ABSTRACT


The purpose was to evaluate the efficacy of a modified Lamaze natural childbirth approach with and without follow-up in the alleviation of menstrual discomfort in college females. The subjects (N=34) were from three educational institutions in La Crosse, Wisconsin. The Menstrual Discomfort Questionnaire was developed by the researcher to obtain demographic data and to determine the location/intensity of menstrual discomfort. The questionnaire was validated by a group of five jurors and reliability was determined by Hoyt's Analysis of Variance. Anxiety levels were measured through the use of the State-Trait Anxiety Inventory. The researcher decided a pretest, posttest control group experimental design was appropriate. Statistical analysis of data through use of the Mann Whitney U-test revealed that seven of nine null hypotheses failed to be rejected. The two null hypotheses concerning change scores in menstrual discomfort between each treatment group and the control group yielded a significant decrease at the .05 probability level. The remaining seven hypotheses concerned state and trait anxiety change scores in two-group comparisons among treatment Group I, treatment Group II, control Group III, and menstrual discomfort reduction between the two treatment groups, and failed to be rejected at the .05 significance level.
THE EFFECTS OF A MODIFIED LAMAZE
NATURAL CHILDBIRTH APPROACH PLUS
FOLLOW-UP ON PRIMARY DYSMENORRHEA
IN COLLEGE FEMALES

A Thesis Presented
to
The Graduate Faculty
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In Partial Fulfillment
of the Requirements for the
Master of Science Degree

by
Lori E. Hunt
August, 1980
Candidate: Lori E. Hunt

We recommend acceptance of this thesis in partial fulfillment of this candidate's requirements for the degree:

Master of Science Degree

The candidate has completed her oral report.

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DEDICATION

Sometimes, not often enough, I reflect upon the good things and those thoughts always center around those I love ..... and I think about those people who mean so much to me.

For their love and understanding, I dedicate this thesis to my parents.

Yes, it is completed.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction .......................................</td>
<td>1</td>
</tr>
<tr>
<td>Need for the Study ..................................</td>
<td>2</td>
</tr>
<tr>
<td>Statement of the Problem ..................................</td>
<td>2</td>
</tr>
<tr>
<td>Purpose ..................................................</td>
<td>2</td>
</tr>
<tr>
<td>Hypotheses ..............................................</td>
<td>3</td>
</tr>
<tr>
<td>Assumptions .............................................</td>
<td>4</td>
</tr>
<tr>
<td>Delimitations ...........................................</td>
<td>4</td>
</tr>
<tr>
<td>Limitations ..............................................</td>
<td>4</td>
</tr>
<tr>
<td>Definition of Terms ....................................</td>
<td>4</td>
</tr>
</tbody>
</table>

| II. Review of Related Literature ...................... | 6 |
| Recognition of Problem ................................ | 6 |
| Treatment Modalities ................................... | 9 |
| Preventive Modalities ................................... | 12 |
| Educational Modalities .................................. | 14 |
| Summary .................................................. | 16 |

| III. Methods ............................................. | 17 |
| Subject Selection ....................................... | 17 |
| Educational/Training Program .......................... | 18 |
| Instrumentation ......................................... | 19 |
| Implementation and Design ............................. | 23 |
| Statistical Analysis of Data ........................... | 25 |
| Summary .................................................. | 26 |

| IV. Results .................................................. | 28 |
| Statistical Testing of Null Hypotheses ................ | 28 |
| Discussion ............................................... | 33 |
| Summary ................................................... | 39 |

| V. Findings, Conclusions, and Recommendations ........... | 41 |
| Findings .................................................. | 41 |
| Conclusions ............................................... | 43 |
| Recommendations .......................................... | 44 |
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Comparison Responses to Demographic Data Within Groups I, II, III</td>
<td>35</td>
</tr>
<tr>
<td>2. Distribution of Change Scores Within Groups I, II, III in Expressed Overall Degree of Menstrual Discomfort</td>
<td>37</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

Women both young and old are often afflicted with feelings of physical discomfort and emotional upset every month during their menstrual cycle, which may make a woman feel displeased with her gender a varying number of days each month. There are many suggested hypotheses for this dysmenorrheic feeling, including hormonal imbalances, insufficient muscle tone surrounding the uterus, psycho-physiological formulations such as increased heterosexual desire, failure to conceive, rejection of a woman's femininity, and apprehension or fear about menstruation itself (i.e. the daughter reacts much like her mother did) (Ylikorkala and Dawood, 1978).

Research acknowledges more women have painful menstrual cramps than is readily acknowledged (Erlenbach, Kimball, Fleischauer, 1977). Menstrual cramps are, in fact, the most common of all gynecologic disorders (Ylikorkala and Dawood, 1978).

Menstrual discomfort can be classified as primary or secondary dysmenorrhea. It may be identified as primary if it occurs in a woman without any pelvic abnormality, and secondary if it is related to an organic pelvic disease. Primary dysmenorrhea will be discussed in this research.
Need for the Study

A number of factors elicit the necessity for educating dysmenorrheic women to alleviate their discomfort. Lost working time, work productivity, and general work performance are areas of consideration for the working woman.

Primary dysmenorrhea is a disorder which causes substantial economic losses to the entire community because of lost working hours/days. With women joining the working world today, consistency in work productivity becomes of prime concern. In the economic world, women can no longer afford to take a few days off from work each month when troubled by menstrual discomfort. Neither can society afford the inconsistency of monthly work commitments from these affected individuals.

Primary dysmenorrhea may generate sufficient fear in anticipation of the next menstrual period to such an extent that mental health may be altered substantially (Ylikorkala and Dawood, 1978). Thus, it may be beneficial for dysmenorrheic women to experience an approach designed to help alleviate menstrual discomfort.

Statement of the Problem

The problem of this study was to examine the effectiveness of an educational/training program on decreasing menstrual discomfort.

Purpose

The purpose of this study was to evaluate the efficacy of a modified Lamaze natural childbirth approach with and without a follow-up session in the alleviation of menstrual discomfort.
Hypotheses

The following null hypotheses were developed for the study:

1. Women who have completed the basic educational/training sessions (Group I) will not show a significant decrease in state anxiety median change scores from women who did not receive the educational/training sessions (Group III).

2. Women who have completed the educational/training sessions plus the follow-up session (Group II) will not show a significant decrease in state anxiety median change scores from women in Group III.

3. Women in Group II will not show a significant decrease in state anxiety median change scores from women in Group I upon completion of the program.

4. Women in Group I will not show a significant decrease in trait anxiety median change scores from women in Group III upon completion of the program.

5. Women in Group II will not show a significant decrease in trait anxiety median change scores from women in Group III upon completion of the program.

6. Women in Group II will not show a significant decrease in trait anxiety median change scores from women in Group I upon completion of the program.

7. Women in Group I will not show a significant decrease in expressed menstrual discomfort median change scores from women in Group III upon completion of the program.

8. Women in Group II will not show a significant decrease in expressed menstrual discomfort median change scores from women in Group
III upon completion of the program.

9. Women in Group II will not show a significant decrease in expressed menstrual discomfort median change scores from women in Group I upon completion of the program.

Assumptions

1. Subjects in Groups I and II completed their respective treatment, which also included practice on their own.
2. Subjects responded honestly to all inventories in this research.

Delimitations

1. Only persons experiencing primary dysmenorrhea were involved in the study.
2. No attempt was made to determine the level of discomfort during the menstrual cycle for acceptance into the study.

Limitations

1. No attempt was made to control the stress from other sources which may have affected several or all subjects.
2. The three groups of subjects were self-selected according to the location from which they were recruited (University of Wisconsin-La Crosse, Western Wisconsin Technical Institute, Viterbo College).

Definition of Terms

Menstrual Discomfort Questionnaire - An inventory designed by the researcher to locate and determine the degree of menstrual discomfort experienced, and obtain pertinent demographic data concerning each subject's menses.
Modified Lamaze Natural Childbirth Technique - A technique devised by Erlenbach, Kimball, and Fleischauer (1977) to relieve the pain of primary dysmenorrhea by using principles of Fernand Lamaze.

Primary Dysmenorrhea - A condition of painful menses in the absence of gross pathologic conditions of the pelvic organs, characterized by intermittent sharp, colicky pain localized at the suprapubic area with radiation to the thighs and back (Erlenbach et al., 1977). Nausea, vomiting, diarrhea, palpitations, flushing, dizziness, and headache are symptoms usually present.

Secondary Dysmenorrhea - A condition of painful menses resulting from pelvic disease, which usually has its onset after age 20 and is characterized by constant dull, diffused low abdominal pain.

State Anxiety - "A transitory emotional state or condition of the human organism that is characterized by subjective, consciously perceived feelings of tension and apprehension and heightened autonomic nervous system activity" (Speilberger, Gorsuch, Lushene, 1970).

Trait Anxiety - "Relatively stable individual differences in anxiety proneness" (Speilberger et al., 1970). The individual's tendency to respond perceived threats with tension, apprehension, and heightened autonomic nervous system activity.
CHAPTER II

REVIEW OF RELATED LITERATURE

Through a review of related literature, several studies were cited that examined various techniques to alleviate primary dysmenorrhea. For clarity, the review of literature pertaining to dysmenorrhea is presented as follows:

1. Recognition of Problem.
2. Treatment Modalities.
3. Preventive Modalities.
4. Educational Modalities.
5. Summary.

Recognition of Problem

The term "dysmenorrhea" is derived from a Greek word meaning difficult monthly flow. Dysmenorrhea now generally refers to painful menstruation.

Because of the wide variabilities in the diagnostic criteria, the age distribution of the patients, the ethnic and cultural backgrounds, and the conspicuously different geographic locations, the frequencies of dysmenorrhea reported by different authors were almost impossible to compare (Ylikorkala and Dawood, 1978; Asch and Greenblatt, 1978). In the past, taboos and superstitions regarding menarche, menstruation, and menstrual blood were widespread. These misconceptions were still represented in various forms in modern Western Society (Smith, 1975).
Research had indicated a range from 5 percent (Jeffcoate, 1975) to 77 percent (Bell and Parsons, 1930) of women of childbearing age as having dysmenorrhea. In a more recent study by Ylikorkala and Dawood, (1978), 52 percent of post-pubescent females were affected by dysmenorrhea, with 10 percent of these being "incapacitated" (Ylikorkala and Dawood, 1978; Marx, 1979; Abraham, 1978; British Medical Journal, 1977) for one to three days each month. Even with numerous studies completed, an accurate incidence or prevalence of the disorder had never been clearly defined (Kistner, 1971; Novak, Jones, and Jones, 1975).

Not only has dysmenorrhea been seen as a burden on the woman herself, but the disorder causes noticeable economic loss to society. It was the greatest single cause of lost working hours and school days among young women (Ylikorkala and Dawood, 1978), with 140 million working hours estimated to be lost annually (Ylikorkala and Dawood, 1978; Marx, 1979; Novak et al., 1975; Kistner, 1971).

During adolescence, menstrual dysfunctions are by far the most common reasons for girls to visit physicians. Primary dysmenorrhea that occurs only in ovulatory cycles usually appeared six to twelve months after menarche (Ylikorkala and Dawood, 1978), when ovulation was occurring regularly. A majority of girls had more or less dysmenorrhea until they bore a child or until they were in their third decade of life (Huffman, 1975).

Almost all women feel some abdominal discomfort, often radiating to the back and along the thighs, at the onset of menstruation. Usually mild cramplike pains subside soon after the establishment of menstrual flow
and do not restrict the woman from her normal activities. However, additional symptoms such as nausea, vomiting, bowel irregularities, headache, fatigue, nervousness, and dizziness may accompany the abdominal cramping. These symptoms also subside once the menstrual flow commences. The cramplike pains and the stated additional symptoms may last from a few hours to one day, but seldom exceed two days. They often start some hours before the vaginal bleeding begins, and are most severe on the first day of menstruation.

The etiology and pathophysiology of primary dysmenorrhea are poorly understood, hence specific and rational therapies to correct this disorder have not been available. A reason for this lies in the controversy in medical opinion as to the actual cause of dysmenorrhea. A review of literature yielded that some medical individuals believed dysmenorrhea to be primarily physiological in which no call for psychological treatment was necessary, while others in the medical profession affirmed the presence of psychological factors and demanded specialized care of a psychologist (Paulson and Wood, 1966). This conclusion came about when a study involving one group of gynecologists (2 staff, 2 residents) and one group of psychologists (2 staff, 2 residents) were examined in terms of their perceptions of the emotional correlates of dysmenorrhea. Measurable differences were found between the psychologists and the gynecologists (Paulson and Wood, 1966).

The following review will examine the various attempts to alleviate the discomfort associated with primary dysmenorrhea. The categories include treatment modalities, preventive modalities, and educational modalities. However, no consistently effective approach had been found
to terminate the symptoms of dysmenorrhea (Asch and Greenblatt, 1978).

Treatment Modalities

The lack of understanding of primary dysmenorrhea is reflected by the number of suggested treatments. Traditionally, medication in the treatment of dysmenorrhea was designed to diminish pain and relax skeletal muscles (Culver, 1978). For a portion of people, medication reduces the restrictive symptoms, but for others it is ineffective and/or the side effects present significant problems. Included under medications are oral contraceptives, synthetic hormones or hormone inhibitors, aldosterone antagonists, diuretics, vitamins, minor tranquilizers, and lithium, to name a few.

Prostaglandin Synthetase Inhibitors. With a better understanding of uterine physiology, evidence revealed that primary dysmenorrhea did have a physiological basis (Marx, 1979), that being an overproduction of prostaglandins by the uterus. These are potent chemicals, classified neither as hormones, vitamins, nor enzymes because of their widespread distribution and versatility. Prostaglandins are produced by many tissues of the body; the endometrium being the main source of uterine prostaglandins (Abraham, 1978).

Prostaglandins were first discovered 43 years ago because of their ability to stimulate the myometrium (Moghissi, 1972), which thus triggered uterine contractions (Marx, 1979). Maximum release of prostaglandins occurs during menses. However, high concentrations of progesterone kept prostaglandins in check during the last half of a woman's monthly cycle until the progesterone became absent, after which prostaglandins activated
the uterine muscle (Marx, 1979). According to Ylikorkala and Dawood (1978), excessive contractility of the myometrium could lead to uterine ischemia and pain. Marx also added that an excessive resting pressure caused pain, especially since it may slow the flow of blood to the uterine muscle just when the demand for it was high. Such oxygen deprivation produces pain, also. In addition, general myometrial spasm and pain may result from the retention of menstrual blood, thus increasing the absorption of prostaglandins (Moghissi, 1972). In addition to these possible reasons for pain, Marx (1979) believed that both the prostaglandins and the substance from which they were synthesized may act directly on pain nerve endings, making them more sensitive.

Prostaglandin synthetase inhibitors, in recent studies (Ylikorkala and Dawood, 1978), produced promising results. Side effects were relatively mild and appeared to correlate with the dose of the drug. According to Marx (1979), these drugs provided good, often complete, relief of all symptoms of dysmenorrhea when compared to controls. Marx then ruled out the likelihood that dysmenorrhea was strictly psychosomatic.

A desirable benefit of prostaglandin synthetase inhibitors was the reduction in menstrual blood flow loss, which may be a contributing factor to the relief of pain (Ylikorkala and Dawood, 1978).

Oral Contraceptives. As was stated above, progesterone must be absent in order for prostaglandins to activate the uterine muscle, which brought to light hormonal imbalance as yet another cause of dysmenorrhea (Ylikorkala and Dawood, 1978).

Oral contraceptives containing the hormones progesterone and estrogen, suppressed ovulation and the growth and thickening of the uterine lining (Marx, 1979). This, in turn, abolished dysmenorrhea (Ylikorkala and

The combination-type oral contraceptive pills often alleviated dysmenorrhea markedly (Culver, 1978). This hormone therapy was only used when there existed no contraindication for the use of estrogen and progesterone (Ylikorkala and Dawood, 1978).

Cervical Dilators. Another less common type of treatment approach for dysmenorrhea has been the use of cervical dilators. The dilation of the cervix sometimes alleviated dysmenorrhea discomfort (Ylikorkala and Dawood, 1978; Moghissi, 1972), which supported the role of cervical obstruction first presented by Hippocrates (Ylikorkala and Dawood, 1978). However, uterine cramps were usually most intense in dysmenorrhea when menstrual blood flow was good (Ylikorkala and Dawood, 1978), hence cervical resistance was unlikely to be at its maximum. Ylikorkala and Dawood (1978) further believed that cervical obstruction was hardly the sole cause of dysmenorrhea. They believed it may have caused uterine distention, provide uterine motility, and delay discharge of the menstrual fluid. This would result in prolonged and thus increased absorption of prostaglandins from the menstrual fluid. Even though cervical dilators have been used in the past in the treatment of dysmenorrhea, a caution must be recognized. A possible result of the use of cervical dilators is the risk of temporary cervical incompetence (Ylikorkala and Dawood, 1978).

A less popular method for treating dysmenorrhea involves the use of tachylytic agents. These chemicals relaxed the uterus and improved uterine blood flow, but had not been shown to reduce the synthesis of endometrial
prostaglandins (Ylikorkala and Dawood, 1978). Side effects of this type of drug, unfortunately, were intolerable, as seen in a pilot study by Ylikorkala and Dawood (1978). Tremor, flushing, and palpitation came forth when this drug was given orally.

Preventive Modalities

Psychological factors were the most common cause of menstrual dysfunction, such as irregular cycles, dysfunctional uterine bleeding, or amenorrhea (Check, 1978). Considerable literature on dysmenorrhea stated that the psyche and the feelings of well-being within women may be affected by these monthly dysmenorrheic pains, in turn leading frequently to anxiety neuroses (Paulson and Wood, 1966). In a study of female hospital admissions to psychiatric wards, it was found that a significantly greater number of admissions occurred during the "menstrual" and "premenstrual" phases than at other times (Janowsky, Stone, Gorney, Castelnuovo-Tedesco, 1969). Admission peaks occurred two and three days prior to the onset of menstruation, and on the second, third, and fourth days of menstruation. In another study by Rees (1953), it was found that premenstrual tension was more frequent among neurotic subjects, but severe premenstrual tension symptoms may occur in normal women with little or no evidence of neuroses or neurotic predisposition. Thus, while a marked premenstrual tension syndrome can occur in the absence of neurosis or personality instability, when these conditions co-exist they were positively correlated (Rees, 1953). However, Hirt and colleagues (1967) concluded that the relationship between primary dysmenorrhea and anxiety, neuroticism, and introversion-extroversion was relatively negligible.
In a study by Bloom and colleagues (1978), standard scores from personality measures suggested that dysmenorrhea sufferers were not mal-adjusted, but were more similar to a neurotic sample. Smith states (1975), "It is clear that the premenstrum represents a time of higher risk for many recurrently psychotic women". Smith also added that the symptoms observed premenstrually occurred at other times in the person's life, did not necessarily occur every cycle, did not occur in all women, and did not occur in men and in nonmenstruating women.

In an attempt to discover associations between personality traits and menstruation, thirty healthy women completed three personality inventories for a study by Beaumont et al. (1978). They found there was a maximal occurrence of minor physical and psychological symptoms in the first days of menstrual flow, preceded by a gradual increase in symptoms during the premenstrum.

In recent years, clinical biofeedback treatments have been used in cases of primary dysmenorrhea. Four such modalities follow (Culver, 1978). EMG (electromyographic) biofeedback stressed the importance of a woman to gain control over tension levels in skeletal muscles and be able to generate warmth and relaxation in an area at will. Thermal biofeedback incorporated the use of hand-warming exercises at the onset of pain with emphasis on peripheral vasodilation. Thermal biofeedback (vaginal temperature) and EMG was similar to the above, with vasodilation to the pelvic region. EMG feedback was also used for a more efficient learning of temperature by the relaxation of skeletal muscles. Finally, a combination EMG and hand-temperature biofeedback was introduced, which combined the first and second treatments listed above. A different approach of
biofeedback treatment was a group biofeedback, which was less costly in time and equipment, and the group members were able to support each other. The task force study section of the Biofeedback Society of America (1978) indicated the combination of EMG and hand-temperature biofeedback form of treatment had demonstrated efficacy. However, overall, the techniques mentioned above were considered inconclusive by the Biofeedback Society of America (1978).

In a case study by Dietvorst and Osborne (1978), a single subject was given eight sessions of skin-temperature biofeedback and autogenic training. She reported significant reduction of pain and discomfort with the use of the biofeedback-assisted relaxation.

Educational Modalities

Possibly the oldest known approach of treating primary dysmenorrhea is an age-old one, one very simplistic in nature but too often overlooked recently as being of any importance. This approach includes a rechanneling of a woman's negative attitude toward menstruation, as well as an alteration on the part of the physician. Mosher (1914) asked, "Do we not tend to translate the whole of a woman's life into terms of menstruation?". He had conveyed if every young girl were taught that menstruation was not normally a "bad time" and that pain or incapacitation at that period was not discreditable, we might almost look for a revolution in the physical life of women. More recently, Abraham (1978) had stated that education and reassurance may be needed in some patients suffering from primary dysmenorrhea.

Physical exercise has been tried long before most other treatments in dealing with dysmenorrhea. Poor or abnormal posture was postulated as a
cause of dysmenorrhea, in conjunction with the lack of exercise (Fleischauer, 1977). More specifically, it had been advised that any regime which stressed systematic twisting and bending of the trunk would help relieve the symptoms of dysmenorrhea (Golub, 1959; Golub and Christaldi, 1964), in the belief that these type of movements stimulated circulation, improved flexibility, and increased muscle tone. However, Ylikorkala and Dawood (1978) contended that exercises resulted in some "favorable" therapeutic effect but yielded no truly supportive data.

An integration of a number of treatments gave rise to a new approach in dealing with primary dysmenorrhea. It started in England with Erna Wright's extension of natural childbirth results (Fleischauer, 1977). Wright used the "psychoprophylaxis" technique, which meant the prevention of pain. By using an active, directive, psychological analgesia aimed at preventing pain or at least modifying the perception of pain, Wright was able to successfully decrease the discomfort of dysmenorrhea. It involved two principles: education of the woman and building-up of consciously developed conditioned reflexes. In the United States, a pilot study, under the direction of Fleischauer took place in 1977. Of 38 dysmenorrheic college women completing three to four menstrual cycles, 19 percent reported no analgesic medication needed, 75 percent needed to take less medication, 5.3 percent reported no significant help, six women were able to continue normal activities which had been restricted previously, and three women had complete absence of cramps. Decreased tension with greater relaxation powers were reported by most, which extended to other stressful situations.
Summary

Primary dysmenorrhea is a common disorder experienced by many women. The suggested causes for this disorder are many, as seen by the related literature. There is no one effective measure to alleviate all the symptoms of dysmenorrhea in all the women who suffer from it.

An overview of current modalities, aimed at decreasing the discomfort associated with primary dysmenorrhea, has shown the trend toward medication therapy. However, none of the proposed therapies are one hundred percent effective, nor are they one hundred percent safe (free of side effects). Findings from this review could indicate the need for an alternative to drug therapy in alleviating the dysmenorrheic symptoms. Fleischauer (1976) states:

This modified Lamaze natural childbirth approach seems to be a simple tool to allow individuals to be active participants in their own states of mental and physical health, with less use of medication in our pill-popping society, and less dependence on health professionals in some dimensions of their health status. (p. 7)

The need for a simple, yet successful means to decrease the symptomology of primary dysmenorrhea is indicated by the review of literature.
Methods

The study required six segments. Each segment will be discussed in this chapter to explain the methodology used in the study. The six areas utilized in the study are as follows:

1. Subject Selection
2. Educational/training Program
3. Instrumentation
4. Implementation and Design
5. Statistical Analysis of Data
6. Summary

Subject Selection

Women suffering from primary dysmenorrhea were recruited via word of mouth, specifically, by in-door solicitation at selected residence halls of educational institutions in La Crosse, Wisconsin, including the University of Wisconsin – La Crosse, Viterbo College, and Western Wisconsin Technical Institute. The women (N=34) ranged in age from 18 to 22 years. The subjects comprising the three groups were self-selected according to institutions to insure information presented in the sessions were not exchanged among groups of the various residence halls. Each of three institutions was randomly assigned to be either Group I, Group II, or Group III.
Group I (N=9) was drawn from Western Wisconsin Technical Institute (WWTI) East Residence Hall and received a two-session educational/training program. Group II (N=11) was drawn from the University of Wisconsin-La Crosse (UW-L) Baird Residence Hall. Their treatment included a two-session educational/training program identical to that of Group I, with the addition of a follow-up session. Group III (N=14) was drawn from Marian Residence Hall at Viterbo College, and did not receive any educational/training treatment, and thus, served as the control.

To be considered for inclusion in the study, each woman had to have experienced dysmenorrheal discomfort during her menstrual cycle each month for the last six months. Only those women afflicted with primary dysmenorrhea, not secondary dysmenorrhea, were included in the samples.

The amount of reported discomfort during the menstrual cycles ranged from mild to incapacitating discomfort. No attempt was made to statistically match symptoms or intensity of discomfort among the groups, nor to equalize the intensity of the reported discomfort between individuals.

Educational/Training Program

The independent variable was the primary dysmenorrhea educational/training program, which followed a Lamaze natural childbirth approach (Appendix F).

The dependent variables were the location and intensity of dysmenorrheal discomfort and anxiety levels experienced.

These variables were examined through the Menstrual Discomfort Questionnaire (Appendix D) and the State-Trait Anxiety Inventory (Appendix E).
The following is a brief description of what the education/training sessions consisted of. Appendix F has the more complete outline and narrative.

Session 1

I. Course Outline

II. Course Introduction

III. Background Information on Anatomy of Menstrual Cycle

IV. Relaxation

V. Breathing Pattern: Slow-Chest

Session 2

I. Review Session

II. Breathing Pattern: Accelerated Breathing

III. Pre-Menses Exercises

IV. Questions, Importance of Practice (Posttest)

Follow-Up Practice Session

I. Review Reasons for Menstrual Discomfort

II. Relaxation Drill

III. Combined Breathing Pattern

IV. Combined Breathing Pattern with Partner

V. Questions, Posttest, Importance of Practice

Instrumentation

Following is a description of the two research instruments administered in this study.

State-Trait Anxiety Inventory. The State-Trait Anxiety Inventory as developed by Spielberger (1970) was the instrument chosen to be used in this study, and is presented in Appendix E. Since the researcher
was interested in examining the effects of a series of modified Lamaze natural childbirth techniques on stress during dysmenorrhea, it was necessary to have a measurement which would be sensitive to transitory levels of stress/anxiety brought about by specific alterations. The inventory, as identified by Spielberger (1970), was chosen for the following reasons:

1. It measures two distinct anxiety concepts: state anxiety (currently experienced anxiety) and trait anxiety (general anxiety).

2. It was developed to measure anxiety in "normal" (non-psychiatrically disturbed) adults.

3. It has been found most useful in the measurement of anxiety in medical patients.

4. It has been demonstrated that scores on the A-State scale increase in response to various kinds of stress and decrease as a result of relaxation training.

5. This inventory was designed to be self-administered and may be given either individually or to groups.

6. The inventory has no time limits, and less educated or emotionally disturbed persons may take longer but can complete both scales.

7. Most persons with fifth or sixth grade reading ability spontaneously respond to all of the State-Trait Anxiety Inventory items without special instructions or prompting.

8. Test-retest reliability of the A-Trait Scale is relatively high, but stability coefficients for the A-State scale tend to be low, as would be expected for a measure designed to be influenced by situational factors.
9. Both the A-Trait and A-State scales have a high degree of internal consistency.

**Menstrual Discomfort Questionnaire.** The Menstrual Discomfort Questionnaire, as developed by the researcher, was needed in this study to determine the location and intensity of discomfort the subjects were suffering, and is presented in Appendix D. The researcher was interested in examining the effects of a series of modified Lamaze natural childbirth techniques on the location and intensity of pain experienced, thus necessitating a measurement which would be sensitive to these transitory levels of location/intensity of discomfort.

To assure the readability of the questionnaire as well as the content validity, a five member jury was selected to evaluate the 35 statements/phrases. Jurors included three medical individuals in the La Crosse area, a member of the University of Wisconsin-La Crosse Student Health Center, a resident in pediatrics at Gundersen Clinic, and a physician in the Obstetrics and Gynecology Department at Skemp-Grandview-La Crosse Clinic. The two additional jurors included a patient educator from Gundersen Clinic and a registered nurse from Stevens Point, Wisconsin. This final juror developed the only study on the modified Lamaze natural childbirth technique in the United States (Appendix A-1).

Initial contact requesting each individual's assistance in evaluation of the inventory was made by telephone. A follow-up letter included an explanation of the study and a copy of the proposed questionnaire with an evaluation form (Appendix A-2). The evaluation form, developed by Gilmore (1974), enabled jurors to respond accordingly to each statement or phrase (Appendix A-3). Space was provided for written comments to the
right of each statement, and at the bottom of the page for the group of phrases. A numerical rating system of 1 (not acceptable) to 5 (indispensable) was used to evaluate each statement. Evaluation analysis consisted of calculation of the mean score for each statement, and one mean score for the group of phrases. Questionnaire evaluation score results are found in Appendix A-4.

Statements with a mean score of 3.0 or above were accepted for inclusion in the revised questionnaire. Since a rating of 3.0 by the jurors indicated the statement was valuable for measuring the subject's experience with dysmenorrhea, it was used as an acceptance level. Upon examination of the mean scores, it was found that two statements would be eliminated using this criteria. However, the researcher felt strongly about the inclusion of these two statements because of the content each possessed. Therefore, both statements remained in the completed **Menstrual Discomfort Questionnaire**. This provided twelve statements dealing with the demographic data of each subject's menstrual cycles. In the location/intensity segment of the questionnaire, two related phrases were thought to be too closely related to be separated. These two phrases were then combined to form one all-inclusive phrase. This yielded 22 phrases comprising the location/intensity of discomfort portion of the questionnaire.

Reliability of the location/intensity of discomfort portion of the questionnaire was determined by using pretest score values of the three research groups. Hoyt's Analysis of Variance was used to calculate the reliability coefficient. Calculations resulted in a reliability coefficient of .93590. The questionnaire was considered to be a reliable
tool. As described in Borg (1971 p. 361-2), correlations ranging from .65 to .85 make group predictions possible that are accurate enough for most purposes. Borg (1971) further states that as we move toward the top of this range, group predictions can be made very accurately, usually predicting within a small margin of error. Values for the statistical analysis can be found in Appendix B.

The completed Menstrual Discomfort Questionnaire can be found in Appendix D. It is comprised of two related constructs: demographic data yielding background information on each subject's menstrual cycles of the past six months, and a location/intensity scale yielding information on the subject's menstrual cycles of the past six months. The posttest was administered upon completion of the first menses following the last session. The Menstrual Discomfort Questionnaire consists of 12 statements dealing with the demographic data, and 22 phrases regarding the location/intensity of discomfort.

The Menstrual Discomfort Questionnaire was given at the beginning of the study and at the completion of each subject's menses (Appendix D). The request for demographic data was deleted from the posttest since no comparisons of this information were made.

Implementation and Design

A pretest and posttest control group experimental design was utilized to carry out the study. Depending on the group, either a two to three-week (maximum) educational/training program was administered in an attempt to relieve the symptoms associated with primary dysmenorrhea. Program development was modeled after the pilot study by Fleischauer (1976).
Following is a description of each group included in the study:

**Group I.** Two educational/training sessions, consisting of approximately one hour in length each, were designed for Group I, and the sessions were administered one week apart. The treatment involved a modified Lamaze natural childbirth approach (Appendix F). During the initial session, all subjects completed a consent form that explained the nature of the research (Appendix C). The State-Trait Anxiety Inventory and the Menstrual Discomfort Questionnaire were then administered. Upon completion of the second session, the posttest was distributed to each subject. Instructions were as follows: "Please complete the questionnaire when your first menstrual cycle, since this session (Session 2), is completed." A self-addressed/stamped envelope was also included for their convenience.

**Group II.** This treatment group received the same treatment as Group I, and in addition, a forty-five minute follow-up session held one week after the second session. This follow-up session was a practice session where subjects reviewed all the techniques presented in the preceding two sessions. The posttest was distributed after the last session. Subjects were instructed to complete the posttest after the onset of their first menses. A self-addressed/stamped envelope was also enclosed.

**Group III.** This group was the control group and as such the subjects were administered the State-Trait Anxiety Inventory, the Menstrual Discomfort Questionnaire, and consent form during the initial session. They received no further treatment. Upon completion of their first menses following the initial session (approximately six weeks later), the posttest was administered to the subjects as a group.
Statistical Analysis of Data

The impact of an educational/training program on anxiety (state and trait) and the intensity of discomfort experienced during menses, was analyzed by the Mann Whitney U-test. The following formula for the Mann Whitney U-test was utilized (Blalock, 1972, p. 247):

\[ U = \frac{N_1N_2 + N_2(N_2 + 1)}{2} - R_2 \]

\[ U^1 = \frac{N_1N_2 + N_1(N_1 + 1)}{2} - R_1 \]

- \( R_2 \) = the sum of ranks of control group
- \( R_1 \) = the sum of ranks of experimental group

The Mann Whitney U-test makes three assumptions:

1. The investigator has at least ordinal information (subject responses were ranked on a Likert scale in this study).

2. The samples are independent and randomly selected (subjects in this study were self-selected while each cluster of subjects was randomly assigned to one of three groups).

3. The data is continuous (subject responses in this study ranged from 0 to 7, according to individual choice).

A one-tailed Mann Whitney U-test was used to determine if the following score gain values were statistically significant at the \( p \leq .05 \) level of significance:

1. The change score values of menstrual discomfort in Group I were compared with the change score values of menstrual discomfort in Group III.
2. The change score values of menstrual discomfort in Group II were compared with the change score values of menstrual discomfort in Group III.

3. The change score values of menstrual discomfort in Group II were compared with the change score values of menstrual discomfort in Group I.

4. The change score values of state anxiety in Group I were compared with the change score values of state anxiety in Group III.

5. The change score values of state anxiety in Group II were compared with the change score values of state anxiety in Group III.

6. The change score values of state anxiety in Group II were compared with the change score values of state anxiety in Group I.

7. The change score values of trait anxiety in Group I were compared with the change score values of trait anxiety in Group III.

8. The change score values of trait anxiety in Group II were compared with the values of trait anxiety in Group III.

9. The change score values of trait anxiety in Group II were compared with the change score values of trait anxiety in Group I.

Summary

An anxiety inventory and a menstrual discomfort inventory were used to measure changes in anxiety levels and menstrual discomfort before and after presentation of an educational/training program. Group assignment to the various treatments was random, while subjects within each group were self-selected according to institution. The subjects in the two experimental groups were recruited from the University of Wisconsin-La Crosse and Western Wisconsin Technical Institute of La Crosse, while
the control group subjects were recruited from Viterbo College also of La Crosse. A pretest and posttest control group design was utilized to assess the effectiveness of a modified Lamaze natural childbirth program on the alleviation of menstrual discomfort and anxiety levels in those women suffering from primary dysmenorrhea. The Mann Whitney U statistic was used for analysis of data.
CHAPTER IV

RESULTS

In this chapter the analysis of the data collected throughout the study was divided into three subparts for clarity and ease of presentation. These were:

1. Statistical Testing of Null Hypotheses
2. Discussion
3. Summary

Statistical Testing of Null Hypotheses.

Analysis of the nine null hypotheses by use of the Mann Whitney U-test resulted in rejection of two of the null hypotheses and failure to reject seven. The Mann Whitney U-test was used to determine the significance in median change score values between the two educational/training groups and the control group on the State-Trait Anxiety Inventory and the Menstrual Discomfort Questionnaire.

For clarity, the format used to present the results of the one-tailed hypotheses was to list each of the three theoretical categories (state anxiety, trait anxiety, menstrual discomfort) with each of these three categories immediately followed by the three related null hypotheses. Each null hypothesis was stated with the critical value and was followed by a statement of either rejection or failure to reject the null hypothesis.
State Anxiety

Null hypothesis I: Women who have completed the basic educational/training sessions (Group I) will not show a significant decrease in state anxiety median change scores from women who did not receive the educational/training sessions (Group III).

Analysis of the change score data revealed a U-value of 38.5. To be significant at the .05 level, a critical level at or below 26 needed to be attained. Thus, the researcher failed to reject the first null hypothesis and determined that no significant difference occurred between Groups I and II. By failing to reject this null hypothesis, it was indicated that subjects in Group I did not have a significant decrease in state anxiety change scores from those subjects in Group III after the administration of the educational/training program.

Null hypothesis II: Women who have completed the educational/training sessions plus the follow-up session (Group II) will not show a significant decrease in state anxiety median change scores from women in Group III upon completion of the program.

Analysis of the change score data revealed a U-value of 35.5. To be significant at the .05 level, a critical level at or below 30 needed to be attained. Thus, the researcher failed to reject the second null hypothesis and determined that no significant difference occurred between Groups II and III. By failing to reject this null hypothesis, it was indicated that subjects in Group II did not have a significant decrease in state anxiety change scores from those subjects in Group III after the administration of the educational/training program.
Null hypothesis III: Women in Group II will not show a significant decrease in state anxiety median change scores from women in Group I upon completion of the program.

Analysis of the change score data revealed a U-value of 29.5. To be significant at the .05 level, a critical level at or below 18 needed to be attained. Thus, the researcher failed to reject the third null hypothesis and determined that no significant difference occurred between Groups II and I. By failing to reject this null hypothesis, it was indicated that subjects in Group II did not have a significant decrease in state anxiety change scores from those subjects in Group I after the administration of the educational/training program.

Trait Anxiety

Null hypothesis IV: Women in Group I will not show a significant decrease in trait anxiety median change scores from women in Group III upon completion of the program.

Analysis of the change score data revealed a U-value of 51.0. To be significant at the .05 level, a critical level at or below 36 needed to be attained. Thus, the researcher failed to reject the fourth null hypothesis and determined that no significant difference occurred between Groups I and III. By failing to reject this null hypothesis, it was indicated that subjects in Group I did not have a significant decrease in trait anxiety change scores from those subjects in Group III after the administration of the educational/training program.

Null hypothesis V: Women in Group II will not show a significant decrease in trait anxiety median change scores from women in Group III upon completion of the program.
Analysis of the change score data revealed a U-value of 70.5. To be significant at the .05 level, a critical level at or below 46 needed to be attained. Thus, the researcher failed to reject the fifth null hypothesis and determined that no significant difference occurred between Groups II and III. By failing to reject this null hypothesis, it was indicated that subjects in Group II did not have a significant decrease in trait anxiety change scores from those subjects in Group III after the administration of the educational/training program.

Null hypothesis VI: Women in Group II will not show a significant decrease in trait anxiety median change scores from women in Group I upon completion of the program.

Analysis of the change score data revealed a U-value of 36.0. To be significant at the .05 level, a critical level at or below 27 needed to be attained. Thus, the researcher failed to reject the sixth null hypothesis and determined that no significant differences occurred between Groups II and I. By failing to reject this null hypothesis, it was indicated that subjects in Group II did not have a significant decrease in trait anxiety change scores from those subjects in Group I after the administration of the educational/training program.

Menstrual Discomfort

Null hypothesis VII: Women in Group I will not show a significant decrease in expressed menstrual discomfort median change scores from women in Group III upon completion of the program.

Analysis of the change score data revealed a U-value of 9.0. To be significant at the .05 level, a critical level at or below 24 needed to be attained. Thus, the researcher rejected the seventh null
hypothesis and determined that Group I change score values were significantly higher than Group III. By rejecting this null hypothesis, it was indicated that subjects in Group I had a significant decrease in menstrual discomfort change scores from those subjects in Group III after the administration of the educational/training program.

**Null hypothesis VIII:** Women in Group II will not show a significant decrease in expressed menstrual discomfort median change scores from women in Group III upon completion of the program.

Analysis of the change score data revealed a U-value of 19.0. To be significant at the .05 level, a critical level at or below 24 needed to be attained. Thus, the researcher rejected the eighth null hypothesis and determined that Group II change score values were significantly higher than Group III. By rejecting this null hypothesis, it was indicated that subjects in Group II had a significant decrease in menstrual discomfort change scores from those subjects in Group III after the administration of the educational/training program.

**Null hypothesis IX:** Women in Group II will not show a significant decrease in expressed menstrual discomfort median change scores in Group I upon completion of the program.

Analysis of the change score data revealed a U-value of 22.0. To be significant at the .05 level, a critical level at or below 12 needed to be attained. Thus, the researcher failed to reject the ninth null hypothesis and determined that no significant difference occurred between Groups II and I. By failing to reject this null hypothesis, it was indicated that subjects in Group II did not have a significant
decrease in menstrual discomfort change scores from those subjects in Group I after the administration of the educational/training program.

**Discussion**

The results of the analysis of data collected throughout the study are discussed. The discussion is divided as follows: The analysis of the null hypotheses and the presentation of the demographic data.

**Null hypotheses.** Analysis of the null hypotheses resulted in rejection of two null hypotheses and failure to reject the remaining seven. In two-group comparisons, the null hypotheses not rejected were concerned with: a) state anxiety median change scores, b) trait anxiety median change scores, and c) expressed menstrual discomfort reduction between the group receiving the basic educational/training sessions and the group receiving the educational/training sessions plus follow-up.

The two rejected null hypotheses were concerned with median change score values between: the basic educational/training group, and the educational/training group plus follow-up. Each of these groups was compared with the group not receiving the educational/training sessions. Therefore, the researcher concluded that the decrease in expressed menstrual discomfort was due to the effects of the educational/training program.

The subjects in the treatment group with the educational/training sessions plus follow-up had greater reduction in expressed menstrual discomfort when compared with the subjects in the treatment group receiving no follow-up. This was apparent when the researcher saw that change score values between the group with follow-up had further reduction in change score values than the group with no follow-up.
However, this decrease was not significant enough for rejection of the null hypothesis.

**Demographic data.** Upon review of the demographic data, it was found that the three groups were dissimilar in their responses to a number of statements on the first page on the **Menstrual Discomfort Questionnaire**, as shown in Table 1. Differences in demographic data are reviewed in the following paragraphs.

The number of days of menstrual discomfort were similar in subjects of Groups I and II. However, Group III subjects had a trend toward a greater number of days of discomfort experienced. This may indicate a reason why subjects of Group II did not show a significant decrease from subjects of either Group I or Group II in the two rejected null hypotheses. Since Group III subjects did not receive any treatment program, any benefits the subjects of Groups I and II obtained could have magnified the already existing differences.

Relief of menstrual discomfort through over-the-counter medication was a more common practice of subjects in Group I than in Groups II or III. This could have had some influence on subjects of Group I not having as much significant decrease in menstrual discomfort after the educational/training program as Group II if Group I abstained from medication during the posttest. Therefore, subjects in Group I, as a whole, may have had more discomfort at the start of the program than Groups II and III.

Stress, in regard to menstrual discomfort, tended to be most strongly felt by Group I. A reason for this may be the timing of data collection
<table>
<thead>
<tr>
<th>Question</th>
<th>Group I</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Group II</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Group III</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>My periods are regular.</td>
<td>55.6 (5)</td>
<td>44.4 (4)</td>
<td>90.9 (10)</td>
<td>9.1 (1)</td>
<td></td>
<td>71.4 (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.6 (4)</td>
<td></td>
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<tr>
<td>I usually experience discomfort about _____ days during each cycle.</td>
<td>11.1 - 1 day</td>
<td>4.4 - 2 days</td>
<td>38.3 - 3 days</td>
<td>11.1 - 4 days</td>
<td>9.1 - 1 day</td>
<td>45.5 - 2 days</td>
<td>18.2 - 3 days</td>
<td>9.1 - 4 days</td>
<td>9.1 - 5 days</td>
<td>21.4 - 1 day</td>
<td>21.4 - 2 days</td>
<td>28.6 - 3 days</td>
<td>14.3 - 4 days</td>
<td>7.1 - 5 days</td>
<td>7.1 - 6 days</td>
</tr>
<tr>
<td>When is the discomfort greatest?</td>
<td>88.9 (8)</td>
<td>11.1 (1)</td>
<td>54.5 (6)</td>
<td>45.5 (5)</td>
<td>50.0 (7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50.0 (7)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I take medication to relieve the discomfort.</td>
<td>11.1 (1)</td>
<td>88.9 (8)</td>
<td>9.1 (1)</td>
<td>90.9 (10)</td>
<td>28.6 (4)</td>
<td>71.4 (10)</td>
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<tr>
<td>I crave different types of food before or during my period.</td>
<td>33.3 (3)</td>
<td>66.7 (6)</td>
<td>54.5 (6)</td>
<td>45.5 (5)</td>
<td>57.1 (8)</td>
<td>42.9 (6)</td>
<td></td>
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</tr>
<tr>
<td>I alter the amount of food I eat before or during my period.</td>
<td>55.6 (5)</td>
<td>44.4 (4)</td>
<td>45.5 (5)</td>
<td>54.5 (6)</td>
<td>71.4 (10)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>28.6 (4)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>The amount of stress I am under relates to my degree of discomfort.</td>
<td>66.7 (6)</td>
<td>33.3 (3)</td>
<td>45.5 (5)</td>
<td>45.5 (5)</td>
<td>35.7 (5)</td>
<td>64.3 (9)</td>
<td></td>
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<tr>
<td>I continually worry about my next period.</td>
<td>22.2 (2)</td>
<td>77.8 (7)</td>
<td>0 (0)</td>
<td>100.0 (11)</td>
<td>0 (0)</td>
<td>100.0 (14)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>My mother used to have problems similar to mine when she was my age.</td>
<td>66.7 (6)</td>
<td>33.3 (3)</td>
<td>27.3 (3)</td>
<td>27.3 (3)</td>
<td>35.7 (5)</td>
<td>64.3 (9)</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My menstrual discomfort started after my first period.</td>
<td>77.8 (7)</td>
<td>22.2 (2)</td>
<td>45.5 (5)</td>
<td>45.5 (5)</td>
<td>71.4 (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.6 (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am presently taking an oral contraceptive.</td>
<td>0 (0)</td>
<td>100.0 (9)</td>
<td>0 (0)</td>
<td>100.0 (11)</td>
<td>14.3 (2)</td>
<td>85.7 (12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
for the study. The program was offered at the end of the semester before the summer break, which is often a time of greater stress for subjects. Therefore, stress as it related to menstrual discomfort, may have had greater impact on the resulting outcome of the study.

Over half of the subjects in Group I had similar problems of menstruation as their mothers had, as indicated by responses to "My mother used to have problems similar to mine when she was my age." Subjects in Groups II and III did not. The possibility of this preconceived idea may have affected these subjects in a negative way (eg. menstruation is painful). Therefore, subjects in Group I may have had a negative psychological outlook on menstruation from their mothers, which may have led to group dissimilarity before the study began.

It was found when examining pretest-posttest results that subjects in all three groups responded in a concentrated pattern of responses on the pretest, and in a more distributed pattern of responses on the posttest in the statement dealing with overall degree of discomfort. Results of these patterns are found in Table 2. For example, subjects of all three groups replied within the limits of "mild" to "moderate" incapacitation as their overall degree of discomfort on the pretest. In contrast, subjects' responses on the posttest ranged from "no symptom" to "severe incapacitation." This occurred in the control group as well as in both treatment groups. Examination of the standard deviations for the groups on the pretest revealed relatively small values (.49-.59), while those for the groups on the posttest were larger (1.59-2.24). These results may be seen in Table 2. One reason for this may be that all subjects, regardless of group, became more
### TABLE 2

**DISTRIBUTION OF CHANGE SCORES WITHIN GROUP I, II, III**

IN EXPRESSED OVERALL DEGREE OF MENSTRUAL DISCOMFORT

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Mild Incapacitation</th>
<th>Moderate Incapacitation</th>
<th>Severe Incapacitation</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Group I**

Pretest 0 0 3 4 2 0 0 0 2.89 .74  
Posttest 1 1 1 3 2 0 1 0 2.89 1.66

**Group II**

Pretest 0 0 0 6 5 0 0 0 3.45 .50  
Posttest 6 2 0 1 2 0 0 0 1.18 1.59

**Group III**

Pretest 0 0 1 8 5 0 0 0 3.29 .59  
Posttest 3 2 2 2 1 2 1 1 2.79 2.24
discriminate and/or less cautious in stating their specific level of menstrual discomfort by being exposed to the Menstrual Discomfort Questionnaire. Thus, these reasons may explain the change in pattern distribution between pretest and posttest responses.

More general information concerning menstrual discomfort was also obtained from the demographic data of the Menstrual Discomfort Questionnaire. Concerning menstrual flow, 73.5% of all the subjects had regularly occurring menstrual periods, while 26.5% did not have regularly occurring periods. According to this study, the researcher concluded that predictable menstrual flow could not be considered a reason for dysmenorrhea.

It was also found that the discomfort experienced by 79.4% of the subjects was greatest on the first day of their menstrual flow, which appeared to agree with the literature stating that prostaglandins eventually triggered uterine contractions (Marx, 1979). In contrast, this study did not support existing literature that stated prostaglandin absorption may increase due to retention of menstrual blood (Marx, 1979). This study revealed that most discomfort was felt during the first day of menstrual flow.

In terms of decreasing the intensity of dysmenorrheal discomfort, it was found that 61.8% of the subjects studied took some form of medication for the discomfort, while only 17.7% of the total number of subjects took a prescription drug. This may indicate that the intensity of discomfort was not severe enough to have subjects seek medical attention, but the discomfort was uncomfortable enough to have them obtain some type of over-the-counter medication.
Summary

The results of the analysis of data concluded that two null hypotheses could be rejected:

1. Women in the basic educational/training sessions will not show a significant decrease in expressed menstrual discomfort from women who did not receive the educational/training sessions.

2. Women in the educational/training sessions plus follow-up will not show a significant decrease in expressed menstrual discomfort from women who did not receive the educational/training sessions.

Therefore, the educational/training program did appear to have an effect on alleviating menstrual discomfort. This effect was greater in Group II than in Group I, although statistically insignificant.

The demographic data enabled background information to be collected from all subjects. The discussion of the demographic data obtained in the Menstrual Discomfort Questionnaire may have influenced subjects in Group I as not having as much decrease in menstrual discomfort as those in Group II, due to the dissimilarities between subjects in Groups I and II before the educational/training program began. These areas included the number of days of menstrual discomfort experienced, the number of subjects ingesting medication to relieve menstrual discomfort, stress as it related to menstrual discomfort, worry about the next menstrual period, and a possible negative preconception of menstruation. Subjects in Group I had a trend to answer these areas in a more positive way than subjects in Groups II and III, which may have indicated differences between groups before the study began.
Menstrual period regularity also was taken into account by the researcher as it appeared in the demographic data. Almost three-fourths of all subject responses indicated regularly occurring cycles.

Further, it was found that menstrual discomfort was greatest on the first day of menstrual flow. Diminishment of the discomfort was attempted by over-the-counter medication by a majority of subjects. However, less than one-fourth of the subjects found it necessary to obtain a prescription drug.

Examination of pretest results revealed a clustered pattern of responses by all subjects in the three groups. In contrast, a more dispersed pattern of responses was found on the posttest. This pattern may have indicated subject sensitivity to the questionnaire after the pretest was completed.
CHAPTER V

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

It was the purpose of this study to evaluate the efficacy of a modified Lamaze natural childbirth approach with and without follow-up in the alleviation of primary dysmenorrhea. A total of 34 subjects were involved in this study. For evaluation purposes, the Menstrual Discomfort Questionnaire was developed and implemented by the researcher. The questionnaire was juried by five professionals knowledgeable in the area of dysmenorrhea. The Menstrual Discomfort Questionnaire identified the location/intensity of menstrual discomfort experienced by each woman. A dysmenorrhea alleviation educational/training program was adapted from Erlenbach, Kimball, and Fleischauer (1977) and presented to the educational/training groups.

In addition to the Menstrual Discomfort Questionnaire, the State-Trait Anxiety Inventory developed by Speilberger (1970) was utilized. This inventory measured the tension and apprehension occurring at the specific time each woman was completing the inventory (state anxiety), and how she generally felt (trait anxiety).

Findings

Analysis of the data resulted in the following findings:

1. Women completing the basic educational/training sessions were not found to have had significant decrease in state anxiety from those women who did not receive the educational/training sessions.
2. Women completing the educational/training sessions plus follow-up were not found to have had a significant decrease in state anxiety from those women who did not receive the educational/training sessions.

3. Women completing the educational/training sessions plus follow-up were not found to have had a significant decrease in state anxiety from those women completing the basic educational/training sessions.

4. Women completing the basic educational/training sessions were not found to have had a significant decrease in trait anxiety from those women who did not receive the educational/training sessions.

5. Women completing the educational/training sessions plus follow-up were not found to have had a significant decrease in trait anxiety from those women who did not receive the educational/training sessions.

6. Women completing the educational/training sessions plus follow-up were not found to have had a significant decrease in trait anxiety from those women completing the basic educational/training sessions.

7. Women completing the educational/training sessions plus follow-up were not found to have had a significant decrease in expressed menstrual discomfort from those women completing the basic educational/training sessions.

8. Women completing the basic educational/training sessions were found to have had a significant decrease in expressed menstrual discomfort from those women who did not receive the educational/training sessions.

9. Women completing the educational/training sessions plus follow-up were found to have had a significant decrease in expressed menstrual discomfort from those women who did not receive the educational/training sessions.
10. Women completing the educational/training sessions plus follow-up were found to have had some decrease in expressed menstrual discomfort from those women completing the basic educational/training sessions, although it was statistically insignificant.

11. The overall degree of expressed menstrual discomfort was not altered from pretest to posttest in those women involved in the basic educational/training sessions.

12. The overall degree of menstrual discomfort decreased significantly from pretest to posttest in those women involved in the educational/training sessions plus follow-up.

Conclusions

Based upon the findings, the following conclusions were drawn:

1. The primary dysmenorrhea alleviation educational/training program, with and without follow-up, significantly reduced the expressed dysmenorrheal symptoms in college females.

2. While women involved in the educational/training sessions with and without follow-up had a significant reduction in expressed dysmenorrheal symptoms, there was a slight tendency towards greater reduction in the women who had the follow-up session.

3. The changes brought about by the educational/training program may not have been detected by the State-Trait Anxiety Inventory. This inventory may not have been sensitive enough to detect changes brought about by the short duration of the program, or the anxiety level may not have changed due to circumstances beyond the limits of this study.
Recommendations

Based upon the findings and conclusions, the following recommendations have been made:

1. A follow-up study should be conducted to evaluate the effectiveness of the dysmenorrhea alleviation program on women who participated in this study. Such a follow-up would identify the retention and consistency of the modified Lamaze natural childbirth method in those women involved in the study. Long-term changes in expressed menstrual discomfort could then be detected and may help determine if the changes were "real" or due to subject sensitivity to the program.

2. Further refinement of the Menstrual Discomfort Questionnaire would provide specific data for determining the benefits of various dysmenorrhea alleviation methods on women.

3. An anxiety-testing measurement to detect slight changes in anxiety levels over a short period of time may yield additional data that was previously overlooked by the State-Trait Anxiety Inventory.

4. More conclusive results in college females may be obtained if a dysmenorrhea alleviation program were offered during mid-semester when the women would be under minimum pressure (psychologically and physically).

5. An increase in sample size might lead to more conclusive results by improving the consistency of the educational/training program.

6. Future research should attempt to answer the following questions more specifically in the treatment of primary dysmenorrhea:
   a. What constitutes "dysmenorrhea"?
   b. What distinguishes dysmenorrhea from a "normal, natural" menstrual period (i.e., Should there be any discomfort, pain, or
restriction associated with normal healthy menstruation?).

c. Agreement of medical professionals to the definite causes of dysmenorrhea might indicate a psychological or physiological approach to the alleviation of this disorder. If such an agreement could be achieved, some dysmenorrhea sufferers might not be treated as an isolated group of patients.
REFERENCES CITED


ADDITIONAL REFERENCES


APPENDIX A

A-1 QUESTIONNAIRE TO JURY MEMBERS
A-2 LETTER TO JURORS - SAMPLE FORM
A-3 QUESTIONNAIRE EVALUATION FORMS
A-4 QUESTIONNAIRE EVALUATION SCORE RESULTS
APPENDIX A-1

INVENTORY JURY MEMBERS

Jean Boullion
Patient Educator
Gundersen Clinic
1836 South Avenue
La Crosse, Wisconsin 54601

Mary Fleischauer, R. N.
Student Health Center
University of Wisconsin-Stevens Point
Stevens Point, Wisconsin 54481

Dr. Leah A. Reimann, M. D.
Gundersen Clinic
1836 South Avenue
La Crosse, Wisconsin 54601

Dr. Allen Sampson, M. D.
Health Center
89 Whitney Center
University of Wisconsin-La Crosse
La Crosse, Wisconsin 54601

Dr. Paul H. Steingraeber, M. D.
Skemp-Grandview-La Crosse Clinic
815 South 10th Street
La Crosse, Wisconsin 54601

ERROR IN PAGINATION
March 10, 1980

Dear

I am presently involved in research for my Master Degree thesis in the Health Education Department at the University of Wisconsin-La Crosse. In my research I am attempting to assess the effect of a dysmenorrhea alleviation program among college women, using a modified Lamaze approach.

As part of my study I have found it necessary to develop a questionnaire which will enable me to measure the number of symptoms and the severity of these symptoms in women suffering from dysmenorrhea. I would like to request your assistance in evaluation of the inventory regarding its readability and content validity.

I have enclosed a copy of the inventory which is coordinated with a rating device designed to simplify the evaluation process. I would very much appreciate your willingness to assist in the evaluation. I will pick up the evaluation on Wednesday, March 19.

I realize how valuable your time is and want to express my sincere thank you.

Sincerely,

Lori Hunt

Enclosures
APPENDIX A-3

INVENTORY RATING SCALE

Directions: Enclosed is a list of phrases regarding dysmenorrhea. Please read each phrase and use the scale to the right or below the questionnaire to indicate its acceptability, based upon the degree to which the phrase will reveal a subject's behavior or intensity of discomfort in regards to dysmenorrhea. In this manner you will be judging the curricular validity of these behavior/intensity of discomfort phrases with respect to dysmenorrhea. The inventory has been developed for use with college students.

The scale values are defined as follows:

1. **NOT ACCEPTABLE**: The item has no value as a phrase for measuring the subject's behavior and intensity of dysmenorrheal discomfort.

2. **SOMewhat ACCEPTABLE**: The item has some value as a phrase for measuring the subject's behavior and intensity of dysmenorrheal discomfort.

3. **ACCEPTABLE**: The phrase is valuable as a phrase for measuring the subject's behavior and intensity of dysmenorrheal discomfort.

4. **VERY ACCEPTABLE**: The item is very valuable as a phrase for measuring the subject's behavior and intensity of dysmenorrheal discomfort.

5. **INDISPENSABLE**: The item is absolutely necessary as a phrase for measuring the subject's behavior and intensity of dysmenorrheal discomfort.

---

1The scale was developed by Dr. Gary Gilmore for use in his doctoral dissertation, The Development, Implementation, and Evaluation of a Family Health Education Program Incorporating the Concept of Prevention, The University of Tennessee, June 1974.
<table>
<thead>
<tr>
<th>NOT ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>INDISPENSABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

**Please Circle Only One**

**Comment**

**MENSTRUAL DISCOMFORT QUESTIONNAIRE**

1. My periods are regular.  YES NO 1 2 3 4 5

2. I usually experience discomfort about ____ days during each cycle.  1 2 3 4 5

3. When is the discomfort greatest?
   ____ day before my period
   ____ first day of my period
   ____ other (list)  1 2 3 4 5

4. I take medication to relieve the discomfort.  YES NO 1 2 3 4 5

5. I take a prescription drug to relieve the discomfort. YES NO 1 2 3 4 5

6. I crave different types of food before or during my period.  YES NO 1 2 3 4 5

7. I alter the amount of food I eat before or during my period.  YES NO 1 2 3 4 5

8. The amount of stress I am under relates to my degree of discomfort. YES NO 1 2 3 4 5

9. I continually worry about my next period.  YES NO 1 2 3 4 5

10. My mother used to have problems similar to mine when she was my age. YES NO 1 2 3 4 5
11. My menstrual discomfort started after my first period. (eg. second, third, ...) YES NO 1 2 3 4 5

12. I am presently taking an oral contraceptive. YES NO 1 2 3 4 5
### INCAPACITATION - Disruption in your daily routine

<table>
<thead>
<tr>
<th>I experience:</th>
<th>no symptom</th>
<th>mild incapacitation</th>
<th>moderate incapacitation</th>
<th>severe incapacitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>cramp-like discomfort</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>an uncomfortable feeling</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>all over</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>abdominal pain</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>nausea</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>a flushed feeling</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>dizziness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>heart throbbing</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>vomiting</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>diarrhea</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>a bloated feeling</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>breast tenderness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>breast fullness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>acne breakout</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>headache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>backache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>thigh ache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>nervousness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>anxiousness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>tenseness</td>
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<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>depression</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>irritability</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

List any other symptoms you may experience

I would rate my overall degree of discomfort as. 

<table>
<thead>
<tr>
<th>Please Circle Only One:</th>
<th>NOT ACCEPTABLE</th>
<th>SOMEWHAT ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>ACCEPTABLE</th>
<th>INDISCOVERABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERY ACCEPTABLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: (Be specific)
### APPENDIX A-4

**QUESTIONNAIRE STATEMENTS AND EVALUATION SCORE RESULTS**

<table>
<thead>
<tr>
<th>Rating by Jurors</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. My periods are regular.</strong></td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>2. I usually experience discomfort about _____ days during each cycle.</strong></td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>3. When is the discomfort greatest? _____ day before my period _____ first day of my period _____ other (list) 3</strong></td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>4. I take medication to relieve the discomfort.</strong></td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>5. I take a prescription drug to relieve the discomfort.</strong></td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>6. I crave different types of food before or during my period.</strong></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>7. I alter the amount of food I eat before or during my period.</strong></td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td><strong>8. The amount of stress I am under relates to my degree of discomfort.</strong></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>9. I continually worry about my next period.</strong></td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>10. My mother used to have problems similar to mine when she was my age.</strong></td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>11. My menstrual discomfort started after my first period. (eg. second, third, etc.)</strong></td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>12. I am presently taking an oral contraceptive.</strong></td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>1. I would rate my overall degree of discomfort as</strong></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4.0</td>
</tr>
</tbody>
</table>
APPENDIX B

STATISTICAL PROCEDURES AND RESULTS OF
HOYT'S ANALYSIS OF VARIANCE RELIABILITY
APPENDIX B

STATISTICAL PROCEDURES AND RESULTS OF HOYT'S ANALYSIS OF VARIANCE

\[ N = \text{No. of persons} \quad N = 34 \]
\[ K = \text{No. of test items} \quad K = 21 \]

1. Sum of squares between people = 824.77551
2. Sum of squares between items = 571.15646
3. Total sum of squares = 2453.34694
4. Residual sum = \( \text{total sum of squares} - \text{sum of squares between people} + \text{sum of squares between items} \)
   \[ 1057.41497 = 2453.34694 - (824.77551 + 571.15646) \]
5. Mean square between people = \( \frac{\text{sum of squares between people}}{N-1} \)
   \[ 41.23878 = \frac{824.77551}{33} \]
6. Residual mean square = \( \frac{\text{residual sum of squares}}{(N-1)(K-1)} \)
   \[ 2.64354 = \frac{1057.41497}{(33)(20)} \]
7. Hoyt's Analysis of Variance Applied
   Hoyt's Analysis of Variance Reliability = \( \frac{\text{mean square between people} - \text{residual mean square}}{\text{mean square between people}} \)
   \[ .93590 = \frac{41.23878 - 2.64354}{41.23878} \]
APPENDIX C

CONSENT FORM
INFORMED CONSENT

University of Wisconsin - La Crosse
La Crosse, Wisconsin 54601

The effects of a modified Lamaze natural childbirth approach plus follow-up on primary dysmenorrhea in college females from three universities in La Crosse, Wisconsin

Principal Investigator: ________________________________

1. Procedure:
--2-3 informative sessions meeting once per week, depending on group
--material to be covered on designated evenings (basic anatomy as it pertains to menstrual cycle, relative Lamaze natural childbirth techniques)
--two questionnaires completed in first session
--specific times and locations announced
--questions answered

2. Potential discomfort/risk:
--minimal other than existing discomfort

3. Potential benefit:
--need for relieving menstrual discomfort through medication may not be necessary

1. I, ________________________________, being of sound mind and ______ years of age, do hereby consent to, authorize and request the person named above (and his co-workers) to undertake and perform on me the proposed procedure, treatment, research or investigation (herein called "Procedure").

2. I have read the above document, and I have been fully advised of the nature of the Procedure and the possible risks and complications involved in it, all of which risks and complications I hereby assume voluntarily.

3. I hereby acknowledge that no representations, warranties, guarantees or assurances of any kind pertaining to the Procedure have been made to me by the University of Wisconsin-La Crosse, the officers, administration, employees or by anyone acting on behalf of any of them.
4. I understand that I may withdraw from the program at any time.

Signed at ______________________ this ______ day of

____________________, 19___, in the presence of the

witnesses whose signatures appear below.


WITNESSED BY:

__________________________
(Subject)
APPENDIX D

COMPLETED

MENSTRUAL DISCOMFORT QUESTIONNAIRE
APPENDIX D

(MENSTRUAL DISCOMFORT QUESTIONNAIRE)

Directions: Think back to your menstrual cycles over the past six months and respond to the following items accordingly.

1. My periods are regular. ____ Yes  ____ No

2. I usually experience discomfort about ____ days during each cycle.

3. When is the discomfort greatest?
   ____ day before my period
   ____ first day of my period
   ____ other (list)

4. I take medication to relieve the discomfort. ____ Yes  ____ No

5. I take a prescription drug to relieve the discomfort.
   ____ Yes  ____ No

6. I crave different types of food before or during my period.
   ____ Yes  ____ No

7. I alter the amount of food I eat before or during my period.
   ____ Yes  ____ No

8. The amount of stress I am under relates to my degree of discomfort.
   ____ Yes  ____ No

9. I continually worry about my next period.
   ____ Yes  ____ No

10. My mother used to have problems similar to mine when she was my age.
    ____ Yes  ____ No

11. My menstrual discomfort started after my first period (e.g. second, third, etc.).
    ____ Yes  ____ No

12. I am presently taking an oral contraceptive.
    ____ Yes  ____ No
Directions: Think back to your menstrual cycles over the past six months. Respond to the following items according to the intensity of discomfort you experience during that time.

<table>
<thead>
<tr>
<th>INCAPACITATION - disruption in your daily routine</th>
<th>no symptom</th>
<th>mild incapacitation</th>
<th>moderate incapacitation</th>
<th>severe incapacitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- cramp-like discomfort</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- an uncomfortable feeling all over</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- abdominal pain</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- nausea</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- a flushed feeling</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- dizziness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- heart throbbing</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- vomiting</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- diarrhea</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- a bloated feeling</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- breast tenderness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- breast fullness</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- acne breakout</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- headache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- backache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
<tr>
<td>- thigh ache</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
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<tr>
<td>- nervous anxiousness</td>
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<td>4 5 6 7</td>
<td>7</td>
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<td>- irritability</td>
<td>0</td>
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<td>4 5 6 7</td>
<td>7</td>
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<tr>
<td>- tenseness</td>
<td>0</td>
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</tr>
<tr>
<td>- depression</td>
<td>0</td>
<td>1 2 3</td>
<td>4 5 6 7</td>
<td>7</td>
</tr>
</tbody>
</table>

List any other symptoms you may experience

I would rate my overall degree of discomfort as...............

|                           | 1 2 3 | 4 5 6 | 7     |
APPENDIX D

(POSTTEST)

Directions: Think back to your last menstrual cycle. Respond to the following items according to the intensity of discomfort you experienced during that time.

<table>
<thead>
<tr>
<th>INCAPACITATION - disruption in your daily routine</th>
<th>no symptom</th>
<th>mild incapacitation</th>
<th>moderate incapacitation</th>
<th>severe incapacitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I experience:</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cramp-like discomfort...</td>
<td>1</td>
<td>2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>an uncomfortable feeling all over</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>abdominal pain</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nausea</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a flushed feeling</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dizziness</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>heart-throbbing</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vomiting</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
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<td>diarrhea</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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<td>a bloated feeling</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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<td>breast tenderness</td>
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<td>1 2 3 4 5 6 7</td>
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<td></td>
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<td>breast fullness</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
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<td>acne breakout</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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<td>headache</td>
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<td>1 2 3 4 5 6 7</td>
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<td>backache</td>
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</tr>
<tr>
<td>thigh ache</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
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<td>nervous anxiousness</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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<td></td>
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<td>irritability</td>
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<td>1 2 3 4 5 6 7</td>
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<td>tenseness</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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<td></td>
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<tr>
<td>depression</td>
<td>0</td>
<td>1 2 3 4 5 6 7</td>
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</table>

List any other symptoms you experienced

I would rate my overall discomfort as.............. 1 2 3 4 5 6 7
APPENDIX E

STATE-TRAIT ANXIETY
INVENTORY
APPENDIX E

SELF-EVALUATION QUESTIONNAIRE

STAI FORM X-1

Developed by C. D. Spielberger, R. L. Gorsuch, and R. Lushane

ID# __________

NAME ___________________________ DATE ___________________________

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and circle the appropriate number to the right of the statement to indicate how you feel right now; that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

<table>
<thead>
<tr>
<th>Number</th>
<th>Statement</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Moderately so</th>
<th>Very much so</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel calm.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>I feel secure.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>I am tense</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>I am regretful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>I feel at ease.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>I feel upset.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>7</td>
<td>I am presently worrying over possible misfortunes.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>I feel rested.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>I feel anxious</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>I feel comfortable</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not at all</td>
<td>Somewhat</td>
<td>Moderately so</td>
<td>Very much so</td>
</tr>
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<td>---</td>
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<td>-----------</td>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>11</td>
<td>I feel self-confident.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>I feel nervous</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>I am jittery</td>
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<td>2</td>
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<td>4</td>
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<tr>
<td>14</td>
<td>I feel &quot;high strung&quot;</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>15</td>
<td>I am relaxed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>I feel content</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>17</td>
<td>I am worried</td>
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<td>2</td>
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<td>4</td>
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<td>18</td>
<td>I feel over-excited and &quot;rattled&quot;</td>
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<td>2</td>
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<td>4</td>
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<tr>
<td>19</td>
<td>I feel joyful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>I feel pleasant</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
SELF-EVALUATION QUESTIONNAIRE  
STAI FORM X-2

<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
</table>

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>21. I feel pleasant.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I tire quickly</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. I feel like crying</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. I wish I could be as happy as others seem to be.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. I am losing out on things because I can't make up my mind soon enough</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. I feel rested</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27. I am &quot;calm, cool, and collected&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28. I feel that difficulties are piling up so that I cannot overcome them</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29. I worry too much over something that really doesn't matter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30. I am happy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31. I am inclined to take things hard</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32. I lack self-confidence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Almost never</td>
<td>Sometimes</td>
<td>Often</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>--------------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td>33.</td>
<td>I feel secure</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>34.</td>
<td>I try to avoid facing a crisis or difficulty</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>35.</td>
<td>I feel blue</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>36.</td>
<td>I am content</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>37.</td>
<td>Some unimportant thought runs through my mind and bothers me</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>38.</td>
<td>I take disappointments so keenly that I can't put them out of my mind</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>39.</td>
<td>I am a steady person</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>40.</td>
<td>I get in a state of tension or turmoil as I think over my recent concerns and interests</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
APPENDIX F

F-1 MODIFIED LAMAZE NATURAL CHILDBIRTH NARRATIVE
F-2 MODIFIED LAMAZE NATURAL CHILDBIRTH OUTLINE
APPENDIX F-1

A MODIFIED LAMAZE NATURAL CHILDBIRTH NARRATIVE

Goal: To instruct the women on what the causes of primary dysmenorrhea are.

To suggest various alternatives of alleviating menstrual discomfort, which includes: The understanding of the menstrual cycle, relaxation techniques, breathing techniques, and basic body conditioning exercises.

Total Time Required: Approximately 80 minutes

Procedure: SESSION 1

Course Outline

There will be three (or two sessions, depending on group) 80-minute sessions, meeting one week apart. Session 2 will be a continuation of Session 1, while Session 3 will be a practice session. Attendance is mandatory for optimum results. The circulation and explanation of consent forms come at this time. The administration of the State-Trait Anxiety Inventory and the Menstrual Discomfort Questionnaire follows, with a brief explanation of each.

Course Introduction

Many more women experience painful menstrual cramps than is readily acknowledged. This menstrual discomfort is referred to as dysmenorrhea. It is often combatted with drugs, such as codeine or darvon, hot water bottles, and/or bed rest. But drugs often have undesirable side effects, hot water bottles may not be available, and bed rest may not be possible. In a study at Stevens Point, Wisconsin, there were positive results when
a modified Lamaze natural childbirth technique was utilized, since the "cramp" sensations associated with dysmenorrhea are similar to those experienced in labor. In fact, these techniques may be used anytime, anywhere, and for any pain (i.e., dental exams, pelvic exams, headaches). Basically, the techniques include the following: relaxation, controlled breathing (two types), massage, focusing, and basic body conditioning exercises.

**Background Information**

There are many reasons why women experience pain during menstruation. One of the most popular reasons is that of hormonal changes occurring before menstruation starts. Just a review of what happens during the menstrual cycle follows. Each month the uterus prepares to receive and nourish the fertilized egg. In response to hormones secreted, the lining of the uterus is built up with nourishment in the form of blood vessels. The egg is then released by the ovary and transferred down the fallopian tube to the uterus. If fertilization occurs, the egg attaches to the wall of the uterus and proceeds to grow. If fertilization does not occur, the built-up lining is released from the body. Uterine contractions (similar to those felt in labor) frequently accompany this process, accounting for menstrual pain or discomfort.

The Lamaze technique is named after a French obstetrician, Dr. Fernand Lamaze, who developed a program for training pregnant women in prophylaxis, or the mind prevention of pain. It includes techniques in relaxation, breathing patterns, body conditioning exercises, and basic information on physiology and anatomy and the birth process.
Getting back to the "why" behind pain, you must first realize that under normal conditions, a muscle contraction need not be painful unless it is constricted in some way or is not provided with adequate oxygen (e.g. bend your arm up tightly at the elbow--any pain? Have someone try to pull your forearm down--any pain? There may be some pain because muscles are working against each other). Much of the discomfort felt during menstruation is caused by the woman herself. Typically, the usual reaction to a cramp or any pain is to tense the body and hold the breath. These reactions increase the pain. For a muscle to work effectively it needs freedom (no forces working against it) and sufficient oxygen. This is why a hot water bottle or a heating pad may help lessen the pain, because the heat encourages the muscles to relax and also speeds up circulation. This is where relaxation comes in. By learning to relax, therefore exerting no force against the contracting muscle, and breathing so as to supply the muscle with adequate oxygen, pain should be considerably diminished.

Relaxation

The relaxation we will learn will not be the sleepy, drowsy type, but rather a conscious effort to control and release each muscle in the body. Concentration is a vital part of relaxation. It is important for you to keep your eyes open and focused on a chosen spot (to keep the mind from wandering) during these drills.

To practice: First find a comfortable place to lie down with a pillow under your head and knees. Work with a partner, if possible, so she can check your relaxation. This is done by taking hold of your wrist and back of arm and lifting the arm slowly off the floor, bending it at the elbow, rotating the wrist, and gently swinging the arm. It should feel limp,
heavy, and very loose at the shoulder. Lay the arm down slowly and gently. Be careful not to drop it. Legs can be checked by placing one hand under the knee and the other around the ankle. It should also feel limp.

The best way to know how a muscle feels when it is relaxed is to first feel it contracted (tensed). Without a partner, start by contracting every muscle in your body. Now starting from the head and working down, slowly release every muscle. The entire body should be relaxed.

Since we cannot practice with the uterine muscle (it being an involuntary muscle, which we have no control over), we will practice using alternate muscles.

1. Contract right arm. (Pretend this is the uterus contracting during a cramp.) Concentrate on relaxing all other muscles; do not think about the contracted one. Remember to focus. Partner check.

2. Contract left arm. Partner check.

3. Contract right arm and right leg. Partner check.

4. Contract left arm and left leg. Partner check.

Any combination of muscles will work for these drills. Make up some of your own. A good test for full control is to contract one arm and the opposite leg, while keeping everything else relaxed. Then quickly switch to the opposite arm and leg. When you can do this, you will have the control needed to consciously relax during a cramp.

Daily practice is vital. Practice for one or two short periods each day, about 10-15 minutes each, until you get the hang of it. Once learned, you'll only need to review these drills a few days prior to your period.
Breathing Pattern: Slow-Chest

Muscular relaxation alone may be enough for some women to reduce the discomfort felt during cramps. But we may need something additional. By adding learned breathing patterns to our relaxation we are accomplishing two things. We are supplying the working muscle with the oxygen it needs, and we are concentrating hard enough on focusing and breathing so that it becomes difficult for pain impulses to get into the brain to be registered.

There are two basic Lamaze breathing patterns found to be useful in diminishing discomfort and providing adequate oxygen. Both are done by using the upper chest muscles. In this session we will be learning "slow-chest" breathing. This breathing may be done in any position—Indian style sitting (knees bent, ankles crossed) is one of the easiest and most comfortable types for practicing and during cramps.

Since most of us breathe using our lower chest and abdominal muscles, you'll have to relearn how to breathe for this technique. The reason for this type of breathing is to keep your diaphragm and abdominal muscles away from the uterus so that they are not interfering with it. To get an idea of how this upper chest breathing feels, take a deep breath and blow out all the air. The tight knot you feel under your breastbone is your diaphragm. Can you feel it? It should be kept up there while you do both breathing patterns.

"Slow-chest" breathing is done as follows:

Relax - (these breathing patterns alone will not relieve cramping pain; you must be relaxed first.)

Focus - Keep your eyes open and focused on one spot.
Cleansing breath - A very deep breath, blowing out all the air, allowing the diaphragm to come up. Keep it there by using only upper chest muscles in the following breathing exercise.

Slow-chest breathing - Breathe in through your nose for three seconds, and out through your mouth for three seconds (shallow, keeping your diaphragm up at all times). Blow out gently, about as hard as you would blow to cool a spoonful of soup. You should get about 8-11 breaths per minute.

Cleansing breath

Second cleansing breath - Breathe, inhale, hold for five seconds, then release all the air.

The cleansing breaths serve to help you relax, to get rid of any tension, and to help equalize the oxygen and carbon dioxide in your body. Let's try this slow-chest breathing. Repeat the above.

Most people tend to clench their fists or grasp onto something at the first sign of pain (e.g., in a dentist chair!), thereby causing tension to spread through the body. We have a tool called "effleurage" (French for butterfly wings) for these people. It is a light massage done with the fingertips on the abdomen. It serves to keep the hands busy and relaxed, and also provides another center of concentration or distraction from the sensation of pain. It also stimulates nerve cells on the skin surface, reducing the opportunities for internal pain stimuli to reach the brain. Effleurage is done in a six second circular cycle; up and around for three seconds, down and around for three seconds. Start the circle low (near pubic bone) and cover the entire abdomen. When done in conjunction with slow-chest breathing, your hands will come up when you breathe out through your mouth.

No muscle can work continuously and effectively without periods of rest. The uterine muscle is no exception; it can contract effectively for
no longer than 90 seconds at a time. If menstrual cramps seem continuous, it is because you have tensed the surrounding muscles (mainly the abdominal muscles) against the uterus. Tensing a muscle for even a short time becomes painful, even when there is no cramp. Since tension has a "domino" effect, spreading out from the original tense muscles, it is extremely important to try to catch any tension right from the start.

Procedure: SESSION 2

Review

Before introducing the new techniques, it is important to review the relaxation drills and breathing pattern you learned last week. I cannot overemphasize the importance of relaxation during muscle contraction. Remember: much of the discomfort felt in "cramps" is caused by the woman herself. By contracting the abdominal muscles, you are causing them to constrict the working uterine muscle, thus less oxygen is getting to the uterus.

Let's try a practice run. Now, let's pretend you're having a cramp. Pick some muscle to be your "uterus", contract it, concentrate on relaxing all your other muscles, keep your visual focus, and try the slow-chest breathing pattern.

Pick a focus (relax all your voluntary muscles). Relax.

Cleansing breath - in through the nose for three seconds and out through the mouth for three seconds.

Slow-chest breathing.

Cleansing breath.

Second cleansing breath.
Any problems? To test your ability and the effectiveness of these techniques, let's try an experiment. Find a partner. She will be your contracting uterus. To do this, your partner will be grasping your knee just above the knee cap. As I say the contraction is beginning, she will gradually tighten her grip on your knee until I say the contraction is starting to subside (approximately 30 seconds tightening, 30 seconds releasing). At the end of the first 30 seconds, your partner's grasp should be so tight that her knuckles are white. While all this is going on, you must use all the techniques we have been working on to try to minimize any discomfort you might feel. Be sure not to concentrate on what is happening on your knee. Rather, think about your concentration, focus, and breathing. After the contraction is over, have your partner demonstrate how tight she was pressing. Are we all set?

Focus.

Relax.

Cleansing breath.

Slow-chest breathing (60 seconds) - partner grasps firmly for 30 seconds, then releases for 30 seconds.

Cleansing breath.

Second cleansing breath.

Switch roles.

Accelerated Breathing

For many women with cramps, the first breathing pattern (with relaxation) is all they need to minimize the pain they feel. Some women need another tool to help them cope with stronger contractions and more pain. This tool is another breathing pattern, often referred to as "panting" or
accelerated breathing. The slow-chest breathing blends smoothly into the accelerated breathing, then back to the slow-chest again. This follows the pattern of typical contractions of mild to strong to mild.

One thing I'd like to review is the possibility of hyperventilation in this newer type of breathing. Hyperventilation is caused by too great an amount of oxygen in the bloodstream in relation to the amount of carbon dioxide. Symptoms include dizziness, tenseness and rigidity with shaking movements. To prevent this from happening, do not breathe any faster than one "puff" per second, and as shallow as possible.

The puffs should be done through the nose. Breathe out as much air as it would take to say "he". Remember to emphasize the "out" breath; the inhalation will be automatic. No one should hear you breathing. If you do start to get dizzy, cup your hands over your mouth and nose and breath into them to get more carbon dioxide.

Begin just as you did with the slow-chest pattern:

Relax.

Focus.

Cleansing breath - get diaphragm up and keep it there.

Now instead of slow-chest, try accelerated breathing. The rate is one breath per second.

Cleansing breath.

Second cleansing breath - hold for five seconds, let it out.

This breathing pattern may also be done through the mouth if you have a congested nose. However, your mouth will become very dry by doing it this way. By keeping your tongue on the roof of your mouth, you can conserve some moisture in your mouth.

Any questions or problems?
Now let's try combining this pattern with the slow-chest pattern, and toward the peak of the contraction start breathing shallower and faster until you have reached the speed of the accelerated pattern. Don't forget to switch from the "in through the nose, out through the mouth" to "both through the nose" during the accelerated breathing, then reverse it again on the way down. Continue the accelerated pattern through the "peak", then gradually return to the slow-chest pattern. I will let you know what phase of the contraction you'll be in. Let's try it.

60-Second Contraction Wave

The reason for this "blending" of the two breathing patterns is primarily to save energy; accelerated breathing is harder than slow-chest. So use slow-chest whenever possible and save the accelerated pattern for just those seconds when you need it. Accelerated breathing is more effective for stronger contractions than slow-chest because: 1) it takes greater concentration, therefore provides a greater distraction; and 2) it provides more oxygen to the muscles, which are working harder and need more.

Effleurage may still be used with this pattern. Be sure to keep it at the slow pace, even when you speed up your breathing.
Pre-Menses Exercises

As mentioned in the first session, one of the causes of pain in a muscle is lack of oxygen. Relaxation can help relieve this by preventing constriction of the blood vessels caused by tense muscles. The breathing patterns help provide the uterine muscle with optimum oxygen. A third remedy we can use is physical exercise. We do not normally use the muscles of the lower abdomen to any great extent, so they are not in top condition. Circulation in and around the uterus tends to be sluggish. The extra blood associated with the menstrual period begins to collect, giving a heavy bloated feeling.

A couple of simple exercises may help relieve this condition. There is no way we can voluntarily exercise the uterine muscle itself, but we can exercise the surrounding muscles. This would speed the circulation in this entire area, thereby improving the tone of all these muscles and providing more oxygen. Any exercise which moves muscles in the lower abdomen and upper legs will help; swimming, running, walking, cycling.

**Side leg lifts** - These are done by lying on your side with your legs together, lifting your upper leg as high as possible while keeping it straight, then returning back to your original position. Repeat several times with each leg, alternating sides. Arching your back as you lie on your side increases the effects of the stretching. Let's try it.

Other good floor exercises are jogging in place, peddling on an exercise bicycle, or simulating swimming kicks.

**Swimming kicks** - These are easiest done while lying across a bed or coffee table. Let your hips just hang over the edge, and try flutter kicking (legs straight and alternating up and down, getting motion in the
hip area). Frog kicking is a variation of this (draw knees to sides with ankles together, spread legs wide while straightening legs, then bring them together). Demonstrate both kicks.

Pelvic rock - This exercise is helpful both for stimulating circulation and for relieving backache. Get down on your hands and knees with knees directly under hips, hands directly under shoulders, elbows straight. Allow your back to sag towards the floor, head and buttocks going up. Then, hump your back slowly, head going down and buttocks tensing and also going downward. This produces a rocking motion. Repeat this in a slow rhythm until tired. This action strengthens the lower abdominal muscles and buttocks while relieving uterine pressure on the underlying structures.

Back roll - Another good back exercise I like is where you're on your back and rolling your legs over your head. This stretches your back muscles. Don't force it, but just relax and let the muscles stretch slowly. Hold this for at least ten seconds, then try to go a little further over your head and in a tighter ball. Let's try it.

"Kegal" exercise - This is another good circulation and muscle tone exercise to try. All you do is alternately tense and relax the perineal muscles, which are the muscles of the pelvic floor. Imagine you are trying to keep from urinating. This exercise should be done slowly, can be done anytime, without anyone knowing you are doing it. This exercise has demonstrated benefits of keeping the pelvic floor in good tone, with good support for the uterus, bladder, and rectum.

Practice the above exercises, relaxation drills, and breathing patterns until you can do them almost automatically. Then, plan to spend about 20-30 minutes a day for several days prior to the start of your period.
The more you practice them, the more efficient you will become using them; thus working better for you.

My method of alleviating menstrual discomfort is through running. I do it consistently regardless of the time of month. The day before my period is to start, when I can feel that "achy" heavy feeling, I run a little longer or harder than usual and get pretty tired out. When my period starts that day or the next, I seldom have cramps, or if I do they are not as severe or they last a shorter time.

Questions?

Circulate and instruct about posttest, and the importance of returning it back to the researcher as soon as they have their first menstrual period after tonight. The booklet entitled, Coping with Cramps (Erlenbach, Kimball, Fleischauer, 1977) is made available to all subjects.

Procedure: SESSION 3

Follow-Up Practice Session

Just to get started, let's try the partner relaxation drill, where you lie on your back, relax, and focus while tensing your right arm. Partner check then switch roles.

Remember: a muscle cramp comes in 90-second waves; if it seems continuous, it's due to you contracting the surrounding muscles, therefore depriving them of oxygen. So, you must get the relaxation, then if needed, the breathing techniques. Exercises will help relieve the bloated feeling of your period, by increasing the circulation and increasing the oxygen to the working uterine muscle.

How did you do? Any better than last week?
Next, let's try the combined breathing patterns. Sit whichever way is most comfortable for you. Relax, focus, cleansing breath (diaphragm up), slow-chest breathing, accelerated breathing, slow-chest breathing, two cleansing breaths. Don't forget that in the slow-chest you breathe in through your nose and out through your mouth in three-second intervals with your diaphragm up, and the accelerated breathing is done in one-second intervals, also with the diaphragm up.

Any problems with this?

Any problems with the exercises?

Let's try the entire sequence once more, only this time let's have a partner acting as a uterus, grasping above your knee again. Repeat the sequence with the researcher directing what is to be done. After the "cramp" is gone, have the partner demonstrate how hard she was grasping your knee. Switch partners.

Questions or comments?

Circulate and instruct about posttest, and the importance of returning it back to the researcher as soon as she has her first menstrual period after tonight. The booklet entitled, Coping with Cramps (Erlenbach, Kimball, Fleischauer, 1977) is made available to all subjects.
APPENDIX F-2

A MODIFIED LAMAZE NATURAL CHILDBIRTH

OUTLINE

Session 1

I. Course Outline
   A. Two or three sessions
   B. 80-minute sessions
   C. Administration of State-Trait Anxiety Inventory, Menstrual Discomfort Questionnaire, and consent forms

II. Course Introduction
   A. Explanation of dysmenorrhea
   B. Modified Lamaze Natural Childbirth Approach

III. Background Information
   A. Reason for pain
   B. Menstrual cycle anatomy
   C. Muscle contraction as it relates to muscle cramping in the uterus

IV. Relaxation
   A. Description and reasons behind this
   B. Drills (with partner)

V. Breathing Pattern: Slow-Chest
   A. Description and reasons behind this breathing pattern
   B. Practice
      1. Relax
      2. Focus
3. Cleansing breath
4. Slow-chest breathing
5. Cleansing breath
6. Second cleansing breath

C. Effleurage

D. Importance of catching tension from the start

VI. Encourage Practice on Own

VII. Meeting Location and Time Next Week

VIII. Questions or Comments

Session 2

I. Review

A. Relaxation drills
B. Practice

1. Relax
2. Focus
3. Cleansing breath
4. Slow-chest breathing
5. Cleansing breath
6. Second cleansing

C. Test effectiveness of techniques: reducing discomfort

1. Partner acting as contracting uterus, gripping your knee
2. Repeat relaxation-breathing pattern
3. Cleansing breath
4. Slow-chest breathing
5. Cleansing breath
6. Second cleansing breath
II. Breathing Pattern: Accelerated Breathing
   A. Description and reasons behind this breathing pattern
   B. Practice (in combination with slow-chest pattern)
      1. Relax
      2. Focus
      3. Cleansing breath
      4. Slow-chest breathing
      5. Accelerated breathing
      6. Slow-chest breathing
      7. Cleansing breath
      8. Second cleansing breath
   C. Questions or comments

III. Pre-Menses Exercises
   A. Reason for these exercises
      1. Tone muscles surrounding uterus
      2. Increase blood flow around uterus
      3. Provide more oxygen to muscles of this area
   B. Side-leg lifts
   C. Swimming kicks
   D. Pelvic rock
   E. Back roll
   F. Kegel exercise
   G. Researcher's method of alleviating menstrual discomfort

IV. Questions

V. Emphasize Importance of Practice

VI. Circulate and explain posttest if last session
Follow-Up Practice Session

I. Review Reasons for Pain

II. Relaxation Drill

III. Combined Breathing Pattern

IV. Combined Breathing Pattern with Partner Acting as Contracting Uterus, Gripping Your Knee

V. Questions or Comments

VI. Improvement from Last Week?

VII. Emphasize Importance of Practice

VIII. Distribute and Explain Posttest