luteal phases as the independent variables was performed on the data. The results indicated that the Unaware condition showed the lowest level

of sexual arousal during the luteal phase which is consistent with hypotheses about hormone levels during that phase. The Aware condition, however, showed the highest level of sexual arousal during the luteal phase and is not consistent with hypotheses about hormone levels during that phase ($p < .003$). The researchers concluded that awareness of the purpose of the study may have an effect on self-reports and may bias reports according to cultural stereotypes.

Vila and Beech (1980) attempted to assess the effect of cognitive set on the evaluation of mood changes across the menstrual cycle. Forty-eight female phobic hospital patients participated in the study. The subjects were randomly assigned to a premenstrual or an intermenstrual group. Menstrual cycle information was obtained by hospital personnel to avoid any connection with the experimenters. The premenstrual group was tested within five days before menstruation and the intermenstrual group was tested within five days between days 9 and 19 of their cycles using the Profile of Mood States (POMS), the Gottschalk-Gleser Free Association Test (FAT), the Menstrual Distress Questionnaire (MDQ), and a subjective rating of the loudness and unpleasantness of a noise. Analyses of variance indicated that on the MDQ ratings of negative affect, pain, concentration, behavior, water retention, autonomic reactions, control ($p < .001$), and arousal ($p < .05$) were significantly higher during the premenstrual phase. However, it was also determined that both the premenstrual and intermenstrual groups reported mood changes during the two phases on retrospective measures, but not when concurrent measures were used and the purpose of the study was

disguised. Vila and Beech concluded that in reporting menstrual symptomatology women may be following cultural stereotypes about menstrual experiences.

Statement of the Problem

The majority of PMS research using affective measures reveals significantly higher levels of depression and anxiety during the premenstruum. However, lack of consideration of demand characteristics and stereotypic response bias in the designs of these studies make the results and conclusions questionable. Research using the Menstrual Distress Questionnaire (MDQ) indicates significantly greater water retention, pain, sexual arousal, irritability, mood swings, tension, restlessness, and a change in eating habits during the premenstruum. Further evidence in the literature, however, points to demand characteristics in the MDQ by virtue of the nature of the questions which require responses concerning distress in the menstrual cycle, and the possible influence of negative cultural stereotypes about the menstrual cycle on MDQ responses.

Demand characteristics and stereotypic response bias appear to be linked together in PMS research. It is likely that subjects' negative stereotypes about the premenstruum may not only influence subjects to give biased responses to measures because they expect premenstrual distress, but also because they believe experimenters when studying the menstrual cycle would expect premenstrual distress. The possibility of demand characteristics as a result of experimenter expectations and subjects' expectations due to cultural stereotypes about premenstrual symptoms have an as yet unmeasured effect on

previous PMS research. For this reason it was necessary to further investigate any possible differences in responses during testing for a PMS study between subjects who were aware that they were participating in a PMS study and subjects who were naive as to the intent of the study.

The purpose of this study was to examine any differences between the reported psychological and physical status of premenstrual, menstrual, and intermenstrual women who were aware of the purpose of the study versus the reported psychological and physical status of premenstrual, menstrual, and intermenstrual women who were not aware of the purpose of the study. This study also examined premenstrual and menstrual symptom reports on the Menstrual Distress Questionnaire (MDQ) of women who were unaware and aware of the purpose of the study.

METHOD

Design

A between subjects design was used with awareness of the study's purpose versus ignorance of the study's purpose serving as the independent variable. Menstrual cycle phase was also used as an independent variable. The dependent variables employed were the Depression Adjective Checklist, the State-Trait Anxiety Inventory, the Menstrual Distress Questionnaire, and the Hypochondriasis scale from the MMPI.

Subjects

Three hundred and fifty-three undergraduates ranging in age from 18 to 21 originally served as subjects. From the original pool of subjects 205 female students were selected to participate because they were not taking oral contraceptives and they had regular menstrual cycles as indicated on the family medical history.

Instruments

Depression Adjective Checklist (DACL). The DACL (Appendix A) is a brief self-report measure of transient depressive mood. Each list contains 32 adjectives describing varying degrees of depression and elation. Form D of the DACL was used in this study.

Menstrual Distress Questionnaire (MDQ). The MDQ (Appendix A) was developed by Moos (1968) to assess distress across the menstrual

cycle. The Questionnaire consists of 47 items with each item describing a different symptom. Subjects are asked to rate their experience of each symptom on a 6 point scale. On the 6 point scale 1 indicates no experience of the symptom; 2 indicates barely noticeable; 3 indicates present, mild; 4 indicates present, moderate; 5 indicates present, strong; and 6 indicates strong, disabling. The items are divided into eight factors: pain, concentration, behavior change, autonomic reaction, water retention, negative affect, arousal, and control. Form T of the MDQ was used which requires subjects to report how they feel at the time of the administration. Split-half reliabilities for each of the eight factors varied from .74 to .98 and all were statistically significant.

State-Trait Anxiety Inventory (STAI). The State form of the STAI (Appendix A) was used in this study. The State form consists of 20 items requiring subjects to report how they feel at the time of the administration.

MMPI Hypochondriasis Scale. The Hypochondriasis scale (Appendix A) from the Minnesota Multiphasic Personality Inventory (MMPI) was used to measure the number of bodily complaints claimed by subjects.

Family Medical History

The medical history was used as a disguise to obtain menstrual cycle dates and oral contraceptive information without informing Unaware subjects about the purpose of the study. Other information from the form was not used (Appendix A).

Procedure

Subjects were selected from introductory psychology, philosophy, and religion classes. Female students in one-half of the introductory classes were asked to participate in a study involving menstrual cycle experiences, particularly premenstrual experiences and problems which would require approximately one hour of their time during one evening. The potential subjects were advised at this time about the date, time, and location of their testing session (Appendix B). The female subjects recruited in this way participated in the Aware condition.

Male and female students in the other half of the introductory classes were asked to participate in a study involving health issues of young men and women which would require approximately one hour of their time during one evening. The potential subjects were advised at this time about the date, time, and location of their testing session (Appendix C). The female subjects recruited in this way participated in the Unaware condition. The recruited male subjects served to further mask the purpose of the study.

The male and female subjects in the Unaware group were tested first. They were tested in four testing sessions over a two day period. They were told again that they were participating in a study of men and women's health issues (Appendix D). The DACL, the State-Trait, the MDQ, the Hypochondriasis scale, and the family medical history form were administered to all male and female subjects.

At the end of the last measure administered, the MDQ, the subjects were asked what they thought the purpose of the study was.

None of the subjects guessed the true purpose of the study. Subjects were advised that a full explanation of the study would be posted on the bulletin board in the Psychology building in two weeks. They were also asked to list their names and telephone numbers so that they could be contacted for follow-up information. The 21 subjects who appeared to be premenstrual (within four days before menstruation) at the time of testing formed the Unaware Premenstrual group and were contacted by telephone within two weeks after the testing session. They were asked the actual date when they began menstruating in order to determine if they were in fact premenstrual at the time of testing. The 15 female subjects who appeared to be within five days of the beginning of menstruation at the time of testing formed the Unaware Menstrual group. The remaining 48 female subjects formed the Unaware Intermenstrual group.

The female subjects in the Aware group were tested after the completion of all testing for the Unaware group. The Aware group was tested in seven testing sessions over a three week period. They were told again that the study involved menstrual cycle experiences, particularly premenstrual experiences and problems (Appendix E).

The DACL, the State-Trait, the MDQ, the Hypochondriasis scale, and the family medical history form were administered to the subjects. In line with the Golub and Harrington (1981) study, the word "distress" was removed from the title of the MDQ. They were advised that a full explanation of the study would be posted on the bulletin board in the Psychology building within three weeks.

Subjects were asked to list their names and telephone numbers so that they could be contacted for follow-up information. The 22 subjects who appeared to be premenstrual (within four days before menstruation) at the time of testing were contacted by telephone within three weeks after the testing session. They were asked the actual date when they began menstruating in order to determine if they were in fact premenstrual at the time of testing. The 26 subjects who appeared to be within five days of the beginning of menstruation at the time of testing formed the Aware Menstrual group. The remaining 73 subjects formed the Aware Intermenstrual group.

Statistical Analysis

A series of analyses of variance were used to analyze the data. Scores from the DACL, the State-Trait Anxiety Inventory, the MDQ, and the Hypochondriasis scale were used as dependent variables. The subjects' awareness or lack of awareness about the purpose of the study and their menstrual cycle phases were used as the independent variables.

RESULTS

A two by three analysis of variance (Awareness X Phase) was conducted for each of the factors measured by the Menstrual Distress Questionnaire (MDQ), the State-Trait Anxiety Inventory, the Depression Adjective Checklist, and the Hypochondriasis scale from the MMPI. Significance was found on two of the eight factors measured by the MDQ, control and water retention. In addition, statistical analysis indicated significance on the Hypochondriasis scale from the MMPI.

A significant main effect was found for the main effect on the control factor of awareness, $F(1, 199) = 5.66$, $p = .018$, (Table 1). The Aware groups scored significantly higher than the Unaware groups. No main effect for phase was indicated and no significant interaction between awareness and phase was found.

The ANOVA performed on a second MDQ factor, water retention, yielded a significant main effect for awareness, $F(1, 199) = 4.34$, $p = .038$, (Table 2). The Aware groups scored significantly higher than the Unaware groups. A main effect was also found on the water retention factor according to phase, $F(2, 199) = 9.74$, $p = .000$. Student t tests indicated that the menstrual subjects complained of more water retention symptoms than the intermenstrual and premenstrual subjects, ($t = 1.960$, $p < .05$). In addition, the ANOVA

Table 1

Analysis of Variance for the MDQ Control Factor According to
Awareness and Phase

Source	<u>Df</u>	<u>MS</u>	<u>F</u>	Significance
Awareness (A)	1	40.648	5.664	0.018***
Phase (P)	2	1.232	0.172	0.842
A x P	2	1.918	0.267	0.766
Residual	199	7.176	-	-
Total	204	7.237	-	-

***Significant at the .05 level.

Table 2

Analysis of Variance for the MDQ Water Retention Factor According to Awareness and Phase

Source	<u>Df</u>	<u>MS</u>	<u>F</u>	Significance
Awareness (A)	1	31.783	4.341	0.038***
Phase (P)	2	71.339	9.744	0.000***
A x P	2	24.420	3.335	0.038***
Residual	199	7.322	-	-
Total	204	8.250	-	-

***Significant at the .05 level.

yielded a significant interaction between awareness and phase, $F(2, 199) = 3.33$, $p = .038$. Student t tests indicated that the Aware Menstrual group reported more symptoms of water retention than the Unaware Intermenstrual, Unaware Menstrual, and Unaware Premenstrual groups, ($t = 1.960$, $p < .05$). Figure 1 displays the means for the Unaware and Aware Intermenstrual, Menstrual, and Premenstrual groups.

A significant interaction between awareness and phase was also found on the Hypochondriasis scale from the MMPI, $F(2, 199) = 3.43$, $p = .034$, (Table 3). Student t tests indicated that the Unaware Intermenstrual group complained of more physical problems than the Unaware Premenstrual group, ($t = 1.960$, $p < .05$). Furthermore, student t tests indicated that the Aware Premenstrual group complained of more physical problems than the Unaware Menstrual and Unaware Premenstrual groups ($t = 1.960$, $p < .05$). Figure 2 displays the mean scores for the Unaware and Aware Intermenstrual, Menstrual, and Premenstrual groups. No significant main effects according to awareness or phase were found.

The autonomic reactions factor on the MDQ bordered on significance illustrating a trend in the data. The Aware Menstrual group reported more autonomic symptoms than the Unaware Menstrual group, $F(2, 199) = 2.95$, $p = .055$. Figure 3 displays the mean scores of the Unaware and Aware Intermenstrual, Menstrual, and Premenstrual groups. Analyses of variance performed on the pain, concentration, behavior change, negative affect, and arousal factors of the MDQ as well as the Depression Adjective Checklist and the State-Trait

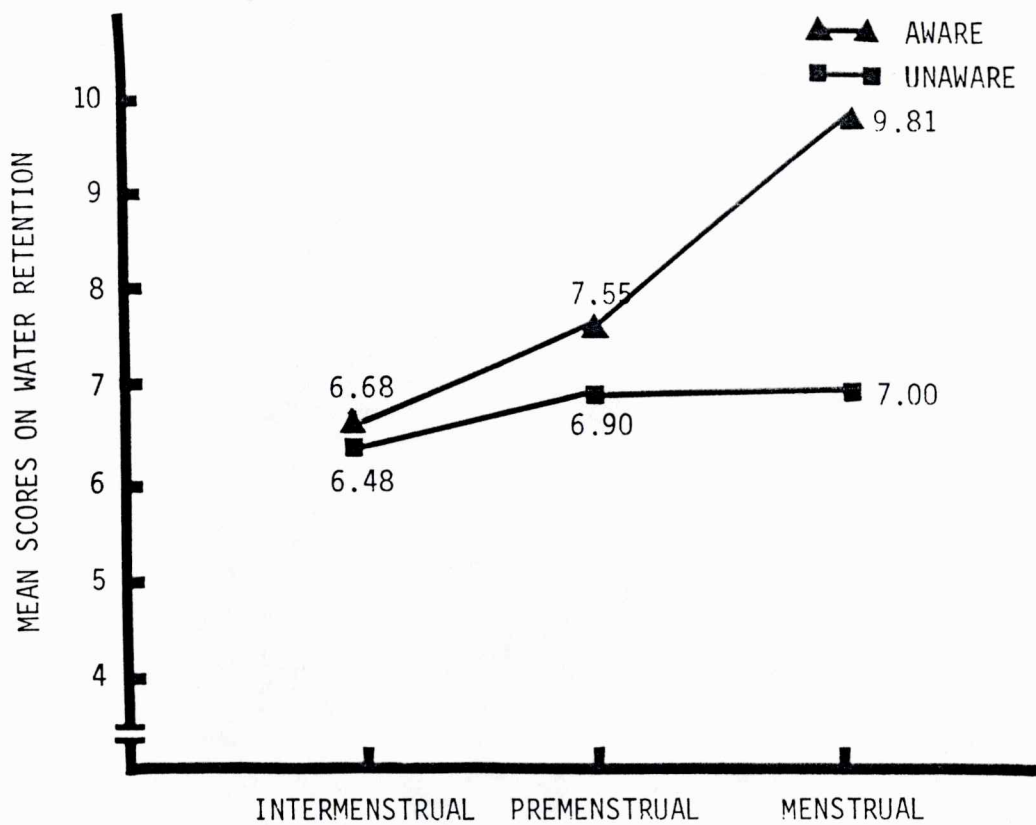


Figure 1. Mean scores on the MDQ water retention factor as a function of awareness and phase.

Table 3

Analysis of Variance for the Hypochondriasis Scale According to
Awareness and Phase

Source	<u>Df</u>	<u>MS</u>	<u>F</u>	Significance
Awareness (A)	1	26.184	1.560	0.213
Phase (P)	2	5.462	0.326	0.723
A x P	2	57.576	3.431	0.034***
Residual	199	16.780	-	-
Total	204	17.114	-	-

***Significant at the .05 level.

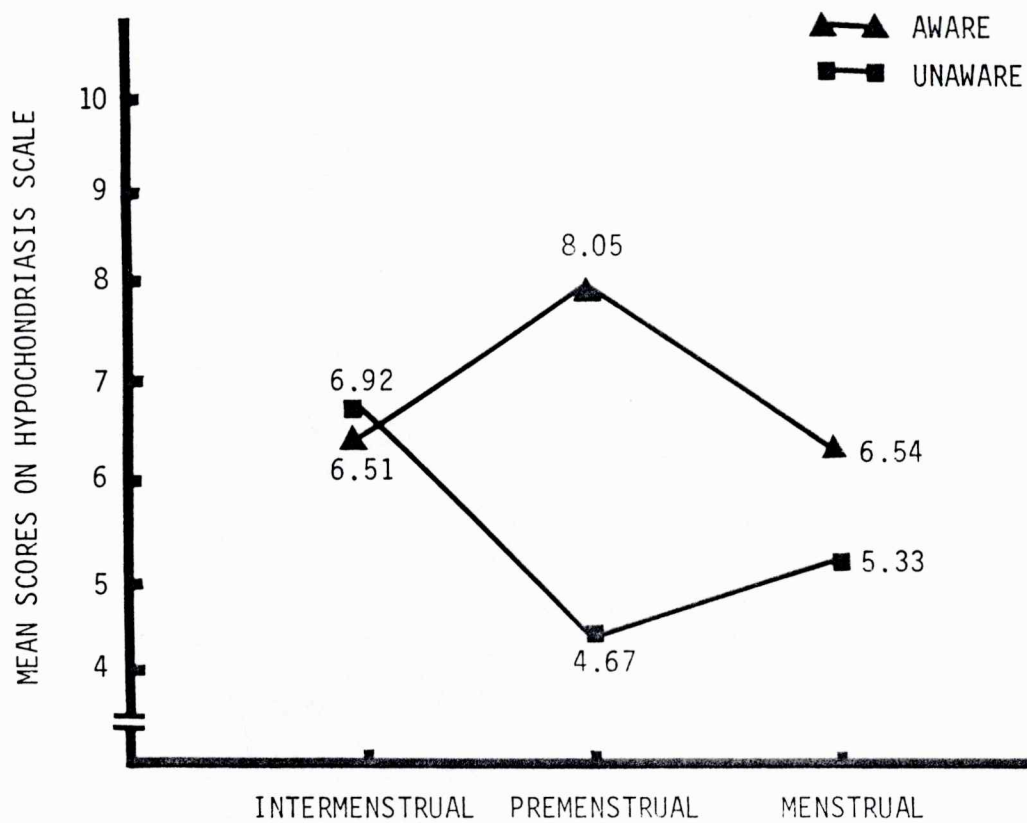


Figure 2. Mean scores on the Hypochondriasis scale as a function of awareness and phase.

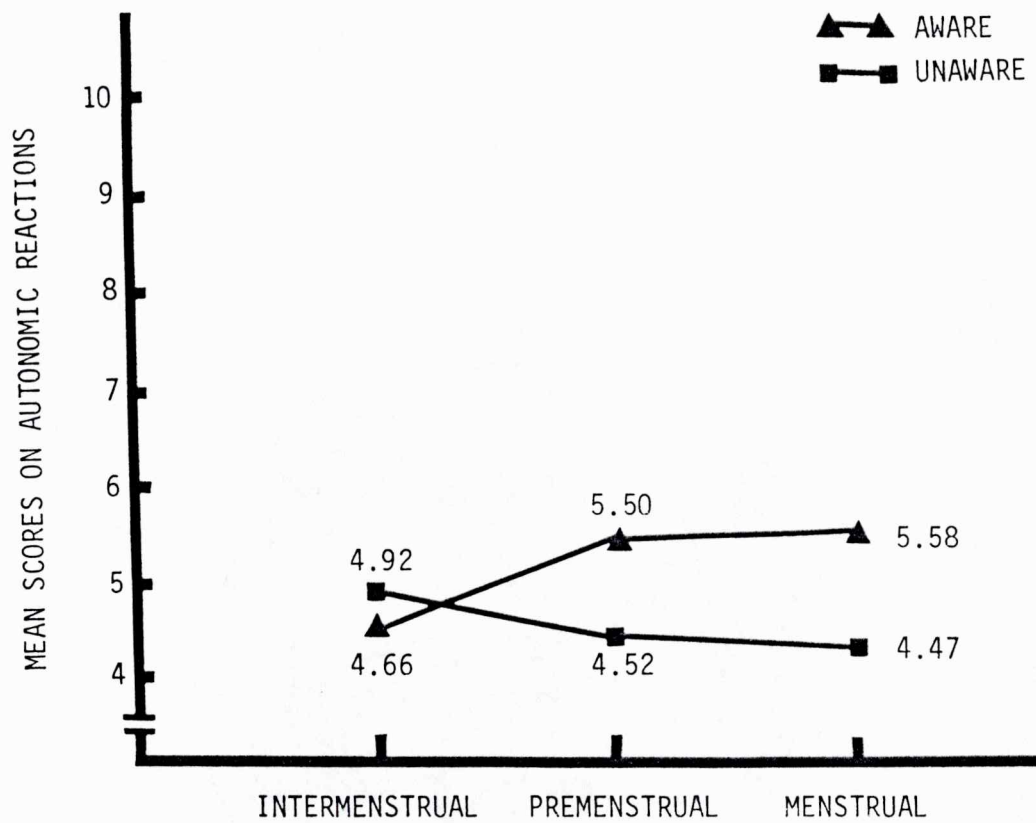


Figure 3. Mean scores on the MDQ autonomic reactions factor as a function of awareness and phase.

Anxiety Inventory showed no significant differences among phases. Data from these factors, however, does generally follow the trend set forth in the autonomic reactions factor. The Aware Menstrual and Premenstrual mean scores are higher than the Unaware Menstrual and Premenstrual mean scores with the Aware Menstrual scores being the highest in most cases. A summary of mean scores for each factor according to awareness and phase is provided (Table 4).

Table 4

Summary of Mean Scores for the MDQ, the Hypochondriasis Scale, the Depression Adjective Checklist, and the State-Trait Anxiety Inventory As a Function of Awareness and Phase

	Intermenstrual	Premenstrual	Menstrual
<u>Pain</u>			
UNAWARE	12.02	11.19	11.73
AWARE	10.96	13.27	13.50
<u>Concentration</u>			
UNAWARE	15.63	13.29	13.27
AWARE	14.56	14.77	15.58
<u>Behavior Change</u>			
UNAWARE	11.10	10.95	9.80
AWARE	10.60	9.36	11.38
<u>Autonomic Reactions</u>			
UNAWARE	4.92	4.52	4.47
AWARE	4.66	5.50	5.58
<u>Water Retention</u>			
UNAWARE	6.48	6.90	7.00
AWARE	6.68	7.55	9.81
<u>Negative Affect</u>			
UNAWARE	16.90	15.48	15.93
AWARE	16.44	18.27	18.46

Table 4 continued

	Intermenstrual	Premenstrual	Menstrual
<u>Arousal</u>			
UNAWARE	16.58	15.95	14.60
AWARE	16.32	14.77	16.46
<u>Control</u>			
UNAWARE	7.35	7.48	7.27
AWARE	8.22	8.05	8.69
<u>Hypochondriasis</u>			
UNAWARE	6.92	4.67	5.33
AWARE	6.51	8.05	6.54
<u>DACL</u>			
UNAWARE	9.08	8.43	8.47
AWARE	8.48	8.82	9.08
<u>State Anxiety</u>			
UNAWARE	15.21	13.81	13.13
AWARE	15.04	15.18	14.81

DISCUSSION

The central finding of this study was that subjects' awareness that the study involved menstrual cycle experiences increased their reporting of various physical difficulties during the menstrual and premenstrual phases of the cycle. Even though the effect of cycle phase alone was seen in the data, it appears that awareness of the study's purpose is an important factor in determining the degree of menstrual cycle problems reported by women. The importance of awareness found in this study makes suspect the results of previous studies in which demand characteristics and stereotypic bias were not controlled.

Beginning with the control factor on the MDQ, Aware subjects reported more feelings of suffocation, chest pains, ringing in the ears, heart pounding, numbness, and fuzzy vision than the Unaware subjects. Although Gruba and Rohrbaugh (1975) found the MDQ control factor to be a significant menstrual complaint and to correlate significantly with the MMPI Hypochondriasis scale, all of their subjects were aware that the researchers were studying menstrual cycle experiences. Thus, the present study and the Gruba and Rohrbaugh study are not parallel. Another study has not yet been reported which supports or is inconsistent with the present study's finding that awareness affects the reporting of control symptoms.

Aware subjects again reported problems on the MDQ water retention factor complaining of weight gain, skin disorders, painful breasts, and swelling more than Unaware subjects. Like the findings on the control factor, no other studies on water retention have yet been reported to support or conflict with the present study's finding that awareness of the study's purpose affects the reporting of water retention symptoms.

The main effect of phase on the water retention factor is similar to other findings. In the present study, subjects in the menstrual phase complained of weight gain, skin disorders, painful breasts, and swelling more than subjects in the intermenstrual or premenstrual phases. The present finding is inconsistent with the research of Brooks et al. (1977), Vila and Beech (1980), and Lahmeyer et al. (1982) who found peaks in MDQ water retention scores during the premenstrual phase. The reasons for the disparity between the previous studies' findings and the present study's findings are varied. The argument that college women experience more problems menstrually because they are too young to experience more severe premenstrual problems would be sufficient when comparing the present study to the Vila and Beech study in which the subjects ranged in age from 18 to 44 and could be sufficient in a comparison with the Lahmeyer et al. study where the mean age of the subjects was 23. Like the present study, Brooks et al. used undergraduate subjects, but they did not include the menstrual phase in their research. Thus, the question remains of whether or not the menstrual phase scores in the Brooks et al. study would have been higher when

compared to the premenstrual phase scores like the present study. In any event, this significant phase difference does lend support to the idea that women may experience themselves differently and will report more water retention problems during the menstrual phase.

The third finding of this study on the MDQ water retention factor, however, appears to support the hypothesis that subjects' awareness that the menstrual cycle is being studied is important in determining their complaints about menstrual-related symptoms. In the present study, Aware Menstrual subjects reported more symptoms of water retention than the Unaware Intermenstrual, Unaware Menstrual, and Unaware Premenstrual subjects. As previously mentioned, other studies have found more water retention complaints premenstrually as opposed to menstrually (Brooks et al., 1977; Vila & Beech, 1980; & Lahmeyer et al., 1982). No studies, however, have been reported which support or refute the present study's finding that Aware menstrual women report more water retention problems than Unaware women in all three cycle phases. While a main effect was found on the water retention factor for phase, this additional interaction between phase and awareness appears to give evidence and clarity to the hypothesis that awareness affects the reporting of water retention. It may be that since phase can be a sufficient condition for eliciting water retention complaints, the awareness factor then serves to intensify the reporting of symptoms. This explanation would account for the Menstrual versus Intermenstrual and Premenstrual differences as well as the Aware Menstrual versus Unaware Intermenstrual, Menstrual, and Premenstrual differences.

Additional support for this study's hypothesis that awareness would affect the reported physical status of women, particularly premenstrually, is provided by the results of the MMPI Hypochondriasis scale analysis. In the present study, Aware Premenstrual subjects reported more physical complaints than Unaware Menstrual and Unaware Premenstrual subjects. The current results follow along the lines of the Gruba and Rohrbaugh (1975) study which demonstrated a significant correlation between water retention, autonomic reactions, control, and the Hypochondriasis scale. Neither the Gruba and Rohrbaugh study, however, nor any other studies have investigated awareness as a factor in the reporting of physical complaints on the Hypochondriasis scale in menstrual cycle studies.

The other finding on the Hypochondriasis scale that Unaware Intermenstrual subjects reported more physical problems than Unaware Premenstrual subjects is also unprecedented in previous research and is difficult to explain. Previous research has shown no indications that intermenstrual women should report more physical problems than premenstrual women. Future research should attempt to determine whether this finding can be replicated or if some other menstrual cycle factor such as ovulation could be responsible for the higher Unaware Intermenstrual scores.

The Aware Menstrual subjects' higher reports of dizziness, cold sweats, nausea, vomiting, and hot flashes compared to the Unaware Menstrual subjects on the autonomic reactions factor bordered on significance providing further support for the influence of the awareness factor. The results of the present study are inconsistent

with the findings of Vila and Beech (1980) who found autonomic reactions to be higher during the premenstrual phase. Like the water retention factor, the use of undergraduate subjects in the present study and 18-44 year old subjects in the Vila and Beech study could account for the greater menstrual complaints in the present study. No studies involving awareness are available to support or conflict with the trend found in the autonomic reactions ractor that phase and awareness affect the reporting of autonomic reactions.

Analyses of the MDQ pain, concentration, behavior change, negative affect, and arousal factors as well as the Depression Adjective Checklist and the State-Trait Anxiety Inventory were not significant. The absence of significant results on the pain factor is inconsistent with the findings of Ruble (1977) which indicated that women complained of more pain if they thought they were premenstrual than if they thought they were intermenstrual. The present study's results are also inconsistent with the results of the Brooks et al. (1977) and Vila and Beech (1980) studies which found reports of pain to peak premenstrually.

Lack of significant differences on the concentration and behavior change variables is also inconsistent with the findings of Vila and Beech (1980) indicating a rise in concentration scores premenstrually. No significance on the negative affect factor is inconsistent with the research of Vila and Beech and Brooks et al. (1977) who found a premenstrual peak in negative affect scores. Lack of significant differences on the arousal factor is again

inconsistent with the rise in premenstrual arousal scores found in the Vila and Beech study and the higher arousal scores when the women thought they were premenstrual found in the Ruble (1977) research.

The failure of this study to find any differences in depression or anxiety as measured by the Depression Adjective Checklist and State form of the State-Trait Anxiety Inventory is inconsistent with the Golub (1976) study in which depression and anxiety were higher for premenstrual women as opposed to intermenstrual women and the Halbreich and Kas (1977) study in which anxiety rose during the premenstruum for women with premenstrual syndrome. The present study's findings, however, support the research of Golub and Harrington (1981) who found no significant differences in anxiety or depression either menstrually or premenstrually. It was hypothesized in the review of the literature that the disparity between the Golub findings and the Golub and Harrington findings could have been due to age differences or a function of aware subjects in the Golub study and unaware subjects in the Golub and Harrington study. In light of the present study's failure to find phase or awareness differences and the use of younger subjects like the Golub and Harrington subjects, it appears that age is responsible for no differences in depression and anxiety. Future research, however, should investigate the effects of awareness on depression and anxiety reports of women within the 30-45 age range used by Golub and the 19-45 age range used by Halbreich and Kas. No previous studies examining the awareness factor are available for purposes of comparison.

It has been explained how the present findings are consistent or inconsistent with previous findings in which phase was involved and it has been explained how the present findings are unprecedented in previous findings in which awareness was involved. The present findings indicating the importance of awareness in reporting menstrual cycle problems, however, were suggested as a possibility in the work of Ruble (1977), Brooks et al. (1977), Woods, Most, and Dery (1982), and Watts, Dennerstein, and De L. Horne (1980). Ruble found higher water retention, change in eating habits, pain, and sexual arousal ratings for women who thought they were premenstrual as opposed to intermenstrual suggesting menstrual cycle stereotypes and demand characteristics on the MDQ as influences on the reporting of symptoms. Brooks et al. found that women who felt the premenstrual phase was debilitating had higher premenstrual phase scores on the MDQ than women who did not think the premenstrual phase was debilitating again suggesting the influence of stereotypes. Woods et al. also pointed to menstrual cycle stereotypes to explain higher reports of water retention and negative affect on the MDQ than reports in a daily diary in which a connection to the menstrual cycle was not mentioned. Finally, Watts et al. discovered more negative attitudes about menses in premenstrual syndrome sufferers with this writer pointing to the importance of menstrual cycle stereotypes.

In general idea, the only two studies examining the effects of stereotypes and demand characteristics on the findings of menstrual cycle studies as a function of subjects' awareness do compare favorably with the findings of the present study. Although Vila and

Beech (1980) found that premenstrual and intermenstrual groups reported mood changes during the two phases and the present study did not find any significant mood fluctuations, Vila and Beech also found no difference in mood changes when the purpose of the study was disguised in concordance with the present study. Similarly, Englander-Golden et al. (1980) studied sexual arousal as a function of awareness which the present study did not investigate.

Englander-Golden et al., however, found that unaware subjects reported the lowest level of sexual arousal during the luteal phase which was consistent with hypotheses about hormone levels during that phase. In contrast, the aware subjects showed the highest level of sexual arousal during the luteal phase which was inconsistent with hypotheses about hormone levels during that phase. Vila and Beech, Englander-Golden et al., and this writer point to biased reports according to cultural stereotypes about the menstrual cycle as the explanation for the aware versus unaware differences.

Based on the results of the present study, cultural stereotypes about the menstrual cycle can affect the reporting of menstrual cycle problems. While phase elicited a significant difference on the water retention factor, awareness also elicited significant differences on the water retention factor. Furthermore, the significance of awareness on the control factor and the interaction between phase and awareness on the Hypochondriasis scale illustrate the impact awareness can have on menstrual cycle research. It would appear that demand characteristics and cultural stereotypes are operating which yield the awareness effect. Rosenthal (1964)

cautioned future researchers that even the experimenter's subtle gestures or the atmosphere of the study can bias the performance of subjects. Telling subjects that a researcher is studying the menstrual cycle sets the stage for demand characteristics because of the cultural stereotypes about menstruation. Demand characteristics are elicited by telling subjects no more than the purpose of the study because menstrual cycle stereotypes tell the subjects that they should have complaints during the menstruum and premenstruum. Thus, subjects know that researchers studying the menstrual cycle probably want them to have menstrual and premenstrual complaints. Given the results of the present study showing the importance of awareness on the control and water retention factors as well as the Hypochondriasis scale, it would appear that those complaints were delivered.

In summary, the present study illustrates the effect awareness can have on menstrual cycle research. Because of the impact of awareness on the control, water retention, and Hypochondriasis variables in this study, questions are raised about the results and conclusions of previous menstrual cycle research in which all subjects were aware of the study's purpose. It is not the intention of this writer, however, to suggest that menstrual and premenstrual complaints do not exist or that these complaints are solely the result of demand characteristics and cultural stereotypes in menstrual cycle studies. Instead, it may be that demand characteristics and stereotypes increase the reporting of menstrual and premenstrual complaints. Future research should further examine the

impact of demand characteristics and cultural stereotypes on menstrual cycle research so that the findings of previous menstrual cycle studies can be accurately interpreted.

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APPENDIX A

Subject Response Form

Name _____ Local Phone Number _____

1. Now old are you? _____
2. Do you have any hearing problems? If so, for how long? _____
3. Do you wear glasses? If so, how long have you worn them? _____
4. Do you have a history of cancer in your family? _____
5. Do you have a history of heart disease in your family? _____
6. How often do you have headaches? _____
7. What was the date of your last physical examination? _____
8. (Females Only) Do you have a regular menstrual cycle and what was the date on which your last period began? _____
9. (Males Only) Have you ever had prostate problems? If so, what kind of problems and what was the most recent date? _____
10. How often do you take nonprescription medications such as aspirin, vitamins, etc.? Which ones? _____
11. Are you currently taking any prescription medications (antibiotics, oral contraceptives, allergy medication, tranquilizers, etc.)? If so, which ones? _____
12. Do you use any other drugs such as alcohol, marijuana, etc.? If so, which ones? _____
13. Do you smoke cigarettes? _____
14. Do you have a history of mental illness in your family?
15. Have you ever been hospitalized? If so, what was the reason and what was the most recent date? _____
16. Physically speaking, how do you feel most of the time? _____

Below you will find words which describe different kinds of moods and feelings. Check all the words which describe how you feel today.

- | | | | |
|--------------------------|----------------------|--------------------|--------------------|
| 17. Depressed _____ | 18. Elated _____ | 19. Awful _____ | 20. Lifeless _____ |
| 21. Grief stricken _____ | 22. Inspired _____ | 23. Woeful _____ | 24. Lonely _____ |
| 25. Suffering _____ | 26. Mellow _____ | 27. Drooping _____ | 28. Rejected _____ |
| 29. Fortunate _____ | 30. Dreary _____ | 31. Lousy _____ | 32. Good _____ |
| 33. Fit _____ | 34. Lonesome _____ | 35. Unloved _____ | 36. Glad _____ |
| 37. Grave _____ | 38. Sunk _____ | 39. Shot _____ | 40. Merry _____ |
| 41. Wasted _____ | 42. Washed Out _____ | 43. Clear _____ | 44. Gruesome _____ |
| 45. Tired _____ | 46. High _____ | 47. Worse _____ | 48. Drained _____ |

Please answer the following questions by circling T (True) or F (False).

49. I have a good appetite. T F
50. I wake up fresh and rested most mornings. T F
51. My hands and feet are usually warm enough. T F
52. I am about as able to work as I ever was. T F
53. I am very seldom troubled by constipation. T F
54. I am troubled by attacks of nausea and vomiting. T F
55. I am bothered by acid stomach several times a week. T F
56. My sleep is fitful and disturbed. T F
57. I am in just as good physical health as most of my friends.
T F
58. I am almost never bothered by pains over the heart or in my chest. T F
59. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep." T F
60. I have had no difficulty in starting or holding my bowel movement. T F
61. I hardly ever feel pain in the back of my neck. T F
62. I am troubled by discomfort in the pit of my stomach every few days or oftener. T F
63. I have little or no trouble with my muscles twitching or jumping. T F
64. There seems to be a fullness in my head or nose most of the time. T F
65. Often I feel as if there were a tight band about my head. T F
66. I have a great deal of stomach trouble. T F
67. I have never vomited blood or coughed up blood. T F
68. During the past few years I have been well most of the time.
T F

69. I am neither gaining nor losing weight. T F
70. The top of my head sometimes feels tender. T F
71. I do not tire quickly. T F
72. I seldom or never have dizzy spells. T F
73. I can read a long time without tiring my eyes. T F
74. I feel weak all over much of the time. T F
75. I have very few headaches. T F
76. I have had no difficulty in keeping my balance in walking.
T F
77. I hardly ever notice my heart pounding and I am seldom short of
breath. T F
78. I have few or no pains. T F
79. I have numbness in one or more regions of my skin. T F
80. My eyesight is as good as it has been for years. T F
81. I do not often notice my ears ringing or buzzing. T F

A number of ways people have used to describe themselves are given below. Read each item and then in the blank beside each item write the number which indicates how you feel right now. 1 = not at all; 2 = somewhat; 3 = moderately so; 4 = very much so

82. I feel calm ____ 83. I feel secure ____ 84. I am tense ____
85. I am regretful ____ 86. I feel at ease ____ 87. I feel upset
____ 88. I am presently worrying over possible misfortunes ____
89. I feel rested ____ 90. I feel anxious ____ 91. I feel
comfortable ____ 92. I feel self-confident ____ 93. I feel nervous
____ 94. I am jittery ____ 95. I feel "high strung" ____ 96. I am
relaxed ____ 97. I feel content ____ 98. I am worried ____ 99. I
feel over-excited and rattled ____ 100. I feel joyful ____ 101. I
feel pleasant ____

A number of ways people have used to describe themselves and how they feel are given below. Read each item and then in the blank beside each item write the number which indicates how you feel today. 1 = no reaction at all; 2 = barely noticeable; 3 = present, mild; 4 = present, moderate; 5 = present, strong; 6 = acute or partially disabling

102. Weight gain ____ 103. Insomnia ____ 104. Crying ____
105. Lowered school or work performance ____ 106. Muscle stiffness ____
107. Forgetfulness ____ 108. Confusion ____ 109. Take naps or stay in bed ____
110. Headache ____ 111. Skin disorders ____
112. Loneliness ____ 113. Feelings of suffocation ____
114. Affectionate ____ 115. Orderliness ____ 116. Stay home from work or school ____
117. Cramps (uterine, pelvic, or abdominal) ____
118. Dizziness or faintness ____ 119. Excitement ____
120. Chest pains ____ 121. Avoid social activities ____
122. Anxiety ____ 123. Backache ____ 124. Cold sweats ____
125. Lowered judgment ____ 126. Fatigue ____ 127. Nausea or vomiting ____
128. Restlessness ____ 129. Hot flashes ____
130. Difficulty in concentration ____ 131. Painful or tender breasts ____
132. Feelings of well-being ____ 133. Buzzing or ringing in ears ____
134. Distractable ____ 135. Swelling (abdomen, extremities, breasts, ankle) ____
136. Accidents (cut finger, break dish) ____
137. Irritability ____ 138. General aches and pains ____
139. Mood swings ____ 140. Heart pounding ____
141. Depression (feeling sad or blue) ____ 142. Decreased efficiency ____
143. Lowered motor coordination ____ 144. Numbness or tingling in hands or feet ____
145. Change in eating habits ____

146. Tension ____ 147. Blind spots or fuzzy vision ____
148. Bursts of energy or activity ____

What do you think is the purpose of this study?

APPENDIX B

Aware Subject Preselection Information

My name is Kay Ruble and I am recruiting subjects to participate in research for my thesis involving menstrual cycle experiences, particularly premenstrual experiences and premenstrual problems. Participation will require approximately one hour of your time during one evening. I am passing around sign up sheets for you to sign up for the time and location most convenient for you if you are interested in participating. If you do sign up, please be sure that you can be there at that time and that you are making a commitment to be there at that time.

APPENDIX C

Unaware Subject Preselection Information

My name is Kay Ruble and I am recruiting subjects to participate in research for my thesis involving health issues of men and women your age. Participation will require approximately one hour of your time during one evening. I am passing around sign up sheets for you to sign up for the time and location most convenient for you if you are interested in participating. If you do sign up, please be sure that you can be there at that time and that you are making a commitment to be there at that time.

APPENDIX D

Unaware Experimenter Instructions

As you were told in class, this study involves health issues of men and women your age. Please complete the following questionnaire without skipping any of the questions. You are asked to list your name and phone number on the first page. Your name is needed in order to ensure that you get extra credit from your instructor and your phone number is needed so that you may be contacted by phone after the study for a few follow-up questions. Please keep in mind that all information on the questionnaire is strictly confidential and will be seen only by me. I am interested in your answers as a group, not in your answers as individuals. When you finish the questionnaire bring it to the person in the front of the room and you can leave. Please check the bulletin board on the first floor of Smith-Wright Hall in 2 to 3 weeks where a more detailed explanation of the study will be posted. Thank you very much for your participation.

Kay Ruble

APPENDIX E

Aware Experimenter Instructions

As you were told earlier, this study involves menstrual cycle experiences, particularly premenstrual experiences and premenstrual problems. Please complete the following questionnaire without skipping any of the questions. You are asked to list your name and phone number on the first page. Your name is needed in order to ensure that you get extra credit from your instructor and your phone number is needed so that you may be contacted by phone after the study for a few follow-up questions. Please keep in mind that all information on the questionnaire is strictly confidential and will only be seen by me. I am interested in your answers as a group, not in your answers as individuals. When you finish the questionnaire bring it to the person in the front of the room and you can leave. Please check the bulletin board on the first floor of Smith-Wright Hall in three weeks where a more detailed explanation of the study will be posted. Thank you very much for your participation.

VITA

Kay Ruble was born on September 18, 1960 in Charlotte, North Carolina. She completed her high school education in Charlotte, at West Charlotte High School. Kay was awarded the Bachelor of Arts degree in May, 1982 from Appalachian State University, in the field of philosophy and religion.

Kay began her graduate program in Clinical Psychology in August, 1982, and plans to graduate in August, 1985, following completion of her internship requirements.

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