

THE EFFECT OF THE REPRODUCTIVE
CYCLE ON THE PERCEPTION OF
SOCIAL INTERACTIONS

By

ROBERT NELS CURRY

Bachelor of Science
University of Tulsa
Tulsa, Oklahoma
1969

Master of Science
University of Tulsa
Tulsa, Oklahoma
1973

Submitted to the Faculty of the Graduate College
of the Oklahoma State University
in partial fulfillment of the requirements
for the Degree of
DOCTOR OF PHILOSOPHY
July, 1982



THE EFFECT OF THE REPRODUCTIVE
CYCLE ON THE PERCEPTION OF
SOCIAL INTERACTIONS

Thesis Approved:

A handwritten signature in cursive script, appearing to read "Robert A. Schlotter", written over a horizontal line.

Thesis Adviser

A handwritten signature in cursive script, appearing to read "Larry T. Brown", written over a horizontal line.

A handwritten signature in cursive script, appearing to read "Kenneth P. Sandford", written over a horizontal line.

A handwritten signature in cursive script, appearing to read "Becky Johnson", written over a horizontal line.

A handwritten signature in cursive script, appearing to read "Norman A. Decker", written over a horizontal line.

Dean of the Graduate College

ACKNOWLEDGMENTS

I wish to express my sincere thanks to my advisor, Dr. Robert S. Schlottmann. His genuine involvement, sense of humor, and critical thinking contributed significantly to the quality of this project.

I would also like to thank Dr. Larry Brown, Dr. Kenneth Sandvold, and Dr. Becky Johnson for their helpful suggestions and encouragement.

A special thanks goes to my dear wife, Dr. Vicki Green, and my two step-children, Scott and Jill, for their patience and understanding as I pursued completion of this research project.

In addition, I wish to thank my friends, Dr. William Gentry and Dr. Noble Proctor, for helping me keep this research effort in proper perspective over the many months from its beginning to its completion.

Finally, I would like to thank my parents, Virgil and Eyleen Curry, for their continual concern and support of my professional efforts.

TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
The Present Study	5
II. METHOD	9
Subjects	9
Assignment to Phase	9
Materials	10
Menstrual Distress Questionnaire (MDQ)	10
Videotape	10
Rating Scales and Forms	12
The Personal History Questionnaire (PHQ)	14
Procedure	15
Hypothesis	15
Statistical Analysis	17
III. RESULTS	19
Analysis of Responses to the Personal History Questionnaire	19
Correlational Analysis Between Dependent Variables and Questionnaire Data Found to Distinguish Between the Pill and Nonpill Groups	22
Analyses of Affective, Total Symptomology, and Mood Scores	23
Analysis of the Ratings for Perception of Actor and Self Variables	26
Correlations Between Mood, Symptomology, and the Perception Variables; and a Post Hoc Correlation of Questionnaire Data	29
IV. DISCUSSION	31
REFERENCES	40
APPENDICES	45
APPENDIX A - PERSONAL HISTORY QUESTIONNAIRE	46
APPENDIX B - SUBJECT RECRUITMENT NARRATIVE	49

Chapter	Page
APPENDIX C - RATING FORM	51
APPENDIX D - CONSENT FORM	53
APPENDIX E - INSTRUCTIONS FOR RATING FORMS	55
APPENDIX F - INSTRUCTIONS FOR QUESTIONNAIRE	57
APPENDIX G - TAKE-HOME QUESTIONNAIRE	59
APPENDIX H - ANALYSIS OF FREQUENCY AND MEAN DATA FOR THE PERSONAL HISTORY QUESTIONNAIRE	61
APPENDIX I - CORRELATIONS BETWEEN DEPENDENT VARIABLES AND QUESTIONNAIRE ITEMS FOUND TO DISTINGUISH BETWEEN PILL AND NONPILL GROUPS	67
APPENDIX J - ANALYSIS FOR MOOD, AFFECTIVE FACTOR, AND TOTAL SYMPTOMOLOGY SCORES, AND CELL MEANS FOR TOTAL SYMPTOMOLOGY	69
APPENDIX K - ANOVAS FOR THE ACTOR AND SELF PERCEPTION VARIABLES, AND POST HOC COMPARISONS OF CELL MEANS	72
APPENDIX L - CORRELATIONS BETWEEN THE PERCEPTION VARIABLES AND THE MOOD AND SYMPTOMOLOGY SCORES	75
APPENDIX M - REVIEW OF LITERATURE	78

LIST OF TABLES

Table	Page
1. Frequency and Mean Data for Responses to the Personal History Questionnaire	20
2. Means for Mood Scores	24
3. Means for Affective Factor Scores	24
4. Comparisons of Means for Mood Scores	25
5. Comparisons of Means for Affective Factor Scores	25
6. Means of the Perception Variable for Actor and Self Ratings	27
7. Planned Comparisons of the Means of the Perception Variable for Actor and Self Ratings	28
8. Living Arrangement	62
9. Father's Education	62
10. Family's Religious Atmosphere	62
11. Current Religious Involvement	63
12. Women's Role in Society	63
13. Length of Reproductive Cycle	63
14. <u>T</u> - test of Mean Age (Years)	64
15. <u>T</u> - test of Mood	64
16. <u>T</u> - test of Age of Menarche	64
17. <u>T</u> - test of Initial Reaction to Menarche	65
18. <u>T</u> - test of Mother's Attitude Toward Menstruation	65
19. <u>T</u> - test of Prior Knowledge About Menstruation	65
20. <u>T</u> - test of Monthly Flow	66

Table	Page
21. Correlations Between Dependent Variables and Questionnaire Items Found to Distinguish Between Pill and Nonpill Groups	68
22. ANOVA Summary Table for the Affective Factor	70
23. ANCOVA Summary Table for the Mood Score, Prior Knowledge Controlled	70
24. ANOVA and Means for Total Symptomology Score	71
25. ANOVA of the Actor Perception Rating Variable	73
26. ANOVA of the Self Perception Rating Variable	73
27. Post Hoc Comparisons of Means of the Rating Variables for Actor and Self Perception	74
28. Correlations Between the Mood, Affective Factor, and Total Symptomology Scores, and the Actor and Self Perception Rating Scores for the Pill Group	76
29. Correlations Between the Mood, Affective Factor, and Total Symptomology Scores, and the Actor and Self Perception Rating Scores for the Nonpill Group	77

CHAPTER I

INTRODUCTION

Studies of the menstrual cycle have revealed periodic fluctuations of mood in many women. Frank (1931) was the first author to formally identify a mood drop in the late luteal phase as part of a wide range of possible symptoms that he called the "Premenstrual Syndrome". Other symptoms frequently included are water retention and swelling, abdominal and breast pain, impaired concentration, lethargy, and unusual autonomic reactions.

Approximately ten years later, Benedek and Rubinstein (1939) correlated the ovarian hormone cycle with a parallel emotional cycle, and numerous investigators (Shainess, 1961; Gottschalk, Kaplan, Gleser, and Winget, 1962; Coppen and Kessel, 1963; Ivey and Bardwick, 1968; Moos, Kopell, Melges, Yalom, Lunde, Clayton, and Hamburg, 1969; May, 1976) have since found similar results using a variety of mood assessment techniques. Even though a controversy exists as to the exact cause of this mood cycle, most researchers agree that a lowering of mood, accompanied by signs of anxiety, tension, depression, and irritability, begins in the late luteal (premenstrual) phase and continues into the menstrual phase of the cycle. At the time of ovulation, an elevation in mood is frequently seen.

While many different opinions have been forwarded as to the prevalence and defining characteristics of the premenstrual syndrome (Dalton, 1964), many authors have reported behavioral and symptomatic changes

during this phase of the monthly cycle. Wetzel and McClure (1972) found a significant increase in attempted suicides during the premenstrual phase and Tuch (1975) noted a much higher incidence of mothers bringing in their infants to a physician for minor ailments when the mothers were premenstrual. In a four-year longitudinal study of college women, Wetzel, Reich, McClure, and Wald (1975) found that those reporting negative affect in the premenstrual phase were more likely to seek psychiatric care at the Student Health Service. They were also more likely to be diagnosed as affective disorder at the Service. Increases in sleep disturbances and total sleep (Patkai, Johannson, and Post, 1974), changes in visual detection and discrimination ability (Ward, Stone, and Sandman, 1975), decrease in arm-hand steadiness (Zimmerman and Parlee, 1973), and increased avoidance of success (Patty and Ferrel, 1974) also have been linked to the premenstrual phase.

Despite the wide range of mood and behavioral changes that occur in the premenstrual phase, Commer (1973) notes that there is no indication of a deficit in cognitive performance. However, she did find that women on combination type birth control pills performed better on the Watson-Glaser Critical Thinking Appraisal and on regularly scheduled class examinations than did those college women not on the pill (Sommer, 1972). Other researchers (Paige, 1971; Silbergeld, Brast, and Noble, 1971; Cullberg, 1972) have found that women on the combination type pill have fewer fluctuations of mood and generally have less menstrual-related symptomology during their monthly cycle.

Even though Sommer (1973) and Golub (1976) conclude that there is no cyclic effect on intellectual-cognitive performance, other studies unrelated to the menstrual cycle indicate that affective states do

influence cognition (Messick, 1965). Also, anxiety impairs such cognitive processes as problem solving, incidental learning, ability to communicate, and performance on standardized tests (Levitt, 1967).

While there is evidence of cyclic change in affect for many women, there has been little systematic investigation of how this periodic fluctuation might influence a woman's interpersonal relationships. No doubt the lack of research in this area is in part due to the difficulty in standardizing a procedure that would quantify such behaviors in a naturalistic setting and still maintain reasonable experimental controls. Aside from the literature on patterns of sexual behavior, only one investigation to date (Englander-Golden, Willis, and Dienstbier, 1977) has examined how cyclic fluctuations in women might influence how they perceive their social interactions throughout the month.

Englander-Golden et al. employed videotaped vignettes as the social stimuli to be interpreted by the subjects as they proceed through their monthly cycle. They found that nonpill-taking women fluctuate significantly more over a two-week period than do men and pill-taking women, in the amount of interpersonal tension that they perceive in videotaped neutral social interactions. They also found that those women perceiving the greatest interpersonal tension were those who experienced the greatest cyclic symptomology during their monthly cycle.

Clarification of the interpersonal effect of cyclic negative affect and tension might be facilitated by looking at the literature on depression. Although the research on the influence of depression on the interpretation of interpersonal interactions is sparse, it is possible that the negative affect caused by a variety of sources may have a similar effect on the distortion of social events. Lunghi (1977) found that

depressed women have a tendency to describe and to evaluate both real and imaginary social relationships more negatively than controls. Beck (1967) observes that depressives selectively evaluate and overemphasize the importance of many events, and also that they tend to draw personally denigratory conclusions from objectively neutral events. Beck (1967, 1976) theorizes that depression generally coincides with a person's negative view of self, his or her experience, and the future.

Hoehn-Hyde's (1979) work with depressed women confirmed certain aspects of Beck's theory. She presented subjects with positive, neutral, and negative videotaped social interactions and allowed them to express their perceptions of the vignettes by way of semantic differential rating scales. She found that in contrast to the controls, the depressed women rated the interactions directed at them in a more critical fashion. This difference in rating was most obvious for the neutral interactions, significant for the negative vignettes, and not present for the positive vignettes. She concluded that greater differences were not found between the controls and the experimental group in evaluating the negative vignettes because the scenes were so clearly negative instead of being only slightly so.

So far, the recurrent negative affect associated with the menstrual cycle has not been given a specific diagnostic label for research purposes (Feighner, Robins, Guze, Woodruff, Winokur, and Munoz, 1972). However, even though no formal label exists, if the cluster of premenstrual symptoms occur with sufficient severity and regularity, they are often labeled as the premenstrual tension syndrome or the premenstrual syndrome. Women suffering depression of major proportion are generally diagnosed with the existing categories. Smith (1975) feels that the depression

during the premenstrum looks most similar to neurotic depression, but the short duration of the episode makes it unclear. Some women are recorded as regularly having psychotic episodes, asthma attacks, and epileptic seizures that begin with the premenstrual phase (Dalton, 1964).

The Present Study

The purpose of this study was to investigate the effect that periodic mood changes in women may have had on their interpretation of interpersonal events. There is strong evidence that a significant number of women suffer a negative change in affect during the premenstrual and early menstrual phases of their monthly cycle. Also, the work of Beck (1967, 1976) indicates that depression has a distorting effect on how people perceive the world around them. It would follow, then, that women's cyclic affect changes may have a distorting effect on how they perceive social interactions. This study took into account a number of factors that might influence this perception.

For the analysis of the data collected for this study the women were considered as belonging to two major groupings: women using oral contraceptives, and those not using oral contraceptives. Results from much of the affective work with birth control pills (Paige, 1971; Silbergeld et al., 1972; Cullberg, 1972) show that cyclic changes in mood are minimized by using combination pills. This type of pill is presently widely used in this country. Subjects were screened to assure that women in the pill groups had been on the pill long enough to achieve hormonal stability and compatibility, and were all using the combination type pill.

In order to separate the subjects into different phases of the reproductive cycle, each woman was placed into one of three categories,

depending on where she was in her monthly cycle at the time of testing. Two of these categories, the premenstrual and the menstrual phases, were the time of month in which the greatest symptomology and its accompanying negative distortion of social perception were expected to occur. The third category was made up of those women tested during the remainder of their cycle.

The stimuli evaluated by the women consisted of a number of videotaped vignettes. The vignettes were a systematic series (to avoid response bias and order effects) of positive, neutral, and negative monologues directed at the subjects. Each subject was told to imagine that the actor in each vignette was speaking directly to her. Hoehn-Hyde (1979) found that monologues directed at a subject has more of an impact than if the subject viewed the interaction as an uninvolved third person. The vignettes were separated into positive, neutral, and negative interactions to investigate to what degree the subjects differentially perceived and distorted these three types of interactions. From the results of Hoehn-Hyde (1979), it was predicted that the neutral and the negative scenes would be the most susceptible to differences in interpretation. It also was hypothesized that they would be more negatively evaluated by the women who were not on the pill and were in the premenstrual phase. More negative evaluations may also be generated by the women in the menstrual phase at the time of testing.

The subjects evaluated the videotaped vignettes on eight semantic differential rating scales. The word pairs used in the scales originated from a number of sources, including Osgood, Succi, and Tannenbaum (1957), Hoehn-Hyde (1979), and an informal pilot study performed by the author. Four of the eight scales represented how the subjects perceived the actor

in each vignette, and the remaining four scales allowed the subjects to describe how they felt about themselves after each vignette. If Beck's (1976) cognitive triad (negative view of self, experience, and future) applied to this test situation, then both sets of scales should reflect more critical interpretations by more sensitive women. The women in the premenstrual, and possibly the menstrual, phases should not only see the actor in a more negative light, but should feel more negative about themselves than women in some other phase of the cycle.

To minimize culturally stereotyped responses to the vignettes, the subjects were told initially that the research was focused on social perception and not on how menstrual cycle phase may be affecting perception of social interactions. Investigations by Parlee (1974) and Ruble (1977) indicate that women will report inappropriate phase-specific symptoms when they are misled into believing that they are in that phase of their cycle. Parlee maintained that this is because many women respond from a culturally stereotyped impression of what they think they should be experiencing rather than what they actually do experience at different times in their cycle. Englander-Golden et al. (1977) stated that if cycle phase is emphasized to a woman, this stereotype may even affect a woman's perception of social interactions.

Also, to control environmental factors such as day of week and time of day, a large lecture room with multiple television monitors was used so that all subjects were tested on the same day and location (Rossi and Rossi, 1977). Likewise, it was assumed that videotapes minimized the variability that might have been introduced by repeated live performances.

The subjects received two questionnaires after the videotapes were evaluated. Moos's (1968a) Menstrual Distress Questionnaire explored the

level of symptom severity for each subject, and a personal history questionnaire evaluated mood on the day of testing and gathered information on menstrual history. There was evidence to suspect that the women with the greatest symptom severity (Englander-Golden et al., 1977) and/or the most depressed mood (Hoehn-Hyde, 1979) would have been the subjects with the most critical appraisal of the videotaped social interactions.

Recognizing that the cyclic affective changes experienced by most women are rarely of clinical proportions, and that many women experience few, if any, of the other symptoms mentioned above, it was hoped that this study would clarify some of the variables involved in an aspect of life that potentially adds stress to many social and interpersonal situations.

CHAPTER II

METHOD

Subjects

Voluntee female subjects, who received extra credit for their participation, were selected from undergraduate psychology classes. A total of 200 subjects were tested to assume that from 10-15 subjects were available for each cell of the basic 2x3 design, making a total of 80 subjects. Recognizing that more women were available for certain cells (e.g., nonpill/intermenstrual), subjects were randomly eliminated from these excess groups until a cell size of 15 was achieved except for the pill women in the premenstrual and menstrual phases who numbered 9 and 11 respectively. Also, a "personal history questionnaire" (Appendix A) was used to screen out inappropriate subjects who were pregnant, on mood-altering medication, using an IUD, or just starting on birth control pills. While recruiting subjects, the researcher discussed the voluntary nature of the study, the issue of confidentiality, and the availability of the results (Appendix B).

Assignment to Phase

The assignment of subjects to phase category was done in a manner that took into account the variation in length of cycle among women. Counting the first day of bleeding as day 1 of the cycle, the "menstrual phase" included those subjects tested on days 1 through 5 of their cycle. "Premenstrual" designation was given to subjects in the five days previous

to menstruation. The "intermenstrual phase" included the rest of the cycle except for days 6 through 8 before menstruation. Subjects tested on these days were discarded because their status within the menstrual cycle is uncertain (Patty and Ferrell, 1974).

Materials

Menstrual Distress Questionnaire (MDQ)

The Menstrual Distress Questionnaire, Form T (Moos, 1968a), consists of 47 items, each describing a symptom that women sometimes experience. Subjects were asked to rate their experience of the symptom on a 6-point scale, ranging from "no experience of the symptom" to "acute or partially disabling". Moos gave this questionnaire to 839 subjects, and a factor analysis of their responses indicated that the symptoms fell into eight different classes or scales, which Moos (1969) labels Pain, Concentration, Behavioral Change, Autonomic Reactions, Water Retention, Negative Affect, Arousal, and Control. Markum (1976) calculated inter-cycle stability correlations on the total MDQ score and on each of the eight individual scales. The results based on the total score showed high and significant stability (varying from .81 to .96) for both the experimental and control groups. Split-half reliabilities, which varied from .74 to .98, were also statistically significant. Means, additional normative data, and results of further research using the MDQ are available in Moos' Menstrual Distress Questionnaire Manual (1977).

Videotape

The videotape used as the stimulus for evaluation was one developed by Hoehn-Hyde (1979) in her study of depressed women. It was a color

videotape developed to simulate dyadic interactions between a male actor and the woman (subject) viewing the television monitor. Although only one person spoke in each scene, it was considered to be an "interpersonal interaction" because two people were involved in the simulated scene and the silent person (subject) was the object of the interaction. The advantage of the simulated interactions on videotape was that all subjects were exposed to the same stimuli, minimizing the variance in behavioral cues that frequently accompany repeated live performances.

The scenes, using three professional male actors, depicted everyday interactions occurring in vocational, peer, and marital (close heterosexual) relationships. In each of the nine scenes, a male actor faced the camera and directed his response toward the subject.

The nine scenes were divided evenly into three general categories that had been evaluated qualitatively to be positive, neutral, or negative by a panel of four independent judges using a nine-space semantic differential scale. The scale was labeled with "positive" at one end, "negative" at the other, and "neutral" above the middle, with scores of seven through nine considered as positive, four through six as neutral, and one through three as negative. A criterion requiring agreement among three of the four judges was used for category placement. The judges were volunteer, female clinical psychology graduate students. The order of positive, neutral, and negative scenes, and the three content areas were systematically arranged to counteract order effects. Likewise, each actor did one positive, one neutral, and one negative scene.

Each scene was preceded by an auditory and a printed (on the screen) description of the interaction to be represented. This auditory/visual

description, approximately 20 seconds in length, also gave brief directions to the subjects on how to rate each scene. The scenes themselves, lasting approximately 45 seconds, were followed by two minutes of blank leader film so that the subjects had time to rate the interaction. A two-second buzzing noise preceded each audio/visual description to alert the subjects of a new vignette. A complete transcript of the tape may be found in Hoehn-Hyde (1979).

Rating Scales and Forms

The semantic differential technique, developed by Osgood et al. (1957), was used in this study to quantify the evaluation of the videotape interactions. This technique consisted of using bipolar adjectives on the opposite ends of a seven-space scale to define the designated concept. The subject quantified the meaning and intensity of the concept by placing an "X" on the scale. The direction (toward which adjective) and the distance from either end of the scale corresponded to the meaning and the intensity of the concept for the subject.

Following a recommendation by Gullikson (1958), a nine-space scale was used to obtain more precision in measurement. The clear cut division of the video scenes into positive, neutral, and negative categories warranted this expansion of sensitivity.

Eight rating scales were used by the subjects to evaluate the perception of social interaction. Four of these scales represented how the subjects perceived the actor in each video scene and the remaining four scales represented how the subjects felt about themselves after each scene. The scales were chosen to meet two major criteria. The first criterion was that the concepts were relevant to the situation under

consideration. Relevance was determined by an informal pilot study of two dozen women who reported interpersonal stress premenstrually to find which concepts seemed most cogent at the time. Also, concepts found significant to depressed women (Hoehn-Hyde, 1979) were selected.

The second criterion was that the scales represent the same factor or dimension. Even though Osgood et al. (1957) felt that the semantic space may best be represented by three major factors (Evaluation, Activity, and Potency), they noted that the Evaluative factor covers most of the semantic space by itself. This, in conjunction with the first criterion, led to selecting all eight scales within the Evaluative dimension. Following their recommendation, the scores from the four scales rating how the subjects felt after each vignette were averaged to give 2 values that are "assumed to be both more representative and more reliable than scores on individual scales" (Osgood et al., 1957, p. 34).

The scales chosen to represent how the subjects might perceive the actor in each scene were accepting-rejecting, supportive-unsupportive, kind-unkind, and negative-positive. The scales describing how the subjects felt about themselves were friendly-hostile, good-bad, warm-cold, and trustful-distrustful. The rating forms (Appendix C) were constructed such that each video scene was evaluated on a separate piece of paper. The scales were alternated as to how each end of the scale was labeled with regard to its social desirability. This alternation was done to avoid response bias. For the statistical analysis, each semantic space represented a number from "1" to "9" with "1" representing the least socially desirable (e.g., unkind, bad, or cold) and "9" representing the

most socially desirable (e.g., kind, good, or warm) meaning. Each rating form sheet contained brief instructions that corresponded to the written instructions preceding that video vignette.

The Personal History Questionnaire (PHQ)

A Personal History Questionnaire (PHQ) was drawn up for this study to meet a number of needs. First, the questionnaire (Appendix A) provided a simple method for screening out subjects who were not suitable because of the complication of such variables as pregnancy, medication, use of IUD, extreme cycle irregularity, severe environmental stress at the time of testing, and having been on birth control pills for too short of a time. Women on the pill less than three months were not suitable for this research for two reasons. They may not yet have been stabilized to the hormone changes and, more importantly, it was during those first few months that their physician may have changed brands to minimize negative side effects (Ruble, 1977).

Also, the PHQ contained a semantic differential scale for the subjects to evaluate their own mood at the time of the testing. This scale was designed in the same format as those scales used for evaluating the videotapes so that the subjects were familiar with its use. This scale provided 9 semantic spaces for expressing their feelings somewhere between extremely depressed to extremely happy. Finally, along with the standard socio-demographic items, the questionnaire asked about those aspects of menstrual history that previous researchers have felt may contribute to either the use of birth control pills or to the occurrence of menstrual cycle symptomology.

Procedure

Subjects were tested in a lecture room of adequate size and with a sufficient number of television monitors to assure that all testing was completed in two sessions during the same day. This aided in controlling the compounding variables of time and location. After obtaining signatures on the consent forms (Appendix D), the subjects were given the nine rating forms and the researcher read the instructions (Appendix E) out loud. After the subjects had had a chance to clarify any confusion over the rating forms, they were shown, and asked to rate, the videotape vignettes.

Next, the subjects were given the Personal History Questionnaire and the Menstrual Distress Questionnaire, Form T. Instructions (Appendix F) for the questionnaires were read by the researcher and any questions answered. Finally, the women were provided with a preaddressed (to the researcher) campus mail envelope containing a brief questionnaire (Appendix G) to supply the experimenter with critical information that was not available at the time of the testing. This information included the type of pill (for pill women) and the dates of menstruation both before and after the testing session so that cycle phase could accurately be determined.

Hypotheses

In comparison to the non-pill women in the intermenstrual phase, it was hypothesized:

H_{o_1} : That the non-pill women in the premenstrual phase would have lower mood.

Ho₂: That the non-pill women in the menstrual phase would have lower mood.

Ho₃: That the non-pill women in the premenstrual phase would have more symptomology on the Affective Factor of the Moos MDQ.

Ho₄: That the non-pill women in the menstrual phase would have more symptomology on the Affective Factor of the Moos MDQ.

In comparison on the pill women in the intermenstrual phase, it was hypothesized:

Ho₅: That the pill women in the premenstrual phase would not have significantly different ratings on the mood scale.

Ho₆: That the pill women in the menstrual phase would not have significantly different ratings on the mood scale.

Ho₇: That the pill women in the premenstrual phase would not have significantly different ratings on the Affective Factor of the Moos MDQ.

Ho₈: That the pill women in the menstrual phase would not have significantly different ratings on the Affective Factor of the Moos MDQ.

In comparison to the non-pill women in the intermenstrual phase, it was hypothesized:

Ho₉: That the non-pill women in the premenstrual phase would evaluate the neutral interactions more negatively.

Ho₁₀: That the non-pill women in the menstrual phase would evaluate the neutral interactions more negatively.

Ho₁₁: That the non-pill women in the premenstrual phase would evaluate the negative interactions more negatively.

Ho₁₂: That the non-pill women in the menstrual phase would evaluate the negative interactions more negatively.

In comparison to the pill women in the premenstrual phase, it was hypothesized:

Ho₁₃: That the non-pill women in the premenstrual phase would evaluate the neutral interactions more negatively.

Ho₁₄: That the non-pill women in the premenstrual phase would evaluate the negative interactions more negatively.

In addition, it was hypothesized that:

Ho₁₅: The women with more negative mood would evaluate the interactions more negatively.

Ho₁₆: Within each of the three categories of interactions, the ratings of actor and self perception would be strongly correlated.

Statistical Analysis

Information from the Personal History Questionnaire (PHQ) and the Menstrual Distress Questionnaire (MDQ) were analyzed for the pill and nonpill groups. Chi-square tests were used to analyze PHQ questions that yield frequency data. The MDQ total score, the MDQ negative affect score, and questions from the PHQ yielding continuous data were tested with t-tests.

The data from each rating form yielded two groups of four scores, one for the ratings of the actor and the other for subject self-rating. An average was calculated for each group of four. These two values numerically represented how the subject perceived the actor and how the subject felt about herself after each vignette. These two values were averaged for each of the three positive, three neutral, and three negative scenes. Each subject therefore had two scores for each of the three categories.

A correlational analysis was done to investigate any correlation between these two rating scores, and those questionnaire items showing a significant difference between the pill and nonpill groups. Also, a correlational analysis was done between these same questionnaire items and the mood and affective symptomology scores. Since no significant linear correlations were found between any of the dependent variables and the questionnaire items under consideration, it was decided that an analysis of variance (and not covariance) was appropriate for analyzing the data.

The hypotheses examining the fluctuation of mood and affective symptomology were tested by individual comparisons between the appropriate cell means. Likewise, the hypotheses examining the perception variables were tested by individual comparisons.

A 2x3x3 (with the last variable a repeated measure) analysis of variance was performed on each of the two rating scores. The factors were groups (pill or nonpill), phase (premenstrual, menstrual, or intermenstrual), and the category of interaction (positive, negative, or neutral). In addition, the last two hypotheses were tested by calculating correlations between the MDQ total score, the MDQ negative affect score, the mood score from the PHQ, and the videotape rating scores.

CHAPTER III

RESULTS

Analysis of Responses to the Personal History Questionnaire

Frequency and mean data for the PHQ are presented in Table 1. Analysis of the data is found in Appendix H, Tables 8 through 20.

Living arrangement, father's education, family's religious atmosphere, current religious involvement, women's role in society, and length of reproductive cycle were analyzed by the Chi-square procedure (Appendix H, Table 8-13). Three items were found to differ significantly for the pill and nonpill groups. The data suggest that more pill women reported themselves as living with male, or living alone, than did the nonpill women, $\chi^2(3) = 17.93$, $p < .0005$. Also, the subjects of the nonpill group responded that they believed they had a more religious background family, $\chi^2(2) = 5.99$, $p < .049$, than did the group using oral contraceptives. As might have been expected, the pill group reported themselves as having reproductive cycles of more consistent lengths than the nonpill group, $\chi^2(2) = 16.23$, $p < .0003$. However, these three analyses should be viewed with caution because in some cases the category sizes were so sparse.

Table 1
 Frequency^a and Mean Data for Responses to the
 Personal History Questionnaire

Item	Pill		Nonpill	
	N	%	N	%
Living Arrangement				
Alone	7	(8.75)	3	(3.75)
Cohabitation with female(s)	18	(22.5)	41	(51.25)
Cohabitation with male(s)	8	(10)	0	(0)
Family	2	(2.50)	1	(1.25)
Father's Education				
College degree	17	(21.25)	24	(30)
Some college	7	(8.75)	13	(16.25)
Non-college	11	(13.75)	8	(10)
Family's Religious Atmosphere				
Non-religious	7	(8.75)	2	(2.50)
Average	25	(31.25)	34	(42.5)
Strictly and devoutly religious	3	(3.75)	9	(11.25)
Current Religious Involvement				
Very little	7	(8.75)	11	(13.75)
Some	12	(15)	21	(26.25)
Quite a lot	6	(7.5)	13	(16.25)
Women's Role in Society				
More liberal	18	(22.5)	18	(22.5)
More traditional	8	(10)	17	(21.25)
Neither of the above	9	(11.25)	10	(12.5)
Length of Reproductive Cycle				
Very regular	33	(41.25)	24	(30)
Fairly regular	2	(2.5)	18	(22.5)
Somewhat irregular	0	(0)	3	(3.75)
Means				
	Pill		Nonpill	
Mean Age (years)	20.06		19.33	
Mood (1 is depressed on 9 point scale)	6.71		6.67	
Mean Age of Menarche	12.54		12.84	

Table 1 (Continued)

	Means	
	Pill	Nonpill
Initial Reaction to Menarche (1 is negative on 9 point scale)	4.94	5.22
Mother's Attitude Toward Menstruation (1 is negative on 9 point scale)	5.94	6.73
Prior Knowledge About Menstruation (1 is none on 9 point scale)	7.26	6.09
Monthly Flow (1 is heavy on 9 point scale)	5.71	5.33

^aThe total number of subjects was 80.

Age, mood, age at menarche, initial reaction to menarche, mother's attitude toward menstruation, prior knowledge about menstruation, and amount of monthly flow were analyzed by t -tests (Appendix H, Tables 14-20). Only one item differed significantly between the pill and nonpill groups. The pill women's responses on the questionnaire would suggest that they believed they had more knowledge about menstruation prior to their menarche than did the nonpill group, $t(78) = 2.23$, $p < .028$.

Correlational Analysis Between the Dependent
Variables and Questionnaire Data Found
to Distinguish Between the Pill
and Nonpill Group

Correlations between the perception rating variables, mood, and affective symptomology; and the background family's religious atmosphere, prior knowledge about menstruation, and length of reproductive cycle are presented in Appendix I, Table 21. The living arrangement item was not included in this analysis because the various categories could not be arranged in an order suitable for the correlational procedure.

There were no significant correlations between the perception rating variables and the questionnaire items that distinguished between the pill and nonpill groups. For this reason, it was decided that an analysis of variance was appropriate for analyzing the rating variables, and the use of covariance was not warranted. However, there was a significant correlation between the mood score and prior knowledge, so analysis of covariance was used to analyze the mood data.

Analyses of Affective, Total Symptomology
and Mood Scores

Analyses of variance for the affective factor and the total symptomology score from the MDQ, and an analysis of covariance for the mood score from the PHQ, are found in Appendix J, Tables 22 through 24. Means for the various combinations of pill and phase are presented for the mood score and the affective factor in Tables 2 and 3 (in Results), respectively. Comparisons between means are presented in Tables 4 and 5 (in Results).

Inspection of the analysis of the affective factor and the mood scores (Appendix J, Tables 22 and 23) reveals that there was a significant phase difference for the mood score, and a clear, but not significant phase difference for the affective factor score. However, of more specific and relevant importance to this study are the comparisons presented in Table 4 and 5.

It may be noted in Tables 4 and 5 that eight of these comparisons were planned and were used to test the first eight hypotheses listed in the methodology section. All eight of these hypotheses were confirmed by the comparisons. The data would suggest, for the women subjects tested, that the nonpill women had lower mood and more affective symptomology in the premenstrual and menstrual phases of the cycle than during the intermenstrual phase. The pill women did not have a significant difference in mood or affective symptomology between the three phases of the monthly cycle. Even though it was not predicted, the difference in mood and affective symptoms between the premenstrual and menstrual phases, and the intermenstrual phase, was also significant for the pill and nonpill groups combined.

Table 2
Means for Mood Scores

Group	Phase			
	Pre.	Men.	Int.	Total
Pill	6.22	6.82	6.93	6.71
Nonpill	6.20	6.07	7.73	6.67
Combined	6.21	6.38	7.33	

^a One is depressed on a 9 point scale.

Table 3
Means of Affective Factor Scores

Group	Phase			
	Pre.	Men.	Int.	Total
Pill	16.44	15.81	15.20	15.71
Nonpill	20.27	17.67	12.93	16.96
Combined	18.83	16.89	14.07	

^a A higher score means more negative symptomology.

Table 4
Comparisons of Means for Mood Scores

Ho	Group	Comparison	\underline{t}	\underline{p}
Ho ₅	Pill	Int. vs. Pre.	1.14	.134
Ho ₆	Pill	Int. vs. Men.	0.19	.421
Ho ₁	Nonpill	Int. vs. Pre.	3.23	.002
Ho ₂	Nonpill	Int. vs. Men.	3.73	.0004
	Combined	Int. vs. Pre.	2.95	.0024
	Combined	Int. vs. Men.	2.59	.0061

Table 5
Comparisons of Means for Affective Factor Scores

Ho	Group	Comparison	\underline{t}	\underline{p}
Ho ₇	Pill	Int. vs. Pre.	0.53	.31
Ho ₈	Pill	Int. vs. Men.	0.26	.40
Ho ₃	Nonpill	Int. vs. Pre.	2.45	.012
Ho ₄	Nonpill	Int. vs. Men.	2.39	.013
	Combined	Int. vs. Pre.	2.28	.015
	Combined	Int. vs. Men.	1.77	.042

Analysis of the Ratings for Perception
of Actor and Self Variables

The analyses of variance for the actor and self-perception variables are presented in Appendix K, Tables 25 and 26. Cell means and planned comparisons between cell means are presented in Tables 6 and 7 below.

The analysis of variance of the actor and self perception variables (Appendix K, Tables 25 and 26) reveal a similar pattern for both of these dependent variables. There was a significant main effect for category for the actor perception variable, $F(2,148) = 919.48$, $p < .0001$, and for the self perception variable, $F(2,148) = 594.38$, $p < .0001$. However, there was no significant main effect for pill or phase, or for any of the interactions tested.

Examination of the planned comparisons between cell means found in Table 7 reveals that these comparisons are also the next six hypotheses listed in the section on methodology. It should be noted that these comparisons (and hypotheses) actually are doubled in number because each has two parts: one for the actor perception, and one for self perception. Only one of these twelve planned comparisons suggests a significant difference between groups of subjects. The pill women in the premenstrual phase evaluated the actor performing a neutral interaction in a more positive light than did the nonpill women in the premenstrual phase, $t(222) = 2.09$, $p < .05$. The self perception of these two groups did not differ significantly.

In addition, as a further test of the perception hypotheses stated in the method chapter, twelve post hoc comparisons between cell means were performed and are presented in Appendix K, Table 27. None of these comparisons showed a significant difference between groups of subjects.

Table 6
Means of the Perception Variables
for Actor and Self Ratings

Group	Phase	Category	n	Actor Per.	Self Per.
Pill	P	+	9	8.60	8.22
Pill	P	-	9	2.10	2.34
Pill	P	o	9	6.79	6.31
Pill	M	+	11	8.17	7.87
Pill	M	-	11	2.40	3.02
Pill	M	o	11	6.17	5.93
Pill	I	+	15	8.51	8.04
Pill	I	-	15	2.43	3.01
Pill	I	o	15	5.88	5.76
Nonpill	P	+	15	8.55	8.25
Nonpill	P	-	15	2.26	2.76
Nonpill	P	o	15	5.99	5.83
Nonpill	M	+	15	8.64	8.38
Nonpill	M	-	15	2.27	2.87
Nonpill	M	o	15	6.29	6.04
Nonpill	I	+	15	8.62	8.60
Nonpill	I	-	15	2.53	2.78
Nonpill	I	o	15	6.19	5.93

^a On a nine point scale, 1 = negative and 9 = positive.

Per. = Perception

Table 7
 Planned Comparisons of the Means of the
 Perception Variable for Actor
 and Self Ratings

Ho	Comparison		<u>t</u>
Ho ₉	Nonpill/Int/Neu vs. Nonpill/Pre/Neu	Actor	0.61
		Self	0.28
Ho ₁₀	Nonpill/Int/Neu vs. Nonpill/Men/Neu	Actor	-0.32
		Self	-0.31
Ho ₁₁	Nonpill/Int/Neg vs. Nonpill/Pre/Neg	Actor	0.81
		Self	0.08
Ho ₁₂	Nonpill/Int/Neg vs. Nonpill Men/Neg	Actor	0.78
		Self	-0.25
Ho ₁₃	Pill/Pre/Neu vs. Nonpill/Pre/Neu	Actor	2.09*
		Self	1.17
Ho ₁₄	Pill/Pre/Neg vs. Nonpill/Pre/Neg	Actor	-0.42
		Self	-0.99

* $p < 0.05$ for 1-tailed t-test

Int = Intermenstrual Phase

Neu = Neutral Scene

Pre = Premenstrual Phase

Neg = Negative Scene

Men = Menstrual Phase

Correlations Between Mood, Symptomology, and the
Perception Variables; and a Post Hoc
Correlation of Questionnaire Data

Correlations between the perception variables and the mood and symptomology scores are presented in Appendix L, Tables 28 and 29. These two correlational matrices are presented for the pill and nonpill groups respectively.

For both groups there is a strong correlation between the actor and self perception variables. For the pill women, the correlation for the actor and self perception ratings for the positive interaction category was $r(33) = .85$, $p < .0001$, for the negative interaction category, $r(33) = .74$, $p < .0001$, and for the neutral interaction category, $r(33) = .91$, $p < .0001$. For the nonpill group, the correlations for these three categories were $r(43) = .65$, $p < .0001$; $r(43) = .79$, $p < .0001$; and $r(43) = .87$, $p < .0001$, respectively.

Other significant correlations for the pill women are also present. A relationship between reported mood and affective symptomology exists, $r(33) = .50$, $p < .01$, and also between affective symptomology and the total symptomology score, $r(33) = .68$, $p < .0001$. Only one correlation showing a relationship between mood and a perception variable emerges from the data, with an $r(33) = .42$, $p < .05$, between mood and the self perception in the positive interaction category.

A strong correlation, $r(33) = -.65$, $p < .0001$, exists between the pill women's self perception in the positive interaction category and their self perception in the negative interaction category. Also, a correlation, $r(33) = -.55$, $p < .01$, was found between actor perception in the

positive interaction category and self perception in the negative interaction category.

For the nonpill women, correlations similar to those of the pill women were found for the mood and symptomology measures. Mood and affective symptomology were significantly related, $r(43) = .52$, $p < .01$, and also affective symptomology with total symptomology $r(43) = .85$, $p < .0001$. Somewhat different from the pill women, there was also a significant correlation, $r(43) = .41$, $p < .01$, between mood and total symptomology.

The only correlation for nonpill women involving a measure of affect and a perception variable is found between affective symptomology and self perception in the negative interaction category, $r(43) = -.29$, $p < .05$. Unlike the pill group, no other relationships between the perception variables emerge from this data except those already noted.

Because a difference between reported background family's religious atmosphere was found for the pill and the nonpill groups, a correlational analysis was performed comparing family's religious atmosphere with current religious involvement. A strong relationship, $r(43) = .49$, $p < .0005$, exists between family and current religious involvement for the nonpill women while no significant correlation, $r(33) = .27$, $p < .11$, was found for the pill women.

CHAPTER IV

DISCUSSION

The major focus of this study can be divided into two parts. The first part was aimed at quantifying changes in mood and affective symptomology as women proceed through their monthly reproductive cycle, and the second part examined the influence that these changes may have had on how the women perceived videotaped interpersonal interactions.

Analysis of the data collected clearly supported the hypotheses concerning the pattern of fluctuations in mood and affective symptomology (Tables 4 and 5). Significantly lower mood and greater negative affective symptomology were reported by the nonpill women in the premenstrual and menstrual phases when compared with the nonpill women in the intermenstrual phase. These findings are consistent with those of Moos (1968b), Paige (1971), Silbergeld et al. (1971) and Cullberg (1972). Also as predicted, the data indicate that use of the combination type oral contraceptive attenuated these fluctuations in mood and affective symptomology to a degree such that there were no longer any significant differences between phases.

However, it might be noted from Table 2 and 3 that while the differences between phases for the pill users are attenuated, they are still in the direction exhibited by the nonpill women. Such findings would be consistent with the theory that oral contraceptives smooth out hormone fluctuations by overlaying a uniform and relatively high level of hormones

on top of the usual cyclic changes in level, and there is not an actual elimination of the hormonal cycle (Cullberg, 1972). Whether or not such an explanation is accurate is beyond the scope of this study.

Overall, the non-pill women in the intermenstrual phase described themselves as being happier than their counterparts in the premenstrual and menstrual phases. However, the greatest difference in means between any of the cell comparisons was only 1.66 on the 9 point semantic differential scale. Also, all of these differences were between varying degrees of "happy", with none of the cell means falling in the "depressed" end of the scale. The mood cell means generated for the women tested would correspond to self descriptors ranging from "slightly" happy to varying degrees of "quite" happy. It seems that statistically significant fluctuations in mood were present with phase change, but on the average there was no indication of reported depression.

Any interpretation of the values generated for the affective symptomology factor is made difficult by the fact that a total of 8 different descriptors are represented in the negative affect factor on the Moos MDQ (1968a). Included are tension, anxiety, restlessness, irritability, mood swings, depression, crying, and loneliness. When the affective factor is divided by 8, the resulting values are somewhat easier to interpret from the five point scale used for the MDQ. The highest and lowest average affective symptomology scores were reported for the non-pill women in the premenstrual (20.27) and the intermenstrual (12.93) phases respectively. When these values are divided by 8, the resulting values (approximately $2\frac{1}{2}$ and $1\frac{1}{2}$) would represent the above symptoms as fluctuating between "barely noticeable" to "present, mild" for the non-pill subjects. Again, as with the mood variable, the average affective

symptomology values for women of any pill group and phase combination are far from being in the extreme negative range of experience.

When the phase values of affective symptomology for nonpill women (Table 2) are compared to Moos' (1968a) normative data, it is obvious that the present sample of women scored higher overall than did Moos' sample of 839 women. Moos' values were 16.96, 15.79, and 10.93 for the premenstrual, menstrual, and intermenstrual phases, respectively, while this study generated values of 20.27, 17.67, and 12.93. One possible explanation for this relative elevation in negative affective symptomology is that the subjects were younger, with approximate average ages of 20 compared with 25 years for Moos (1968a), and consequently the women might not have been so used to their symptoms and as a consequence exaggerated their severity somewhat. Another explanation might be that the subjects of the present study had just come back from spring vacation and were more sensitive to their condition in general.

The second and major part of this research examined the presence of fluctuations in the women's perception of interpersonal interactions as they progress through the phases of their monthly reproductive cycle. Overall, the hypotheses concerning this aspect of the research were not confirmed by the data collected. Only one of the twelve planned comparisons (Table 7, hypotheses 9 through 14) were significant at the .05 level, and none of the Post Hoc comparisons (Appendix K, Table 27) were significant. The one hypothesis (H_{013}) confirmed by the data was that the pill women in the premenstrual phase would view the neutral interpersonal interaction in a more positive light than did the nonpill women in the same phase of their cycle. A number of factors would warrant viewing the validity of this comparison with caution. This comparison was only

significant for the women's perception of the actor and not how they then felt in response, and more importantly, it was only one significant comparison among so many that were not significant. There is a good probability that at least one out of so many comparisons would be significant.

Further reasons for viewing the validity of H_{013} with caution is that, in general, H_{015} was not confirmed. H_{015} predicted that the women with the more negative mood would perceive and evaluate the interpersonal interactions more negatively. Correlational analysis between the mood variable and the perception variables (Appendix L, Table 28) resulted in only one significant correlation at the .05 level. This correlation, $r(33) = .42, p < .05$, was for women using the pill, and was between mood and the women's perception of themselves in response to a positive interaction with the actor. While it may be true that happier women using the pill are more capable of viewing themselves in a positive light after being complimented, it is difficult to understand why the nonpill women would not respond in a similar fashion. The fact that the other eleven correlations between mood and the perception variables were not significant would suggest that there was essentially no correlation between reported level of mood and evaluation of interpersonal interactions for this study.

In addition, the affective symptomology factor only correlated significantly, $r(43) = -.29, p < .05$, with one perception variable (Appendix L, Table 29). This correlation suggests that the nonpill women with less negative affective symptomology are more capable of perceiving themselves in a positive light than are the nonpill women with greater symptomology, after receiving a negative interpersonal interaction. This

finding would be consistent with Englander-Golden et al.'s (1977) observation that there is a correlation between the amount of symptomology a woman reports and how much interpersonal tension she perceives in interpersonal interactions. However, there is no obvious explanation why such a significant correlation emerged for the nonpill and not the pill women, and also why it did not emerge for the other eleven conditions.

There are a number of possible explanations why the perception of interpersonal interactions data did not vary with phase and pill use as predicted. These same explanations would account for the general lack of correlation between mood and affective symptomology, and the perception variables. As already discussed, while fluctuations in mood and affective symptomology with phase were statistically significant, they may not have been of sufficient magnitude to register any impact on the social perceptions.

Also, the quality of the videotape vignettes may have been that the women could not sufficiently project themselves (and feelings) into the scenes portrayed on the television monitors. The appearance of the actors, the quality of the acting, the setting and type of interactions portrayed, and the group viewing of the scenes, all may have contributed toward the women evaluating the technical qualities of each vignette more than they evaluated their feelings in response to the interpersonal interaction portrayed. Further research in this area may prove more fruitful if the subjects are exposed to auditory communications only, and are tested individually rather than in large groups.

In addition, it may be that the kind of parameters being measured would more accurately represent women's perceptions if individual women were tested at various phases of her monthly cycle rather than attempting to compare between different women in different phases of the cycle. Parlee (1973) suggests that this alternative is a more sound design and would aid in controlling individual differences. Of course, such an approach would possibly be a trade-off in controlling extraneous variables because the women would be tested at different times of the week, month, and possibly, day. There are indications of how such an alternative approach might affect the manner that women would differentially view the actor vs. self perceptions.

The hypothesis ($H_{0_{16}}$) predicting that the actor and the self perceptions would be similar was generally confirmed by this study. Even though its meaning possibly suffers in relative value because the perception hypotheses were not confirmed, it still acts to confirm Beck's (1967) contention that the way we view the world around us also reflects the way we feel about ourselves. Correlations between actor and self perceptions for all three categories of interaction were strongly correlated with $p < .0001$ in every case (Appendix L, Table 28 and 29). It seems that using different descriptors to generate the actor and self perception scales did not adversely effect this relationship. Possibly, this was so because all the descriptors used were all part of an evaluative factor (Osgood et al., 1957).

Another strong correlation, $r(33) = -.65$, $p < .0001$, between perception variables also warrants closer examination. This negative correlation was generated for the pill women only, and exists between self perception in the positive category and self perception in the negative

category (Table 28). Such a correlation might be translated to mean that for the pill women as a group, the higher their self evaluation was after a negative interaction, then the lower was their self perception after a positive interaction. Such a correlation could be explained by assuming that the pill women less easily associated their own self perception with whatever interaction they had just encountered. This might imply that the pill women were essentially less labile than their nonpill counterparts in the area of self evaluations. Such an assumption might coincide with Silbergeld et al.'s (1971) finding that their subjects using the pill were overall less irritable and hostile than their nonpill counterparts. If the present findings reflect such a relationship between lability, hostility and irritability then there is further support for such an observation by the fact that the pill women (Table 28) also had significant negative correlations for three additional relationships between positive and negative category perceptions, while the nonpill women (Table 29) generated no significant correlations between such relationships. Further research would be needed to substantiate such an interaction between pill usage and perception, and goes far beyond the scope of the present research.

A number of other findings that emerged from analysis of the data were not expected. For example, the significant correlations between mood and affective symptomology only confirmed the fact that both were so closely related to phase. Also, consistent with Moos' (1977) report, the total symptomology score was related to the affective symptomology score. Though it was not examined in depth, it was somewhat surprising that the analysis of variance for the total symptomology score did not show a significant F value for phase (Table 24) since it was so strongly

correlated to the affect score. Possibly the large number of symptom descriptors, coupled with individual differences between subjects, kept this more general variable from being more clearly linked to changes with phase. The pattern of significant correlations between mood and symptomology variables was similar for both pill and nonpill women.

The questionnaire data revealed that additional differences between the pill and nonpill group did exist for the women tested. The finding that significantly more women using the pill reported themselves to be living with males than nonpill women was to be expected. Likewise, the pill women reporting that their family's religious atmosphere was less devout than that of their nonpill counterparts would be consistent with a position of greater independence, and it would have been extremely unusual if the pill women had not reported their monthly cycles as being much more regular than their more natural cycling counterparts. It was interesting, though, that the pill women reported significantly more prior knowledge about menstruation than the nonpill subjects. It may be that they are (were), in general, more interested in that aspect of their lives, or they are just perceiving themselves as better informed since they may be more sexually active than the nonpill subjects.

Also, consistent with a pattern that the pill women were willing to function more independently from their family, the nonpill women's current religious involvement was much more closely related to their family's religious atmosphere than was the pill women's. However, this leaning toward being more independent on the part of the pill women was not reflected in how they perceive women's role in society. A possible explanation for this finding is that the women's role item asked about

women in general and not about the individual subject responding to the questionnaire.

In conclusion, the results of this study indicate that oral contraceptive users report a significant attenuation of the mood and negative affective symptomology fluctuations reported by many nonpill women as they pass through their monthly reproductive cycle. However, the results did not reveal evidence of a distortion of social perceptions that was hypothesized to accompany these periodic fluctuations in affect.

Future research in this area might be facilitated by using videotaped materials that are more representative of situations experienced by the subjects, or changing to only audio materials, requiring more imagination on the part of the subjects. Also, the influence of periodic mood shifts may be more easily interpreted if research examined not only perceptual distortions, but also the behaviors that the subjects might expect themselves to make in response to the perceived social interactions. A more behaviorally oriented approach would be consistent with the evidence suggesting that lability may be an important variable with respect to pill use and phase of cycle.

REFERENCES

- Asso, D. Levels of arousal in the premenstrual phase. British Journal of Social and Clinical Psychology, 1978, 17, 47-55.
- Beck, A. T. Depression: Causes and treatment. Philadelphia: University of Pennsylvania Press, 1967.
- Beck, A. T. Cognitive therapy and the emotional disorders. New York: International Universities Press, 1976.
- Benedek, T., & Rubenstein, B. B. The correlations between ovarian activity and psychodynamic processes; I. The ovulatory phase; II. The menstrual phase. Psychosomatic Medicine, 1939, 1, 246-270; 462-485.
- Brockway, J. A. Prediction of premenstrual symptomology using the Moos Menstrual Distress Questionnaire. (Doctoral dissertation, University of Iowa, 1975). Dissertation Abstracts International, 1975, 36, 6371-B. (University Microfilms No. 76-13, 365)
- Campos, F., & Thurow, C. Attributions of moods and symptoms to the menstrual cycle. Personality and Social Psychology, 1978, 4, 272-276.
- Coopen, A., & Kessel, N. Menstruation and personality. British Journal of Psychiatry, 1963, 109, 711-721.
- Cullberg, J. Mood changes in menstrual symptoms with different gestagen/estrogen combinations. Acta Psychiatrica Scandinavica Supplementum, 1972, 236, 1-86.
- Dalton, K. Menstruation and acute psychiatric illness. British Medical Journal, 1959, 1, 148-149.
- Dalton, K. Menstruation and accidents. British Medical Journal, 1960a, 2, 1425-1426.
- Dalton, K. Effect of menstruation on school girls' weekly work. British Medical Journal, 1960b, 1, 326-328.
- Dalton, K. Menstruation and crime. British Medical Journal, 1961, 2, 1752-1753.
- Dalton, K. The premenstrual syndrome. Springfield, Ill.: Charles C. Thomas, 1964.

- Englander-Golden, P., Willis, K. A., & Dienstbier, R. A. Stability of perceived tension as a function of the menstrual cycle. Journal of Human Stress, 1977, 3, 14-21.
- Englander-Golden, P., Whitmore, M. R., & Dienstbier, R. A. Menstrual cycle as focus of study and self-reports of mood and behaviors. Motivation and Emotion, 1978, 2, 75-86.
- Englander-Golden, P., Chang, H., Whitmore, M. R., & Dienstbier, R. A. Female sexual arousal and the menstrual cycle. Journal of Human Stress, 1980, 6, 42-48.
- Feighner, J. P., Robins, E., Guze, S. B., Woodruff, R. A., Winokur, G., & Munoz, R. Diagnostic criteria for use in psychiatric research. Archives of General Psychiatry, 1972, 26, 57-63.
- Frank, R. T. The hormonal causes of premenstrual tension. Archives of Neurology and Psychiatry, 1931, 26, 1053-1057.
- Golub, S. The effect of premenstrual anxiety and depression on cognitive function. Journal of Personality and Social Psychology, 1976, 34, 99-104.
- Gottschalk, L. A. An anxiety measure applicable to verbal samples. American Medical Association Archives of General Psychiatry, 1961, 5, 593.
- Gottschalk, L. A., Kaplan, S. M., Gleser, G. C., & Winget, C. M. Variations in magnitude of emotion: A method applied to anxiety and hostility during phases of the menstrual cycle. Psychosomatic Medicine, 1962, 24, 300-311.
- Gough, H. G. Personality factors related to reported severity of menstrual distress. Journal of Abnormal Psychology, 1975, 84, 59-65.
- Gruba, G. H., & Rohrbaugh, M. MMPI correlates on menstrual distress. Psychosomatic Medicine, 1975, 37, 265-273.
- Gulliksen, H. How to make meaning more meaningful. Contemporary Psychology, 1958, 3, 115-118.
- Hain, J. D., Linton, P. H., Eber, H. W., & Chapman, M. M. Menstrual irregularity, symptoms and personality. Journal of Psychosomatic Research, 1970, 14, 81-87.
- Halbreich, U., & Kas, D. Variations in the Taylor MAS of women with premenstrual syndrome. Journal of Psychosomatic Research, 1977, 21, 391-393.
- Herzberg, F. I. A study of the psychological factors in primary dysmenorrhea. Journal of Clinical Psychology, 1952, 8, 174-178.

- Hoehn-Hyde, D. Perception of social interactions in depressed patients. (Doctoral dissertation, Oklahoma State University, 1979). Dissertation Abstracts International, 1979, 40, 5813-B. (University Microfilms No. 80-13, 018)
- Ivey, M. E., & Bardwick, J. M. Patterns of affective fluctuations in the menstrual cycle. Psychosomatic Medicine, 1968, 30, 336-345.
- Kopell, B. S., Lunde, D. T., Clayton, R. B., & Moos, R. H. Variations in some measures of arousal during the menstrual cycle. The Journal of Nervous and Mental Disease, 1969, 148, 180-187.
- Lamb, W. M., Ulett, G. A., Masters, W. H., & Robinson, D. W. Premenstrual tension: EEG, hormonal, and psychiatric evaluation. American Journal of Psychiatry, 1953, 109, 840-848.
- Levitt, E. E. The psychology of anxiety. New York: Bobbs-Merrill, 1967.
- Levitt, E. E., & Lubin, B. Some personality factors associated with menstrual complaints and menstrual attitude. Journal of Psychosomatic Research, 1967, 11, 267-270.
- Lunghi, M. E. The stability of mood and social perception measures in a sample of depressive in-patients. British Journal of Psychiatry, 1977, 130, 598-604.
- Luschen, M. E., Pierce, D. M. Effect of the menstrual cycle on mood and sexual arousability. The Journal of Sex Research, 1972, 8, 41-47.
- Markum, R. A. Assessment of the reliability of and the effect of neutral instructions on the symptom ratings on the Moos menstrual distress questionnaire. Psychosomatic Medicine, 1976, 38, 163-172.
- May, R. R. Mood shifts and the menstrual cycle. Journal of Psychosomatic Research, 1976, 20, 125-130.
- Messick, S. The impact of negative affect on cognition and personality. In S. S. Tomkins & C. E. Izard (Eds.), Affect, cognition, and personality. New York: Springer, 1965.
- Moos, R. H. The development of a menstrual distress questionnaire. Psychosomatic Medicine, 1968a, 30, 853-867.
- Moos, R. H. Psychological aspects of oral contraceptives. Archives of General Psychiatry, 1968b, 19, 87-94.
- Moos, R. H., Kopell, B. S., Melges, F. T., Yalom, I. D., Lunde, D. T., Clayton, R. B., & Hamburg, D. A. Fluctuations in symptoms and moods during the menstrual cycle. Journal of Psychosomatic Research, 1969, 13, 37-44.
- Moos, R. H. Menstrual Distress Questionnaire manual. Stanford: Social Ecology Laboratory, 1977.

- Moos, R. H., & Leiderman, D. B. Toward a menstrual cycle symptom typology. Journal of Psychosomatic Research, 1978, 22, 31-40.
- Osgood, C. E., Succi, G. J., & Tannenbaum, P. H. The measurement of meaning. Urbana: University of Illinois, 1957.
- Paige, K. E. Effects of oral contraceptives on affective fluctuations associated with the menstrual cycle. Psychosomatic Medicine, 1971, 33, 515-537.
- Parlee, M. B. The premenstrual syndrome. Psychological Bulletin, 1973, 80, 454-465.
- Parlee, M. B. Stereotypic beliefs about menstruation: A methodological note on the Moos menstrual distress questionnaire and some new data. Psychosomatic Medicine, 1974, 36, 229-240.
- Patkai, P., Johannson, G., & Post, B. Odd, alertness and sympathetic - adrenal medullary activity during the menstrual cycle. Psychosomatic Medicine, 1974, 36, 503-509.
- Patty, R. A., & Ferrell, M. M. A preliminary note on the motive to avoid success and the menstrual cycle. The Journal of Psychology, 1974, 86, 173-177.
- Paulson, M. J. Psychological concomitants of premenstrual tension. American Journal of Obstetrics and Gynecology, 1961, 81, 733-738.
- Rossi, A. S., & Rossi, P. E. Body time and social time: Mood patterns by menstrual cycle phase and day of the week. Social Science Research, 1977, 6, 273-308.
- Ruble, D. N. Premenstrual symptoms: A reinterpretation. Science, 1977, 197, 291-292.
- Shainess, N. A re-evaluation of some aspects of menstruation: A preliminary report. Comprehensive Psychiatry, 1961, 2, 20-26.
- Silbergeld, S., Brast, N., & Noble, E. P. The menstrual cycle: A double-blind study of symptoms, mood and behavior, and biochemical variables using enovid and placebos. Psychosomatic Medicine, 1971, 33, 411-428.
- Smith, S. L. Mood and the menstrual cycle. In E. J. Sacher (Ed.), Topics in psychoendocrinology. New York: Grune & Stratton, 1975.
- Smith, S. L., & Sauder, C. Food cravings, depression, and premenstrual problems. Psychosomatic Medicine, 1969, 4, 281-287.
- Sommer, B. Menstrual cycle changes and intellectual performance. Psychosomatic Medicine, 1972, 34, 263-269.

- Sommer, B. The effect of menstruation on cognition and perceptual-motor behavior: A review. Psychosomatic Medicine, 1973, 35, 515-534.
- Steiner, M., & Carroll, B. J. The psychobiology of premenstrual dysphoria: Review of theories and treatments. Psychoneuroendocrinology, 1977, 2, 321-335.
- Tonks, C. M., Rack, P. H., & Rose, M. J. Attempted suicide and the menstrual cycle. Journal of Psychosomatic Research, 1968, 11, 319-323.
- Tuch, R. H. The relationship between a mother's menstrual status and her response to illness in her child. Psychosomatic Medicine, 1975, 37, 388-394.
- Udry, J. R., & Morris, N. M. Distribution of coitus in the menstrual cycle. Nature, 1968, 220, 593-596.
- Vila, J., & Beech, H. R. Vulnerability and conditioning in relation to the human menstrual cycle. British Journal of Social and Clinical Psychology, 1977, 16, 69-75.
- Ward, M. M., Stone, S. C., & Sandman, C. A. Visual perceptions in women during the menstrual cycle. Physiology and Behavior, 1978, 20, 239-243.
- Weissman, M. M., & Klerman, G. L. Sex differences and the epidemiology of depression. Archives of General Psychiatry, 1977, 34, 98-111.
- Wetzel, R. D., & McClure, J. N. Suicide and the menstrual cycle: A review. Comprehensive Psychiatry, 1972, 13, 369-374.
- Wetzel, R. D., McClure, J. N., & Reich, T. Premenstrual symptoms in self-referrals to a suicide prevention service. British Journal of Psychiatry, 1971, 119, 525-526.
- Wetzel, R. D., Reich, T., McClure, J. N., & Wald, J. A. Premenstrual affective syndrome and affective disorder. British Journal of Psychiatry, 1975, 127, 219-221.
- Zimmerman, E., & Parlee, M. B. Behavioral changes associated with the menstrual cycle: An experimental investigation. Journal of Applied Social Psychology, 1973, 3, 335-344.

APPENDIX A

PERSONAL HISTORY QUESTIONNAIRE

Personal History Questionnaire

Subject Number: _____.

1. Name: _____
2. Class from which you were recruited: _____
3. Today's date: ___ / ___ / 81
4. Phone number where you can be reached: _____
5. Years of education: _____
6. Age _____ (years)
7. Living arrangement:
 - ___ alone
 - ___ cohabitation (room mate) with female(s).
 - ___ cohabitation (room mate) with male(s).
 - ___ with family.
8. Father's education:
 - ___ college degree
 - ___ some college
 - ___ non-college
9. Using a scale similar to those employed with the videotaped scenes, how would you describe your mood at this moment?

Happy ___: ___: ___: ___: ___: ___: ___: ___: ___ Depressed

10. Do you presently feel upset because of a recent event or condition in your school, social, or living situation? _____ If yes, briefly describe what happened below:

 11. Was your childhood family's religious atmosphere:
 - ___ non-religious
 - ___ average
 - ___ strictly and devoutly religious
 12. Is your current level of religious involvement:
 - ___ very little
 - ___ some
 - ___ quite a lot
 13. Do you see your attitude toward women's role in society as being:
 - ___ more liberal, egalitarian, and pro-feminist
 - ___ more traditional and conservative
 - ___ neither of the above
 14. Are you currently on any medication? ___ Yes ___ No
If yes, what is it? _____
- Note: The next section of the questionnaire is to be answered by the female respondents only.
15. Are you currently on an oral contraceptive? ___ Yes ___ No
If so, what brand is it? _____
If yes, how long have you used this brand? _____
 16. Are you using an IUD at this time? ___ Yes ___ No
 17. Are you pregnant at this time? ___ Yes ___ No

Personal History Questionnaire - Page 2

18. What was your age at menarche (your first menstrual flow)? ____ Years

19. Using a scale similar to those used for ranking the videotapes, what was your initial reaction to menarche?

Happy ____: ____: ____: ____: ____: ____: ____: ____: ____ Depressed

20. How would you describe your mother's attitude toward menstruation?

Positive ____: ____: ____: ____: ____: ____: ____: ____: ____ Negative

21. How much prior knowledge did you have about menstruation at the time of your menarche?

None ____: ____: ____: ____: ____: ____: ____: ____: ____ A great deal

22. How would you classify your monthly flow?

Light ____: ____: ____: ____: ____: ____: ____: ____: ____ Heavy

23. Are your monthly cycles (the length of time between periods)
 ____ very regular (rarely varying more than 5 days from month to month)
 ____ fairly regular (varying from 5 to 14 days)
 ____ somewhat irregular (Varying more than 15 days)

24. The date that your last menstruation began: _____.*
 (month/day)

* If you are at all uncertain of this exact date, please try to determine it by checking your home calendar, pill dispenser (for oral contraceptive users), or some other means, and return that information to the researcher by way of the "Take-home Questionnaire" that you have been supplied.

APPENDIX B

SUBJECT RECRUITMENT NARRATIVE

Recruitment Narrative

Hello, my name is Bob Curry. I am a doctoral student in the social sciences. I am conducting a study of the variables that may influence how we perceive social interactions. For this part of my work, I will be needing a large number of female volunteers.

This study has three parts. First, this study involves your watching some videotapes of social interactions directed toward you. After each videotape scene, you will be asked to rate the interaction on several rating scales. Next, I will ask you to fill out two questionnaires. Last of all, I will give you a brief Take-Home questionnaire so that information not available to you at the time of testing can be sent back to me through the campus mail system. Overall, this study will take approximately one hour of your time.

There are a couple of things about this research that I wish to emphasize. First of all, all of your ratings and questionnaire information will be kept strictly confidential. Secondly, I wish to remind you that this is a volunteer study and that you may withdraw at any time (and still receive extra credit for your class). Hopefully, other benefits to you will come from aiding in our understanding how we perceive social interactions. There are no known risks involved in this study.

As a participant in this study, you may wish to be informed of the results. If you provide me with a self-addressed and stamped envelope at the time of the experimental session, you will be sent an abstract of the study when it is available.

To repeat, I will be needing female volunteers to participate in a study of the perception of social interactions.

Are there any questions??????

(After answering any questions, the potential subject(s) will be given the location and the time of the testing session. A sign-up sheet will be passed around to gather names and phone numbers in case any rescheduling or additional scheduling is needed.)

APPENDIX C

RATING FORM

APPENDIX D

CONSENT FORM

Consent Form

I, _____ voluntarily consent to participate
(subject's name)
in the investigation entitled Perceptions of Social Interactions, the
purpose of which has been explained to me by the researcher, Bob Curry.

I understand that:

1. I will be asked to fill out several questionnaires and to rate videotaped social interactions directed at myself.
2. The questionnaires and the ratings will be kept strictly confidential and I will not be identified by name in any reports of this study.
3. If I do not return a brief take-home questionnaire within five weeks after the testing session, I may be contacted on the telephone for the information.
4. I may revoke my consent and withdraw from this study at any time.

(signature of subject)

(day/month/year)

(signature of investigator)

APPENDIX E

INSTRUCTIONS FOR RATING FORMS

Instructions for Rating Forms

You will be seeing nine scenes on the television screen. Each scene takes about 45 seconds and is preceded by a 20 second explanation of what is going to take place. In each scene, an actor will be speaking directly toward the audience. You are to imagine that the actor is talking to you personally in each of the settings as it is described. Following each scene, there will be a two minute time space to evaluate that scene on the rating form provided. As you will notice, there is one rating form for each of the nine scenes.

Each of the nine rating forms, has the same scales. The top 4 scales are to be used for describing how you perceive (or interpret) the actor doing the scene. The bottom 4 scales are to be used to describe how you feel in response to his comments.

Looking at a rating form, notice that each of the 8 scales is made up of two adjectives that have opposite meanings. For example, scale #3 is Kind/Unkind. After viewing a scene, you will decide whether the person was extremely Kind, extremely Unkind, or somewhere in between. There are nine spaces from which to chose how the person appears to you. Mark an "X" in the space that you think will best describe the person speaking in that scene.

Likewise, using an example from the bottom four scales, scale #5 (Friendly/Hostile) will be used to describe how you feel after being spoken to in the supposed setting of each scene. You may feel neutral, or some degree of being friendly or hostile. Just put one "X" in the space that best describes how you feel.

Plase put an "X" in each of the 8 scales provided for each scene. The two minutes time space between scenes will be plenty of time to complete each rating form. Please use a separate rating form for each of the scenes.

Are there any questions?????????????

APPENDIX F

INSTRUCTIONS FOR QUESTIONNAIRE

Instructions for Questionnaires

As you know, a large number of things may effect how we feel at any given time, and in turn may influence how we preceive the world around us. These variables include such things as the kind of medication we may be using; our background training and recent living experiences; and hormone levels that vary with contraceptive pill use, pregnancy, and the time of the monthly cycle.

In order to control for some of these variables with respect to this particular research, you are asked to fill out the Personal History Questionnaire and the Menstrual Distress Questionnaire. You may consider some of the questions either very personal or embarrassing. If you find any of the questions too bothersome, please feel free to skip it and go on to the next question. However, please remember that the validity of this research is effected by how accurately and completely the questionnaires are filled out. Again, I remind you that all information gathered is strictly confidential and that you may withdraw from the study at any time.

Are there any questions??????

If you have any questions while filling out the questionnaires, please raise your hand, and a proctor will come to your assistance.

The last form you will fill out is the Take-Home Questionnaire. It is enclosed in a campus mail envelope so that it may be returned free of charge. This brief questionnaire asks for the name of the oral contraceptive that you may be using (if you aren't completely sure of the name at this time) and the date that your next (after this testing session) menstrual flow begins. Obviously, you can't know that information now, so that is why you are being provided with the Take-Home Questionnaire.

As an experimental control to prevent the biasing of future research subjects involved in this project, please do not discuss it with your classmates until three weeks have elapsed, at which time, hopefully, sufficient data will have been gathered.

One last thing, if you don't send in the Take-Home questionnaire within about 5 weeks, you will probably be called on the phone so that the information may be collected.

Please send in the questionnaire in the envelope so someone won't have to track you down on the phone!!!!!!

Thank you very much for your time and cooperation. If you have any questions or concerns about this research after you leave this testing session, please feel free to contact me through the Department of Psychology or at home. Both of those phone numbers are on the Take-Home questionnaire.

Again, thank you, very much.

APPENDIX G

TAKE-HOME QUESTIONNAIRE

Take-Home Questionnaire

Subject Number _____

(1) It is very important for the validity of this research that accurate information about your present menstrual cycle be known. Please write down the date that your next menstrual flow actually begins and please return this envelope via campus mail.*

The first day of menstrual flow after the testing session was

(month/day/year)

(2) Also, if you were at all uncertain of the date of your previous menstruation (prior to the testing session) and needed to check a calendar or pill dispenser, please list that date. _____
(month/day/year)

(3) Also, if you were uncertain of the brand of oral contraceptive pill that you were using at the time of testing, please write it here.

(Brand Name)

* Campus Mail drop slots may be found at the Student Union Post Office, in University dormitories, and the offices of most university secretaries.

Please remember that this, as well as any other information that you have given, is strictly confidential. If you have any question concerning this research, feel free to contact the researcher (Bob Curry) through the Department of Psychology, 624-6027, or at home, 624-0564. If this form is not returned within 5 weeks, you may be contacted by phone to obtain the above information.

APPENDIX H

ANALYSIS OF FREQUENCY AND MEAN DATA FROM
THE PERSONAL HISTORY QUESTIONNAIRE

Table 8

Living Arrangement

Group	Alone	With female	With male	With family	χ^2 ^a
Pill	7	18	8	2	17.93*
Nonpill	3	41	0	1	

a The table is so sparse that chi-square may not be a valid test.

* $p = .0005$

Table 9

Father's Education

Group	College Degree	Some college	Non-college	χ^2
Pill	17	7	11	2.25*
Nonpill	24	13	8	

* $p = .32$

Table 10

Family's Religious Atmosphere

Group	Non-religious	Average	Devout	χ^2 ^a
Pill	7	25	3	5.99*
Nonpill	2	34	9	

a The table is so sparse that chi-square may not be a valid test.

* $p = .049$

Table 11
Current Religious Involvement

Group	Non-religious	Average	Devout	χ^2
Pill	17	12	6	5.15*
Nonpill	11	21	13	

* $p = .76$

Table 12
Women's Role in Society

Group	Liberal	Traditional	Neither	χ^2
Pill	18	8	9	2.08*
Nonpill	18	17	10	

* $p = .35$

Table 13
Length of Reproductive Cycle

Group	Very regular	Fairly regular	Somewhat irregular	χ^{2a}
Pill	33	2	0	16.23*
Nonpill	24	18	3	

a Table is so sparse that chi-square may not be a valid test.
* $p = .0003$

Table 14

T-test of Mean Age (Years)

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	20.06	3.11	78	1.13	.26
Nonpill	45	19.33	2.63			

Table 15

T-test of Mood

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	6.71	1.45	78	0.14	.89
Nonpill	45	6.67	1.54			

Table 16

T-test of Age and Menarche

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	12.54	1.12	78	-1.00	.32
Nonpill	45	12.84	1.48			

Table 17

T-test of Initial Reaction to Menarche

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	4.94	2.18	78	-0.58	.56
Nonpill	45	5.22	2.09			

Table 18

T-test of Mother's Attitude Toward Menstruation

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	5.94	1.99	78	-1.94	.056
Nonpill	45	6.73	1.64			

Table 19

T-test of Prior Knowledge About Menstruation

Group	N	Mean	SD	df	<u>t</u>	<u>p</u>
Pill	35	7.26	2.08	78	2.23	.028
Nonpill	45	6.09	2.49			

Table 20
T-test of Monthly Flow

Group	N	Mean	SD	df	<u>t</u>	p
Pill	35	5.71	1.93	78	0.95	.35
Nonpill	45	5.33	1.67			

APPENDIX I

CORRELATIONS BETWEEN DEPENDENT VARIABLES AND
QUESTIONNAIRE ITEMS FOUND TO DISTINGUISH
BETWEEN PILL AND NONPILL GROUPS

Table 21
 Correlations^a Between Dependent Variables and
 Questionnaire Items Found to Distinguish
 Between Pill and Nonpill Groups (N=80)

Variable	Questionnaire Item		
	Family Religion	Monthly Cycle	Prior Knowledge
Actor Positive	.0078	.067	.17
Actor Negative	-.027	.14	-.045
Actor Neutral	.049	-.189	-.055
Self Positive	.043	.086	.147
Self Negative	-.001	.131	-.008
Self Neutral	.071	-.166	-.078
Mood	-.018	-.076	.272*
Affective Factor	-.028	.081	-.080

a Pearson product-moment correlation coefficients.

* $p < .01$

APPENDIX J

ANALYSIS FOR MOOD, AFFECTIVE FACTOR, AND
TOTAL SYMPTOMOLOGY SCORES, AND CELL
MEANS FOR TOTAL SYMPTOMOLOGY

Table 22
ANOVA Summary Table for
the Affective Factor

Source	SS	df	MS	<u>F</u>	<u>p</u>
Pill	13.53	1	13.53	0.27	.605
Phase	294.73	2	147.37	2.95	.059
Pill x Phase	128.87	2	64.44	1.29	.282
Error	3701.46	74	50.02		

Table 23
ANCOVA Summary Table for the Mood Score,
Prior Knowledge Controlled

Source	SS	df	MS	<u>F</u>	<u>p</u>
Pill	1.18	1	1.18	0.62	.432
Phase	19.22	2	9.61	5.10	.008
Pill x Phase	5.13	2	2.56	1.36	.263
Covariate	8.94	1	8.94	4.75	.033
Error	137.45	73	1.88		

Table 24
ANOVA and Means for Total Symptomology

A. ANOVA Summary Table					
Source	SS	df	MS	F	p
Pill	213.47	1	213.47	0.45	.50
Phase	1505.90	2	752.95	1.60	.21
Pill x Phase	123.56	2	61.78	0.13	.88
Error	34818.14	74	470.52		

B. Means of Total Symptomology Scores				
Group	Phase			
	Pre.	Men.	Int.	Total
Pill	91.44	81.27	82.47	84.40
Nonpill	94.67	87.87	83.07	88.53
Combined	93.46	85.08	82.77	

APPENDIX K

ANOVAS FOR THE ACTOR AND SELF PERCEPTION
VARIABLES AND POST HOC COMPARISONS
OF CELL MEANS

Table 25

ANOVA of the Actor Perception Rating Variable

Source	SS	df	MS	<u>F</u>	<u>p</u>
Pill	0.142	1	0.142	0.19	.67
Phase	0.029	2	0.015	0.02	.99
Pill x Phase	1.856	2	0.928	1.24	.29
Error	55.607	74	0.751		
Category	1556.065	2	778.033	919.48	.0001
Pill x Cat.	0.627	2	0.314	0.37	.69
Phase x Cat.	2.450	4	.613	0.72	.58
Pill x Phase x Cat.	3.631	4	.908	1.07	.37
Error	125.232	148	0.847		

Table 26

ANOVA of the Self Perception Rating Variable

Source	SS	df	MS	<u>F</u>	<u>p</u>
Pill	.727	1	.727	0.77	.38
Phase	.354	2	.177	0.19	.83
Pill x Phase	.384	2	.192	0.20	.82
Error	70.231	74	.949		
Category	1187.067	2	593.53	594.38	.0001
Pill x Cat.	2.224	2	1.112	1.11	.33
Phase x Cat.	2.303	4	0.575	0.58	.68
Pill x Phase x Cat.	3.700	4	0.925	0.93	.45
Error	147.789	148	.998		

Table 27
 Post Hoc Comparisons of the Means of the
 Rating Variable for Actor and
 Self Perception

Comparison		<u>t</u>
Pill/Men/Neu vs. Nonpill/Men/Neu	Actor	-0.34
	Self	1.24
Pill/Men/Neg vs. Nonpill/Men/Neg	Actor	0.36
	Self	0.36
Pill/Pre/Neu vs. Nonpill/Int/Neu	Actor	1.57
	Self	0.91
Pill/Pre/Neg vs. Nonpill/Int/Neg	Actor	-1.10
	Self	-1.05
Pill/Men/Neu vs. Nonpill/Int/Neu	Actor	-0.04
	Self	0.01
Pill/Men/Neg vs. Nonpill/Int/Neg	Actor	-0.35
	Self	0.61

* $p < .05$

APPENDIX L

CORRELATIONS BETWEEN THE PERCEPTION VARIABLES
AND THE MOOD AND SYMPTOMOLOGY SCORES

Table 28
 Correlations Between the Mood, Affective Factor, and
 Total Symptomology Scores and the Actor and Self
 Perception Rating Scores for the Pill Group

	AF	TS	SPAP	SPAN	SPAK	SPSP	SPSN	SPSK
MOOD	-.50**	-.29	.30	-.09	-.07	.42*	-.13	.03
AF		.68***	-.11	.24	.24	-.24	.22	.14
TS			-.09	.21	-.04	-.20	.07	-.09
SPAP				-.34*	.25	.85***	-.55**	.27
SPAN					.13	-.39*	.74***	.17
SPAK						.25	.04	.91***
SPSP							-.65***	.27
SPSN								.14

* $p < .05$
 ** $p < .01$
 *** $p < .0001$

SPAP = Rating of Actor/Positive

SPSP = Rating of Self/Positive

SPAN = Rating of Actor/Negative

SPSN = Rating of Self/Negative

SPAK = Rating of Actor/Neutral

SPSK = Rating of Self/Neutral

Table 29
 Correlations Between the Mood, Affective Factor,
 and Total Symptomology Scores and the Actor
 and Self Perception Rating Scores for
 the Nonpill Group

	AF	TS	SPAP	SPAN	SPAK	SPSP	SPSN	SPSK
MOOD	-.52**	-.41**	.03	.08	.09	.27	.01	.09
AF		.85***	-.12	-.23	-.18	-.26	-.29*	-.12
TS			-.12	-.13	-.16	-.26	-.22	-.09
SPAP				-.01	-.04	.65***	-.06	-.19
SPAN					-.26	-.01	.79***	-.27
SPAK						.17	-.05	.87***
SPSP							-.10	.05
SPSN								-.04

* $p < .05$
 ** $p < .01$
 *** $p < .0001$

SPAP = Rating of Actor/Positive

SPSP = Rating of Self/Positive

SPAN = Rating of Actor/Negative

SPSN = Rating of Self/Negative

SPAK = Rating of Actor/Neutral

SPSK = Rating of Self/Neutral

APPENDIX M

REVIEW OF THE LITERATURE

REVIEW OF THE LITERATURE

Since Frank (1931) first described the premenstrual tension syndrome, there have been numerous papers confirming that in many women there are psychological changes that vary with the phase of their reproductive cycle. Even though the methods of data collection, subject pool, and theoretical orientation of the researchers have varied greatly among the investigations, one conclusion has been essentially the same. For many women there is a slight rise in affect (and receptivity) at the time of ovulation, and a dip in affect during the premenstrual and early menstrual phases. This change in affect may be described as a change in tension, anxiety, aggression, nervousness, depression, irritability, mood, or some combination of these terms. Of course, as might be expected, other sources of mood variation, such as environmental pressures and time of the week (Rossi and Rossi, 1977) are overlaid on this affective cycle and may obscure or confound its pattern.

Most of the early studies of cyclic variation in affect were performed on patients who were in psychoanalysis. One attempt at correlating the contents of therapy sessions with physiological parameters was that of Benedek and Rubenstein (1939). Vaginal smears were collected daily for 3 months from neurotic female patients and analyzed for phase determination. After 3 months, these phase patterns were compared with the analytical content of the corresponding therapy sessions. A very close correlation was found between cycle phase, dream content, and the area of conflict for each session.

Another approach to quantifying a woman's emotions throughout her monthly cycle was developed by Gottschalk (1961), and used by Gottschalk et al. (1962), and Ivey and Bardwick (1968). This technique requires that a 5-minute sample of speech be obtained from the subject, and analyzed following very well defined rules for emotional indicators of hostility outwards, hostility inward, and anxiety. Ivey and Bardwick found that college women were consistently more anxious premenstrually than at ovulation. Also, findings showed consistent themes of hostility, depression, and noncoping during the premenstrual phase.

A survey of 465 English women led Coppen and Kessel (1963) to conclude that there are clearly individual differences in how women respond to the tension accompanying the premenstrual/menstrual (paramenstrual) phase. They identified four major groupings. In general, there is one group of women that suffer the most discomfort premenstrually and then find relief with the onset of menstruation. This "premenstrual" group reports symptoms that are mostly psychological. A second group is composed of women with symptoms that are primarily physical. This "menstrual" group doesn't show discomfort until the time of menstruation. Also, they found a small third group that was a composite of the first two, and a small fourth group reported having either no cyclic discomfort, or having it at midcycle around the time of ovulation.

In a more tightly controlled study, May (1976) found that most of his subjects fell into Coppen and Kessel's first two groups, and also like Coppen and Kessel, he found that the two groups were represented by having different personality characteristics. May found that the "premenstrual" group is made up of women who are generally more accepting of sexual activity and less accepting of traditional feminine values, while the

"menstrual" group viewed sex as obligatory or something to be controlled. Coppen and Kessel report that the women in their survey with premenstrual tension tend to be anxious throughout the cycle and to be the women scoring highest for neuroticism on the Maudsley Personality Inventory. Lamb, Ulett, Masters, and Robinson (1953) came to similar conclusions after extensive psychiatric interviews with nursing students. The women with premenstrual tension were generally less assertive but in the premenstrual period became more aggressive than the controls. They also showed greater fluctuations in mood and activity level throughout their cycle.

Shainess (1961), in a psychoanalytically-oriented study, reports that within the "premenstrual" group there appears to be a division of women into two subgroups. She feels that women generally translate their premenstrual anxiety and tension into either (1) depression or (2) irritability. The first subgroup is represented by a desire for sweets, a wish to call for mother, depression, insomnia, and in general a yearning for love and a state of helpless defenselessness. The second subgroup is represented by irritability, quarrelsomeness, headache, and nausea. She feels that this second subgroup of symptoms suggest an angry defensive reaction to anticipation of attack and feelings of vulnerability. In line with Shainess' conclusions concerning the depressive subgroup, Smith and Sauder (1969) found a close association between premenstrual feelings of depression or tension, and the occurrence of cravings for food and/or sweets in a class of nursing students. The division of women with premenstrual tension into either depressive and irritable subgroups has also been suggested by Cullberg (1972), Steiner and Carroll (1977), and Smith

(1975). In fact, Steiner and Carroll feel that there is hormonally-based evidence for so doing.

Somewhat in contrast to this division are Moos' (1968a) findings that depression and irritability are both closely interrelated and make up part of what he calls the negative affect cluster in his extensive factor analysis work with cyclic symptomology. For this work, Moos generated his own questionnaire which asks about 47 possible symptoms that women commonly exhibit in relation to their cycle. He even introduced a control factor made up of very uncommon symptoms as a way of recognizing those women who are likely to complain about almost anything.

Further work with his Menstrual Distress Questionnaire led Moos and Leiderman (1978) to conclude that perhaps as many as a dozen different common patterns exist for the manner in which women exhibit their symptomology during the cycle. This conclusion coincides with that of Cullberg (1972) who factor analyzed personality and symptom data for women throughout their cycle.

A number of other authors have examined personality variables that may be linked with the type and pattern of cyclic symptomology. Gough (1975), using the California Psychological Inventory and the Personal Values Abstract as predictors, generated three methods of predicting the degree of menstrual distress from personality variables. The three methods generated similar predicted levels, but appear to emphasize somewhat different personality configurations. Levitt and Lubin (1967) concluded that young women who are prone to menstrual complaints and have a relatively unwholesome menstrual attitude tend to be more emotionally unstable and are given to paranoid hypersensitivity and a lack of ability to understand human motivations.

Using the MMPI as a personality assessment tool, Herzberg (1952) found that women exhibiting primary dysmenorrhea were much more likely than controls to score above the normal range on one or more scales. The most frequently elevated scales were hypochondriasis, psychopathy, depression, and psychasthenia. The dysmenorrhoeal women generally felt that women have always viewed their menstrual period as a time of invalidism. Menstrual irregularity also seems to correlate well with MMPI scores. Hain, Linton, Eber, and Chapman (1970) found that more premenstrual than menstrual symptoms correlated with the degree of cycle irregularity and that a comparison between extremely irregular and regular women revealed that the Hs, Pa, Sc, and Ma scales were significantly higher for the irregular women.

Gruba and Rohrbaugh (1975) gave the MMPI and the Moos Menstrual Distress Questionnaire (MDQ) to 60 undergraduate women. They found that MMPI scales (Sc, Hs, Hy, Pt) tended to correlate with some of the MDQ factors (premenstrual pain, negative affect, menstrual behavior change) but not others (water retention and arousal). It must be remembered that the direction, if one exists, of cause and effect is unclear in these correlational studies.

Using questionnaires of his own design, Paulson (1961) concluded that women scoring higher on a premenstrual tension scale also reported more disturbed intrafamilial relationships. In general, the high scorers portrayed themselves as more inadequate and less able to fulfill maturely the psycho-social and psycho-sexual roles which society expects of them. His findings coincide with those of Halbreich and Kas (1977) who determined that women with the premenstrual syndrome are more anxious

throughout the entire cycle as well as having more anxiety than controls during the premenstrual phase.

While it is clear that correlations can be found between phase-related symptoms and personality characteristics, another body of research explores the changes in behaviors and capabilities that are exhibited as a woman moves through her monthly cycle.

Changes in visual perception apparently do occur within the monthly cycle. College women were found to perform best at a visual detection task during the menstrual phase and worst during the premenstrual phase (Ward et al., 1975). In contrast, these same subjects did better on a visual discrimination task when they were tested premenstrually. The authors feel that sensitivity rather than criteria changes were responsible for the fluctuating performance on the detection task. A possible explanation for this perceptual pattern is that the detection task requires scanning ability but the discrimination task requires reduced responsiveness to irrelevant stimuli. These results agree with previous findings (Kopell, Lunde, Clayton, and Moos, 1969) that time estimation ability and two-flash threshold vary over the menstrual cycle. Since reaction time is not effected by cycle phase (Kopell et al., 1969; Zimmerman and Parlee, 1973) they conclude that their findings suggest there is either a general state of slowing of some internal clock or a lower level of arousal premenstrually.

Asso (1978), in a lengthy review, attempts to treat all cyclic changes in women as a consequence of a variation of behavioral and autonomic arousal. She feels that this particular approach may lead to better understanding of the processes underlying reported changes. Within this theoretical framework of variation in arousal, Zimmerman and Parlee

(1973) found that arm-hand steadiness was greater during the premenstrual than the luteal phase.

A cyclic change that may represent a more far-reaching influence on both mood and behavior was discovered by Vila and Beech (1977). Conditioned Galvanic Skin Responses are more readily established in premenstrual women, and women in this phase also show a much greater resistance to extinction of the conditioned responses. Likewise, women show the greatest disturbance of night sleep during the premenstrual phase (Patkai, et al., 1974) and are more likely to evidence the motive to avoid success on a projective assessment when they are tested premenstrually as compared to intermenstrually (Patty and Ferrell, 1974). Menstruating women showed no clear pattern of success avoidance at the time of assessment.

The cyclic feelings of tension, anxiety, and diminished coping ability translate into additional changes in behavior. Tuch (1975), in a study of 1500 women bringing in their children to a pediatric outpatient department, concluded that the children brought in by premenstrual/ menstrual (paramenstrual) mothers were considered to be less sick, to be suffering from different types of illness, and to have been sick for a shorter period of time than children brought in by mothers in the intermenstrual phase.

Probably the most striking change in behavior associated with the menstrual cycle is that of suicide attempts. Admission to a hospital following acts of deliberate self-injury (Tonks, Rack, and Rose, 1968) is greatest for women who are premenstrual. This survey also substantiated a finding by Coppen and Kessel (1963) that the majority of women who are more seriously disturbed premenstrually (and attempting suicide) are

those who are married. Wetzel, McClure and Reich (1971) compared women who were self-referred to a suicide prevention service with matched controls. The major difference between groups was that the women calling the prevention service reported significantly more premenstrual symptoms and felt that these symptoms interfered more with their lives. A review of suicide and the menstrual cycle (Wetzel and McClure, 1972) reports much conflicting evidence. However, when focusing on the research with the most solid designs, the general pattern seems to be one of increased attempted and completed suicides in the late luteal (premenstrual) and the menstrual phases. Dalton, in a series of papers (1959, 1960a, 1961), has reported an increase in psychiatric admissions, a higher frequency of involvement in accidents, and a greater participation in criminal activities occurring during the premenstrual and menstrual phases.

Behavior in the area of sexual arousal also varies with the reproductive cycle. In Luschen and Pierce's (1972) comparison between premenstrual and ovulatory women, the women in the ovulatory phase clearly showed more affiliative preference toward men and were more likely to describe themselves as responsive to sexually-arousing stimuli. Similar results were obtained by Englander-Golden, Chang, Whitemore, and Dienstbier (1980) when she gathered daily self reports over a 11-week period from college students. Her data revealed two peaks of reported sexual arousal during the monthly cycle. One is at ovulation and the other is in the premenstrual phase. These two peaks are congruent with reported increases in orgasm (Udry and Morris, 1968). Englander-Golden et al. (1980) also found that some differences do exist between women on and not on the pill, and between women who were "aware" and women who were "unaware" of the purpose of the study. They concluded that the

level of progesterone was the major causative factor for cyclic changes in sexual arousal.

One area of behavior that appears to remain relatively unaffected by the periodic moodiness, tension, and anxiety of a woman's cycle is that of cognitive functioning. Even though studies unrelated to the menstrual cycle indicate that affective states do influence cognition (Messick, 1965), and anxiety impairs such cognitive processes as problem solving, incidental learning, ability to communicate, and performance on standardized tests (Levitt, 1967), Sommer (1972, 1973) and Golub (1976) conclude that no systematic evidence exists to warrant a claim for cyclic cognitive impairment. Only Dalton (1960b), in an uncontrolled and much criticized (but often quoted) study, has found a correlation between cycle phase and academic performance.

Even though Sommer (1972) found no evidence for cyclic cognitive performance changes, an interesting sidelight did emerge from her work. While cycle phase did not effect academic test scores, the use of oral contraceptives did. As a group, the students using oral contraceptives scored significantly higher on Sommer's test material. Sommer considered a number of possible reasons for this finding, among which was the possibility that oral contraceptives have some effect on overall mood that may translate into better performance.

There is strong evidence from many sources that cyclic changes in symptomology are influenced by pill use. In her now classic study, Paige (1971) found that women on oral contraceptives did not show the typical cyclic pattern of negative affect. Her study also quantified the effect of the type of pill, with the combination pill (in contrast to the sequential pill) showing the greatest stabilizing influence on affect over

the reproductive cycle. The ratio of progesterin to estrogen in combination pills was also found to be a contributing factor in how well the pill ameliorated premenstrual negative affect. This ratio effect was explored further by Cullberg (1972) who came to the conclusion that a doctor should attempt to match the hormone ratio to the type of symptoms exhibited by the pill user.

Silbergeld et al. (1971) compared the effects of Enovid, a common oral contraceptive, with an identically-appearing placebo. The Enovid group showed significantly less self-rated feelings of irritability and aggression during the premenstrual phase. Englander-Golden et al. (1977), using a technique that allowed students to interpret the amount of interpersonal tension in videotaped vignettes over different phases of their cycle, found that pill women had significantly less fluctuation than nonpill women in the amount of tension they perceived. They also noted that women with more cyclic symptomology also perceived more tension.

There is some concern that an oral contraceptive with an inappropriate hormone ratio would actually contribute to an overall feeling of depression in some women (Cullberg, 1972). However, when Weissman and Klerman (1977) addressed this issue in their lengthy essay concerning the differential causes of depression in men and women, they concluded that the amount of female depression that could be attributed to the possible effects of oral contraceptives is small. Ruble (1977) felt that most responsible physicians would catch a negative change in affect in a woman beginning oral contraceptive use, and would change to a pill having a different hormone ratio. Generally, the physician will find the suitable hormone ratio for a woman starting on birth control pills and she will stabilize in her adjustment to pill use within three to four months.

While there is much evidence for a cyclic change in affect for many women, there has been little systematic investigation of how this periodic fluctuation influences a woman's interpersonal relationships. No doubt the lack of research in this area is in part due to the difficulty in standardizing a procedure that would quantify such behaviors in a naturalistic setting and still maintain reasonable experimental controls. Also, even though reports of the presence of "periodic moodiness" (and its interpersonal effect) are legend among husbands, wives frequently refute such claims as being unwarranted. Only one investigation to date (Englander-Golden et al., 1977) takes a look at how cyclic fluctuations in tension might influence how a woman interprets her social environment throughout her cycle. Though this study doesn't look at interpersonal behavior patterns, it does shed some light on how a woman perceives interpersonal communications differentially at different times of her cycle.

The Englander-Golden et al. (1977) study presents strong evidence for phasic changes in how a woman interprets her social environment. These investigators found that nonpill women fluctuate more than women on the pill and men in how much interpersonal tension they perceive in neutral videotaped interactions that they viewed during different phases of their monthly cycle. An analysis of interpersonal pressure judgments as a function of cycle phase and high-low symptom severity indicated a main effect for symptomology, with the high group perceiving more pressure. They felt that a lack of main effect for menstrual phase was attributable to the large individual variation in tension scores.

Further clarification of how mood factors might be influencing a woman's interpersonal perceptions must come from the literature on

depression. The literature in this area is also sparse and focuses mainly on clinical populations.

The effect of noncyclic negative affect on women is reported by Lunghi (1977). This study found that depressed patients have a tendency to describe and to evaluate both real and imaginary social relationships more negatively. Beck (1967) observes that depressives selectively evaluate and overemphasize the importance of many events, and also that they tend to draw personally denigratory conclusions from objectively (or consensually) neutral events. More specifically, Beck's (1967, 1976) "Cognitive Triad" theory states that a depressed person will have a negative conception of the self, a negative interpretation of life experiences, and a nihilistic view of the future. Also, Beck (1967) observes that depressives are more prone to self-blame and low self evaluation.

Hoehn-Hyde (1979), in her study with depressed women, found that they were more likely than controls to interpret negatively neutral communications directed at them in videotaped vignettes. Her subjects evaluated the videotapes with eleven separate semantic differential scales. Hyde found that certain words were more likely than others to be used as negative descriptors by the depressed subjects.

The relatively recent availability and use of videotaped vignettes as stimulus materials for evaluating interpersonal perceptions is a welcome addition to the research repertoire of social scientists. However, the use of any technique in the area of cyclic affective changes in women must take into account the many methodological considerations encountered in previous menstrual cycle research.

Among the many methodological considerations examined in reviewing the literature on menstrual cycle symptomology (Parlee, 1973), the two having the most impact on the interpretation of results are daily vs. retrospective reporting, and whether or not the subjects should know if menstruation or phase of cycle is a consideration of the research. The issue of daily vs. retrospective reports has been generated mostly around the use of the Moos Menstrual Distress Questionnaire (Moos, 1968a). Two forms of the MDQ exist: Form A, which is retrospective in design; and Form T, which is to be used only for reporting symptoms on the day of evaluation. Moos et al. (1969) concluded that both forms will yield essentially the same data, but he based this assumption of a small, selected group of 15 women.

Research since then (Parlee, 1974; Brockway, 1975; Ruble, 1977; and Englander-Golden, Whitmore, and Dienstbier, 1978) indicates that these two forms (approaches) may be yielding different information. Parlee (1974) asked college men to respond to the MDQ, Form A as if "they were a woman" in various phases of the reproductive cycle and compared the results with those of women classmates reporting in retrospect for their previous cycle. The responses for both groups were so similar that Parlee concluded that such retrospective questionnaires are only tapping into a cultural stereotype of what women experience and not what a woman actually experiences each month.

Stronger evidence for the influence of this "cultural stereotype" and its effect on response bias comes from Ruble's (1977) work with college women. When female students were misled into thinking they were in the premenstrual phase of their cycle, they began reporting a significant increase in those symptoms usually associated with that phase.

These results bring into consideration the issue of whether or not cycle phase should be emphasized before and/or during the data collecting phase or any research. Phase-related symptomology may be amplified or actually invented by stressing cycle phase.

Apparently, and Englander-Golden et al. (1978, 1980) supply further evidence to support the notion, there exists a culturally-based stereotype of what women experience throughout their monthly cycle. This stereotype is so prevalent that it may partially be what is reported if a woman is asked questions about her cycle in retrospect or if her cycle phase is emphasized at the time of testing for some experimental condition. The tendency to attribute symptoms to cycle phase was explored by Camos and Thurow (1978). Their results strongly support the notion that knowledge of phase has a significant effect on the reporting of symptom severity, and this effect is differentially represented in pill and nonpill women.

In Conclusion

There is clearly evidence of phasic changes in mood, behavior, and coping skills in many women as they move through their monthly reproductive cycle. Depending on the author and the type of study, these changes are described as changes in mood, affect, tension, pressure, anxiety, hostility, depression, and irritability; or some combination of these terms.

The pervasive nature of this mood cycle in many women, along with the possible relationship between negative affect and perceived social interactions, warrants further investigation of the impact that the monthly cycle may be having on woman's ability to perceive and interpret

accurately her social interactions, Furthermore, consideration should be given to the design to the research to clarify the possible effects of oral contraceptives and to prevent the intrusion of a possible cultural stereotype into the information gathered.

VITA

Robert Nels Curry

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EFFECT OF THE REPRODUCTIVE CYCLE ON THE PERCEPTION OF
SOCIAL INTERACTIONS

Major Field: Psychology

Biographical:

Personal Data: Born in Tulsa, Oklahoma, March 27, 1947, the son
of Virgil D. and Eyleen N. Curry; married to Vicki Ann Green,
Ph.D., April, 1977.

Education: Graduated from Central High School, Tulsa, Oklahoma,
May, 1965; received Bachelor of Science degree in Electrical
Engineering from the University of Tulsa in 1969; received
Master of Science degree in Biology from the University of
Tulsa in 1973; completed requirements for the Doctor of
Philosophy degree in Psychology at Oklahoma State University
in July, 1982.

Professional Experience: Research Assistant, University of
Oklahoma Health Science Center, Department of Psychiatry and
Behavioral Sciences, April 1975 - May 1977; Technical
Assistant at the Psychological Services Center, Oklahoma
State University, 1977-1978; Teaching and Research Assistant,
Oklahoma State University, 1978-1981; Psychological Associate
at Psychological Services Center, Oklahoma State University,
1977-1979, 1980-1981; practicum student at the Logan County
Guidance Center and the Bi-State Mental Health Center, 1979-
1980; practicum student at the Children's Medical Center,
Tulsa, 1980-1981.