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EXPERIENCE OF MENSTRUAL SYMPTOMS
AMONG BAHRAINI WOMEN

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THESIS

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1990

Dedicated to my beloved country Bahrain and to all the Bahraini
women.

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LIST OF ABBREVIATIONS

Moos MDQ	Moos Menstrual Distress Questionnaire
MSQ	Menstrual Symptom Questionnaire
PAF	Premenstrual Assessment Form
Statistical Abstract	State of Bahrain Cabinet Affairs Directorate of Statistics
WHO	World Health Organization

SUMMARY

There have been considerable studies of menstrual cycle symptoms in Western cultures. However, such symptoms are only beginning to be studied in Middle Eastern cultures. The purpose of this study was to identify the menstrual symptoms that Bahraini women experience, to assess the reliability and validity of Moos Menstrual Distress Questionnaire (MDQ) Form C among Bahraini women, and to identify methodological issues in cross-cultural studies. A randomly selected sample of 172 Bahraini women completed the menstrual symptoms questionnaire, which includes the Moos MDQ, in face-to-face interviews. Ages ranged from 17 to 45 years, with a mean of 28 years. Open-ended interview questions were content analyzed and categorized. Data were analyzed using SPSSX software.

The results indicated that (a) 10 of the 49 symptoms on the Moos MDQ had a prevalence rate of 30% or greater for the menstrual phase and only 8 symptoms for the premenstrual phase; (b) younger age group (17-24 years) reported more menstrual symptoms; (c) educated women reported more menstrual and premenstrual symptoms; (d) working women reported more premenstrual symptoms; (e) menstrual cycle characteristics such as age at menarche and cycle length were positively correlated with menstrual symptoms.

The initial psychometric evaluation of Moos MDQ tested in Bahrain revealed a high internal consistency alpha coefficient of 0.89 for the

SUMMARY (continued)

menstrual phase, 0.86 for the premenstrual phase, and 0.67 for the intermenstrual phase.

Separate principal components analyses were performed for the menstrual and premenstrual phases, with orthogonal rotation used for variables that loaded .30 or more. The menstrual phase yielded nine factors (36 items) which explained 62.8% of the variance. The premenstrual phase yielded six factors (35 items) explained 61.5% of the variance.

Methodological issues addressed concerned the use of a standardized questionnaire to study the menstrual cycle cross-culturally, such as the translation of the questionnaire, assessing its reliability and validity, and the women's understanding of the questionnaire.

Recommendations for further study were made in the areas of nursing research, practice, and education. In particular, it was recommended that further research using the modified Moos MDQ be conducted in a prospective study extending over more than one cycle.

I. THE STUDY PROBLEM

A. Introduction

The menstrual cycle is an event in a woman's life that she has to live with for a long time. Many women worldwide experience different symptoms during this period which might be related to menstruation or might not (Janiger, Riffenburgh, & Kersh, 1972; Snowden & Christian, 1983). Some women perceive a relationship between the symptoms and the menstrual cycle and other women relate the experience of symptoms to other factors, such as lifestyle and stress. The question investigated here is whether menstrual symptoms exist among Middle Eastern women, specifically, Bahraini women, and, if they do, what symptoms are reported by the women.

Menstrual symptoms have been widely studied in many cultures and specifically the Western culture. However, there are few scientific studies of menstrual symptoms in cultures such as the Middle East, specifically the Bahraini culture. There have been two studies reported in Egypt (Abdel-Khaleq, 1983; Badaway, Kamel, Abdel-Khaleq, & Gaffer, 1983a, 1983b). These studies used a modified version of the Moos Menstrual Distress Questionnaire (Moos MDQ).

The author reviewed the literature about Arab-Muslim women's experience with menarche and menstruation and concluded that Arab-Muslim women received double messages about menstruation (1988, unpublished paper). Menstruation is a positive event in that the woman is perceived as a productive member of society in terms of her ability to reproduce, and

yet a negative event in that many social restrictions are placed upon the woman at the time of menarche. Notman (1983) suggested a relationship between the early experiences with menstruation and subsequent development of menstrual distress symptoms. Likewise, Asso (1983), Delaney, Lupton, and Toth (1988), and Paige (1973) stated that religious attitudes were related to the experience of menstrual distress.

The author of this paper assumes that both the early experiences with menstruation and religious attitudes can affect the subsequent development of menstrual distress symptoms. However, the focus of this study is to examine the symptoms experienced and the degree of symptom severity that Bahraini women report. In her clinical experiences and contacts with Bahraini women from various sectors of the society, the author has observed that many women report menstrual symptoms. It has also been observed that Bahraini women have increased absenteeism from work and school during the menstrual period. There is no documentation to support this observation. As more and more women enter the labor force, it is important for nursing to understand the experiences of Bahraini women with their menstruation. Based on the findings of this study, nurses can design and test interventions to relieve these symptoms.

B. Significance of this research

Nursing is a discipline that has emphasized research since the era of Florence Nightingale. A current concern in the development of nursing knowledge is the area of women's health. The focus of women's health is the overall health concerns of women and not merely their

reproductive role (McBride, 1981, 1987). Woods (1982) urged nurses to study women's health within the social and biophysical context of the women's life experience. To strengthen the development of scientific knowledge in nursing, especially regarding the health experiences of women, the discipline needs to increase its use of cross-cultural studies.

The research reported here will add to the research base in women's health by describing the menstrual symptoms that Bahraini women experience. In addition, methodological issues are identified that are related to the use of a questionnaire developed in one culture and used in another, the Bahraini culture. Further, the knowledge regarding distress associated with menstruation is examined to determine whether menstrually related distress varies with sociodemographic variables.

C. Problem statement

1. What menstrual symptoms do Bahraini women experience and report?
2. Is the Moos Menstrual Distress Questionnaire, developed for use in a Western culture, a useful measure of menstrual symptoms in Bahraini culture?

D. Research questions

- 1a. What is the prevalence and degree of severity of menstrual symptoms reported by Bahraini women using a retrospective questionnaire (Moos MDQ)?
- 1b. What menstrual symptoms do Bahraini women report when open-ended questions are asked prior to using the Moos MDQ?

1c. Do sociodemographic variables, such as age, education, occupation, parity, and years of education, have an association with the experience of menstrual symptoms reported by the Bahraini women?

1d. Do menstrual cycle characteristics, such as regularity, amount of menstrual flow, days of flow, and cycle interval, have an association with the menstrual symptoms experienced by Bahraini women?

1e. What self-care practices do Bahraini women use for their menstrual symptoms?

2a. Is the Moos MDQ reliable (internally consistent) for a sample of Bahraini women?

2b. Is the Moos MDQ valid for a sample of Bahraini women?

E. Definitions of variables

Menstrual cycle symptoms: Subjective evidence or feelings reported by the women during their monthly interval. The menstrual cycle symptoms are measured by Moos MDQ and open-ended questions.

Bahraini women: Female citizens of Bahrain between the ages of 18 years to 44 years.

Self-care: Any practice, activity, or behavior that a woman reports using to relieve her menstrual symptoms.

F. Conceptual framework

The perspective which guided the methodological development of the study was developed from the lived experience framework, according to El-Saadwi (1980) and McBride (1981, 1987). This framework emphasizes the study of the person (woman) within the environment in which that person exists. In the study of menstrual symptoms experienced among

Bahraini (Arab) women, the lived experiences included were the woman's feelings, bodily changes, thoughts, behaviors, and actions. An example here is the rhythm of the menstrual cycle where a potential behavior is the exhibition or reporting of the menstrual symptoms. The experience includes the feelings, thoughts, and actions included in the woman's report of symptoms throughout the menstrual cycle. This view focuses on the person, as opposed to a reductionist focus on one part, such as the uterus or reproductive organs. The basis for choosing to study a woman within the context of her experience is based on the desire for a broader understanding of the person.

Smith (1980) indicated in her book, Women in contemporary Muslim societies, the importance of an objective understanding of the Arab woman within her culture. El-Saadwi, an Egyptian novelist and a physician, has evidenced in her books the importance of studies which consider the personal experiences and background of an individual. She mentions that when studying the individual (woman), one has to realize the interactions among the individual, community, and society in shaping the individual's personal experience. In both El-Saadwi's (1980) and Rassam's (1984) views, a personal experience is affected by issues of politics, religion, and gender.

A woman's experience, needs, and reality should be taken seriously in order to be able to appropriately and sensitively care for the woman. Others cannot decide for women what they should experience or need. A woman often finds meaning in her lived experiences through her social networks with other women. The woman develops and grows through sharing

and exchanging ideas about her experiences, such as menstruation, with others. Such communication enables the woman to seek answers to questions. Another emphasis of the lived experience is that the relationship between the investigator and the woman is one of mutual respect (Duffy, 1985; McBride, 1987; Oakley, 1981).

Overall, the goal of this study was to understand the woman within her situation. Attention to the lived-experience perspective was of concern in developing the data collection. The Menstrual Symptom Questionnaire (MSQ) designed for this study, incorporated the Moos MDQ. Since, the Moos MDQ is based on a biopsychosocial framework, the lived experience component is added to the MSQ through the use of open-ended questions. Also, the woman's view regarding this questionnaire were ascertained. According to El Guindi (1985), in the Arab-Islamic tradition "women feel comfortable in the company of other women; they confide in, and seek comfort, support, and advice from women, not men" (pp. 77, 83).

II. LITERATURE REVIEW

This chapter reviews literature related to the experience of menstrual cycle symptoms. The research included covers (a) the prevalence rate and incidence of menstrual cycle symptoms, (b) menstrual cycle symptom variations according to sociodemographic variables, (c) the prevalence and incidence of menstrual cycle symptoms according to menstrual cycle characteristics, (d) self-care, and (e) methodological issues in cross-cultural studies.

A. Prevalence rate and incidence of menstrual symptoms

Menstrual cycle research has been long studied in the Western culture (Dalton, 1964; Frank, 1931). The report of menstrual and premenstrual symptom prevalence rates is abundant in Western literature. However, controversy exists about the accuracy of these reports and the comparability of the results.

Several studies have used different measurement procedures and definitions to assess the menstrual cycle symptom and severity (Abplanalp, Donnelly, & Rose, 1979; Golub & Harrington, 1981; O'Neil, Lancee, & Freeman, 1984). For example, prevalence rates have varied according to the definition of menstrual cycle phase that is used in the study. The prevalence rates varied from 25-100% of respondents (Janiger et al., 1972), to 4-24% (Clare & Wiggin, 1979), and 12-95% (Most, Woods, Dery, & Most, 1981). This wide range in the prevalence of menstrual symptoms is attributed to differences in defining the construct.

Different researchers have criticized the approach and methods for studying menstrual symptoms (Dan, 1986; Lewis, 1987; Monagle, 1987, Most et al., 1981). Most et al. (1981) urged researchers interested in menstrual cycle studies to unify the operational definition of constructs such as menstrual distress and to be consistent in measuring these constructs.

Asso (1983), in her book The Real Menstrual Cycle, provided an extensive review of menstrual cycle research and recommended distinguishing between dysmenorrhea and premenstrual symptoms. Vaitukatis (1984) referred to the public's confusion between the menstrually-related syndrome and dysmenorrhea. He described dysmenorrhea as moderate to severe lower abdominal cramps and back pain during menses, which sometimes might be associated with nausea, vomiting, and other symptoms.

Dalton (1984) referred to a common diagnostic error in distinguishing premenstrual syndrome from menstrual distress. She defined menstrual distress as "the presence of intermittent or continuous symptoms present throughout the menstrual cycle which increases in severity during the premenstruum or menstruation" (p. 6), and premenstrual syndrome as the "recurrence of symptoms in the premenstruum with absence of symptoms in the postmenstruum" (p. 10).

Various words have been used to describe menstrual cycle symptoms, such as menstrual symptoms, premenstrual symptoms, premenstrual syndrome, premenstrual tension, perimenstrum, etc. Frank (1931) introduced the term "premenstrual tension" to describe a syndrome of tension,

unrest, irritability, fatigability, lack of concentration, pain, and depression. Premenstrual syndrome is also reported to be associated with frequent reports of anxiety (Golub, 1976; Moos, 1969) and negative affect symptoms, which include anxiety, irritability, restlessness, and tension (Abplanalp et al., 1979; Dalton, 1984; Golub, 1976; Parlee, 1980; Voda, 1980).

Delaney, Lupton, and Toth (1988) stated that premenstrual symptom is a common and widespread phenomenon. Abplanalp et al. (1980) commented that so far the literature does not provide an agreed-upon definition of the "premenstrual" (p. 328). The premenstrual symptoms reported in the literature are bloating, edema, emotional lability, headache, changes in appetite or cravings for selected foods, breast swelling and tenderness, constipation, and a decreased ability to concentrate (Abplanalp et al., 1980; Janiger et al., 1972; Reid & Yen, 1981; Vaitukatis, 1984). The premenstrual symptoms have been categorized into physiological and psychological manifestations (Abplanalp et al., 1980; Dalton, 1984; Moos, 1969, 1985).

Logue and Moos (1986) reported that most women experience mild menstrual cycle symptoms. Yet, Woods et al. (1982a) reported that approximately 20% of women experience severe dysmenorrhea on a recurrent basis, often every month or every other month.

Some studies report the prevalence of symptoms for menstrual and premenstrual phase without describing the severity of the experience of the symptoms (Badaway, Kamel, Abdel-Khaleq, & Gaffer, 1983a, 1983b). Abplanalp et al. (1980) critiqued researchers who only described the

range of symptoms and failed to report the frequency and/or severity of the symptoms. Parlee (1982) suggested that symptom severity may be due to contextual issues which a woman partially expresses through PMS-like symptoms. The degree of severity of the symptoms reported by the women is important in order to assess the women who might need professional help (Dalton, 1984; Harrison, 1985).

Although many researchers distinguish between premenstrual and menstrual symptoms, some also suggest the study of perimenstrual symptoms as a construct (Dan & Monagle, 1986; Logue & Moos, 1985; Monagle, 1987; Moos, 1985; Most et al., 1981; Woods et al., 1982b, 1982c). These authors define perimenstrual symptoms as linked to either or both the premenstrual and menstrual phases. The perimenstrual is especially recommended for study by Woods et al. (1982b, 1982c) as it is believed to take into account the women's menstrual lived experience. This view encompasses the holistic approach to the experience rather than a compartmentalized model which breaks the experience of the woman into phases based on physiological theory.

The above review of literature addressed the variation in the definition of the construct by different investigators. The following literature reports studies that developed and tested questionnaires for systematic assessment of the prevalence of menstrual cycle symptoms.

Moos (1968, 1985) developed a questionnaire (Moos MDQ) and asked 839 wives of university students to report their most recent menstrual cycle symptoms. Moos reported that water retention and negative affect symptoms were most prevalent during the premenstrual phase. On the other

hand, the women in Moos's study reported pain symptoms during the menstrual phase. Mild to moderate symptoms were reported by 20-40% of the women and strong to severe symptoms by 5-10%. Moos MDQ has been criticized as measuring stereotypical symptoms rather than actual menstrual symptoms (Dalton, 1984; Parlee, 1974).

Woods et al. (1982c) used a modified Moos MDQ to determine the prevalence of perimenstrual symptoms in a community population of 179 women in the United States. The items that Woods et al. (1982c) deleted from the Moos MDQ were affectionate, orderliness, excitement, chest pain, well-being, ringing in the ear, tingling hands, visual disturbances, suffocation, palpitations, and full of energy. The deleted items were judged inappropriate to the measurement of perimenstrual symptoms since they had no statistically significant cyclic variations (Wood et al., 1982a). Woods et al. (1982c) reported that women tended to report more symptoms in a retrospective assessment from a previous cycle. Rubinow and Roy-Byrne (1984) identified a bias in retrospective studies because the symptoms occurring near the time of menstruation are remembered but those occurring during the intermenstrual phase are forgotten.

Woods et al. (1982a, 1982b, 1982c) found that 30% or more of the women studied reported symptoms during the menstrual phase of their cycle and 2-12% rated their symptoms as severe. Also, 30% to 40% of the women reported symptoms during the premenstruum and 2-12% rating their symptoms as severe. In their study 12% of the women rated menstrual cramps as severe, while 12% of the women rated irritability during the premenstrual phase as severe.

Monagle (1987) studied 308 randomly selected southern Italian women's menstrual symptom prevalence rate using the Moos MDQ. She also studied the relationship between the symptoms and age, occupation, number of children, age at menarche, cycle length interval, and flow length. She reported that 16 of 46 symptoms on the Moos MDQ had a prevalence rate of 50% or greater in one or more cycle phases, with the highest prevalence rate during the menstrual phase. Symptoms rarely reported in the Italian study (prevalence rate less than 10%) were crying, suffocation, avoiding social activities, difficulty concentrating, low motor coordination, and change in eating habits. The symptoms showing the most cyclic variation were swelling, painful breast, backache, cramps, weight gain, and skin disorder. The symptoms that did not have cyclic variation were insomnia, forgetfulness, feelings of well-being, suffocation, and affectionate. Parlee (1974) suggested that women hold a set of cultural beliefs regarding cyclic changes which influences their report of cyclic fluctuations regardless of their direct knowledge of menstrual and premenstrual phases. Thus she urged investigators who study menstrual cycle symptoms to take into account both the beliefs and the knowledge of menstrual cycle phase by the women.

Snowden and Christian (1984), in a World Health Organization (WHO) sample of 5000 women, studied the relationship between menstruation, culture, and behavior in 10 different countries which included 14 different cultures: Egypt, India, Indonesia, Jamaica, Mexico, Pakistan, the Philippines, the Republic of Korea, the United Kingdom, and Yugoslavia. The aims of the study were (a) to determine women's tolerance of their

menstrual changes while on contraceptive methods and (b) to examine the women's awareness of the timing of their menstrual events (World Health Organization, 1981a). Physical discomfort during menstruation was experienced by 55-70% of women, and 23-70% reported negative mood changes with menstruation. The women in the WHO study were not asked to rate the severity of the symptoms experienced. The results of the study indicated that women in all cultures experienced some physical discomfort in conjunction with menstruation. The most common were back and abdominal pain; other symptoms included headache, breast swelling and discomfort, limb pains, and abdominal swelling.

Badaway et al. (1983a) studied 440 Egyptian high school students at three different high schools. They used Moos MDQ as a measure of menstrual symptoms. The mean age of the participants was 17.1 years, with a standard deviation of 1.8 years. The questionnaire was self-administered and was completed in a classroom. The authors reported that all the women reported experiencing one symptom or another.

In their study the menstrual symptoms that had a prevalence rate of 30% or more were fatigue (76%), backache (75%), cramps (68%), headache (67%), skin disorders (33%), decreased efficiency (30%), and nausea and vomiting (30%). For the premenstrual phase the symptoms that had a prevalence rate of 30% or more were breast tenderness (73%) and skin disorders (67%).

Although the authors of the Egyptian study reported that negative affect symptoms were highly reported among the participants, mainly premenstrually, the affect symptoms had a prevalence rate of less than

30%. The reported prevalence rates for negative affect symptoms for premenstrual and menstrual phases, respectively, were feeling sad (34% vs. 8%), tension (30% vs. 9%), anxiety (30% vs. 9%), mood swing (24% vs. 6%), irritability (16% vs. 8%), crying (13% vs. 4%), loneliness (11% vs. 4%), and restlessness (5% vs. 2%). For the rest of the symptoms on the Moos MDQ the Egyptian women reported almost no recent experience. One observation about this study is that it appears the authors were influenced by stereotypes regarding menstrual cycle symptoms and such stereotypes affected their reporting of the results.

Using a list of 33 items (symptoms), Janiger et al. (1972) studied premenstrual symptom variation in six different cultures: American ($N = 135$), Japanese ($N = 100$), Nigerian ($N = 35$), Apache ($N = 28$), Turkish ($N = 51$), and Greek ($N = 50$). They reported that premenstrual symptoms were present in these cultural groups. However, the frequency and severity of the symptoms experienced by women varied from one culture to another. For example, only 7% of the Japanese women reported breast complaints while 90% of the Nigerian women experienced headaches.

Attempts have been made by different researchers to cluster the symptoms so that the diagnosis and management of the symptoms would be easier (Abraham, 1980; Dalton, 1964; Monagle, 1987; Moos, 1968; Webster, 1980). Thus, instead of managing individual symptoms, interventions can be designed to manage a group of symptoms. However, researchers have not yet arrived at defined symptom clusters.

Abplanalp (1983) referred to lack of agreement among researchers concerning the number, combination, and variety of symptoms, time,

cause, criteria for participant selection, and relationship with psychiatric disorders. For example, Abraham (1980), based on his clinical experience and descriptions in the literature, established four categories of premenstrual tension syndrome. He subclassified cluster type of symptoms into a group of syndromes, each having a different pathophysiology. He used a 19-item symptom questionnaire. His categories were those characterized by anxiety and irritability, by symptoms of water retention, by increased appetite and food cravings, and by depressed affect with cognitive impairment.

Moos (1968; 1969) reported eight clusters for the three phases of the menstrual cycle. The factors were Pain, Water Retention, Autonomic Reactions, Negative Affect, Behavior Change, Arousal, and Control. They are comprised of the following symptoms:

1. Pain: Muscle stiffness, headache, cramps, backache, fatigue, and general aches and pains.
2. Water Retention: Weight gain, skin disorder, painful or tender breasts, and swelling.
3. Autonomic Reactions: Dizziness, cold sweat, nausea and vomiting, and hot flashes.
4. Negative Affect: Loneliness, anxiety, mood swing, crying, irritability, tension, feeling sad, and restlessness.
5. Impaired Concentration: Insomnia, forgetfulness, confusion, poor judgment, difficulty concentrating; distractible, minor accidents, poor motor coordination.

6. Behavior Change: Poor school or work performance, take naps or stay in bed, stay at home, avoid social activities, decreased efficiency.

7. Arousal: Affectionate, orderliness, excitement, feelings of well-being, bursts of energy.

8. Control: Feelings of suffocation, chest pains, ringing in the ears, heart pounding, numbness, blind spots. The symptoms in this subscale were derived from the Blatt Menopausal Index to differentiate between the women who report the symptom in general and women who actually report menstrual symptoms. It was called "control" to identify women who are generally complainers.

Reid and Yen (1981), based on an extensive literature review, identified a number of symptoms as the classic premenstrual tension syndrome symptoms. These symptoms included headache, breast swelling and tenderness, abdominal bloating, edema of extremities, fatigue, depression, irritability, tension, increased thirst, increased appetite, craving for sweet or salty foods, skin disorders, and constipation.

Published studies have reported that the symptom clusters of pain and water retention are associated with premenstrual and menstrual phases but that negative affect clusters premenstrually (Abplanalp et al., 1979; Most et al., 1981). Sheldrake and Cormack (1976) concluded with their prospective study that there is evidence of cyclic change in pain and water retention but evidence of emotional changes over the menstrual cycle was inconsistent.

Besides Moos MDQ, other instruments have been developed to measure menstrual symptoms. They include Chesney and Tasto's (1975) Menstrual Symptom Questionnaire (MSQ) and Halbreich, Endicott, Schach, and Nee's (1982) Premenstrual Assessment Form (PAF), both of which were developed into factor structures. The MSQ by Chesney and Tasto contains 24 symptoms and the woman is requested to circle one of five alternative frequencies representing her experience with each symptom. Of the 24 items, 12 refer to symptoms associated with spasmodic dysmenorrhea and 12 to symptoms associated with congestive dysmenorrhea.

Different researchers arrived at different factor structures using the MSQ. Chesney and Tasto (1975) reported two factor structures called spasmodic dysmenorrhea and congestive dysmenorrhea based on Dalton's (1964) theory. Webster (1980) used the MSQ with 275 women, 43% of whom used oral contraceptive pills or IUDs, and reported seven factors. Monagle et al. (1986), using the same instrument with a more homogeneous sample of 330 women not on artificial contraceptives, arrived at six factors. They named the factors premenstrual negative affect, menstrual pain, premenstrual pain, gastrointestinal/prostaglandin related, water retention, and asymptomatic. Monagle et al. (1986) reported that the MSQ had construct validity on the menstrual symptom grouping.

Halbreich et al. (1982) studied 69 medical center employees and 85 student nurses. They used the PAF, which consists of 95 items that address the severity of physical, mood, and behavior changes during the premenstrual phase. In the study, 50% of the women reported psychological symptoms, including feeling sad or blue, tearful, intolerant,

impatient, irritable, and anxious. About 3% of the women referred to symptoms as severe or extreme.

Although both Chesney and Tasto's (1975) MSQ and Halbreich et al.'s (1982) PAF were available, the investigator used Moos MDQ for this study because it is the one most widely used by investigators to study menstrual cycle symptoms.

From the above literature one can conclude that the percentage of women experiencing menstrual and premenstrual symptoms varies considerably from study to study and from culture to culture according to the criteria used to diagnose the symptoms. As a researcher, one has to distinguish between the prevalence of the symptom in general and the prevalence and severity of the symptom. For nurses it is important to assess the severity of symptoms in order to optimize nursing interventions. Finally, there needs to be an agreed-upon definition of the construct under study and large samples to assess the prevalence and severity of premenstrual problems.

B. Prevalence rate by sociodemographic variables

1. Age and parity

Different studies have referred to the relationship between menstrual symptoms and age. The studies indicate that the older the women, the more the report of premenstrual symptoms, and the younger the women, the more the report of menstrual symptoms (Asso, 1983; Dalton, 1964; Moos, 1969). Logue and Moos (1986) reported that a woman's age and menstrual cycle characteristics are predictors of the type and severity of perimenstrual symptoms she experiences. Klein and Litt

(1981), in a study of younger adolescents, reported that dysmenorrhea increased with age. They stated that 39% of 12-year-old participants and 72% of 17-year-old participants experienced painful menstruation. Hence, younger women report more menstrual pain (Monagle, 1987; Moos, 1968; Woods et al., 1982a; Wood, Larsen, & Williams, 1979).

Moos (1968) reported that women with more children had a tendency to report fewer menstrual and more premenstrual symptoms. Studies by both Woods et al. (1982c) and Kessell and Coppen (1961) reported that women with children experienced less menstrual cramps. Monagle (1987) reported that women between 30 to 39 years old reported increased anxiety, restlessness, and general aches, while the younger women (ages 20-29) reported skin disorders. Asso (1983) recommended the conduct of studies with larger samples to examine the relationship among age, parity, and change in the menstrual cycle.

One of the difficulties in the above literature is the failure to address the possible confounding effect of age and parity on the experience of the symptoms. A study with a controlled research design is needed to examine the relationship between the sociodemographic variables and menstrual cycle symptoms experienced by the women.

2. Marital and socioeconomic status

The relationship between women's marital status, occupation, and education and menstrual cycle symptom variation has not been studied extensively. Woods et al. (1982c) studied the relationship between marital status and perimenstrual symptoms. The only significant difference reported in the study, which compared married and unmarried

women, was that married women were less likely to take a nap or stay in bed during the premenstruum and menstruum. The authors did not report whether they had controlled for parity. Wood et al. (1979), in a study of 2,343 Australian women between 15 and 60 years of age who attended a health check foundation, also found that married women reported less menstrual pain than single, divorced, or separated women.

Likewise, Dan and Leppa (1988) stated that stress plays a role in aggravating the PMS. Wilcoxon and her colleagues (1976) reported that personal stress and cycle phase contribute to mood and somatic changes. Woods (1986) stated that exposure to a stressful social environment had a significant influence on the perimenstruum.

Woods et al. (1982c) reported that women who were employed reported less impairment and more anxiety. They also found that women with more education and greater income reported fewer menstrual symptoms, such as headache, cramps, irritability, depression, tension, mood swing, and premenstrual cramps, weight gain, and tension. Also, the unemployed women reported more symptoms than those who were employed. However, Monagle's (1987) study of Italian women reported no relationship between employment of women and the menstrual cycle symptoms. There are contradictory results reported in the literature regarding women's employment and the experience of menstrual cycle symptoms.

C. Prevalence rate by menstrual cycle characteristics

Different studies have reported contradictory findings on the relationship among the length of menstrual cycle, regularity, intensity, and length of flow and reported menstrual symptoms. Woods et al.

(1982c) reported that cycle length is associated with both premenstrual mood swings and menstrual depression and crying. Women who have a long menstrual cycle also have a greater prevalence of premenstrual swelling (Vaitukatis, 1984; Woods et al., 1982c). Yet, Sheldrake and Cormak (1976), in a study of 2,542 students not taking contraceptive pills, found that women with long and regular cycles were less likely to report menstrual or premenstrual symptoms than were women with short and irregular cycles. However, those women with long and regular cycles did report more stomachache, backache, and lethargy. Moos (1968) also found that women with irregular cycles were more likely to report menstrual and premenstrual symptoms. A World Health Organization-sponsored (1981b) cross-cultural study reported that women with heavy blood loss are more likely to avoid work and to experience negative mood changes. Thus, there is a need to conduct studies that consider the relationship between the menstrual cycle characteristics and variations in menstrual cycle symptoms.

D. Self-care

Self-care is a concept that has yet to be defined and measured. It has been used extensively by various groups and accordingly defined differently by lay groups, professional organizations, and the medical profession. The World Health Organization (1978) referred to self-care or self-reliance as empowering people, that is, people's ability to act, to change, and to control their lives. It is a process of thinking, problem-solving, and educating oneself.

In the nursing literature Orem (1971) referred to self-care as the practice of activities that individuals personally initiate and perform on their own behalf in maintaining life, health, and well-being. However, menstrual cycle symptomatology is an area that has been considered as a pathology by the medical profession. Vaitukaitis (1984) criticized the rapid development of specialized clinics for premenstrual syndrome which provide ineffective forms of therapy. The medicalization of women's concerns, especially the medicalization of menstruation, should be resisted rather than encouraged (Harrison, 1985; Scambler & Scambler, 1985).

In the New Our Bodies, Ourselves, the Boston Women's Health Collective (1984) proposed that women actively participate in their own health. Hence, enough information and facts need to be provided so that women will be able to make their own informed choices. However, there are no empirical studies of menstrual symptoms and specific self-care measures. A book on Self-Help for Premenstrual Syndrome was developed by Harrison (1985) to share with women her professional experience as a physician over the years. She presents various self-help information regarding diet, exercise, stress, vitamins, group support, and hormonal management. Dan, Konat, and Lewis (1986) and Dan and Leppa (1988) suggested the use of stress management techniques for premenstrual symptoms.

Maunz and Woods (1988) studied the influence of symptom, employment, and sex-role orientation on illness-related self-care activities. They asked 96 married women between 20 to 40 years of age to complete the

Index of Sex Role Orientation (ISRO) developed by Dryer, Woods, and James (1981) and to keep a daily health diary for 3 weeks. The women were requested to document the symptoms they experienced and their self-care measures. The results indicated that the women primarily reported nervous symptoms, nonspecific symptoms, and respiratory symptoms. The most common self-care methods used by the women were over-the-counter medications, alteration of activity, and prescription medications. Consulting the lay network, visiting a professional, and using interpersonal methods were the least commonly used self-care methods. In studies by Al-Gasseer (1987), Al-Darazi (1987), and Mohammed (1985) of Bahraini women, the Bahraini women reported self-care measures to take care of themselves and their families. The women used both traditional practices and modern health services. Like the women in the Maunz and Woods (1988) study, the Bahraini women reported using professional help and advice least often.

It needs to be emphasized that there is a dearth of literature in the area of self-care and menstrual cycle. One of the purposes of this study was to gather information regarding Bahraini women's use of self-care measures that are specific to menstrual symptoms. The author believes that women are able to play a major role in obtaining their optimum level of wellness and that their experiences will enrich the health professionals' knowledge in this area.

E. Methodological issues in cross-cultural research

1. Knowledge development through research

Investigators agree that research is conducted to develop useful and credible information (Pelto & Pelto, 1980). Further, research is an effort to systematically build new knowledge, including the formulation of theory that can be tested in the practice setting (Atwood, 1982; Backstrom & Hursh-Cesar, 1981; Jackson & Drievers, 1986; Polit & Hungler, 1983). Replication of systematic research with more than one population and more than one culture enhances the development and testing of theory (Triandis & Berry, 1980; Tripp-Reimer, 1984a).

One way to achieve a test of theory is to use an instrument developed for one culture in another culture. Waltz, Strickland, and Lenz (1984) have stated that the use of existing instruments is beneficial from a knowledge-building perspective. Repeated use of instruments allows systematic comparisons to be made across time, space, and different populations. Many other researchers have encouraged the repeated use of instruments (Knapp, 1985; Loesh & Johnson, 1974; Norbeck, 1985; Tripp-Reimer, 1984b, 1986). It has been suggested that the use of the same instrument in several cultures will enrich the database needed to evaluate the psychometric property of an instrument (Knapp, 1985; Lonner & Berry, 1986; Polit & Hungler, 1983; Triandis & Berry, 1980; Waltz et al., 1984).

Tripp-Reimer (1984c) and Tripp-Reimer and Dougherty (1985) have criticized nurse investigators for not building on research knowledge obtained from cross-cultural studies. They recommended the comparison

of results obtained from different cultures to enhance the refinements of constructs. Duley, Sinclair, and Edwards (1986) recommended the use of a questionnaire in different cultures to increase the sensitivity of a researcher to the ethnic, racial, and cultural differences in the subjects studied.

2. Nature of cross-cultural research

To develop scientific knowledge in nursing, especially regarding the health experiences of women, we need to strengthen the discipline's use of cross-cultural studies. Tripp-Reimer (1984c) defines culture as consisting "of learned patterns of values, beliefs, customs, and behaviors that are shared by a group of interacting individuals. Culture may also be viewed as a set of rules or statements for behavior" (p. 130).

Brislin, Lonner, and Thorndike (1973) defined cross-cultural research as "concerned with behavior as conditioned by living in a given country, culture, or environment, and its specific objective is to make comparisons of behavior between cultures" (p. 3). Through studies of people from two or more cultures, using equivalent methods of measurement, it is possible to determine the accuracy of theories or to make modifications in these (Triandis, Malpass, & Davidson, 1972). Cross-cultural research is a means for recording similarities and differences in the behavior of people from different cultures (Berry, 1973; Brislin, 1976; Poortinga & Malpass, 1986; Smelser, 1973; Triandis & Berry, 1980).

Many researchers from various disciplines have noted the lack of guidelines or general rules to overcome methodological problems in

cross-cultural research (Lonner & Berry, 1986; Naroll & Cohen, 1970; Perlman, 1970; Triandis & Berry, 1980; Warwick & Osherson, 1973). Monagle (1987) stated that "a prime method for determining socio-cultural aspects of the menstrual symptom construct is cross-cultural research. Menstrual symptom information reported across cultures could contribute to the understanding of how symptoms are perceived and reported in several ways by women" (p. 3). Whelehan and Contributor (1988) stated that as societies change, the health issues in that culture also change. The women universally share their responses to life cycle concerns, but at the same time, they might have cultural-specific means of responding.

3. Translation and wording of the questionnaire

Translation is a central issue in cross-cultural research (Berry & Lonner, 1986; Brislin et al., 1973; Triandis & Berry, 1980; Tripp-Reimer, 1984c). The researcher needs to be explicit about the translation technique to demonstrate that the different language versions of the same instrument are equivalent. Equivalence of meaning is the most important aspect in translation. Warwick and Osherson (1973) recommended the knowledge of culture and language in order to gain the conceptual equivalence of the meaning. Brislin et al. (1973) reviewed different studies to arrive at rules for writing translatable English. They suggested editing and redundancy in contextual explanations for difficult phrases. They urged researchers, when writing the English version as a source, to avoid (a) long sentences, (b) passive voice, (c) using pronouns, (d) metaphors or colloquial language, (e)

subjective mode, (f) adverbs and prepositions, (g) possessive forms where possible, (h) general terms, and (i) words which indicate vagueness regarding some event or thing. Brislin (1970) and Brislin et al. (1973) have suggested back translation as a means of developing appropriate translation. Campbell (1968) suggested the following techniques for translation: (a) back translation, (b) bilingual technique, (c) committee approach, and (d) pretest procedures.

In back translation one translates from the source to the target language, the second bilingual translates from the target to the source. The researcher then has two versions of the original to compare. If the translated instruments are identical, it is concluded that the target version is equivalent to the source language form. The process of examining the two versions for accuracy is called decentering. Pretesting is also important, even after a careful translation, to check for translation adequacy.

4. Measurement issues

Nunnally (1978) defines measurement as the process of assigning numbers to objects in a way which represents quantities of attributes. According to Carmines and Zeller (1979), measurement is "a process involving both theoretical as well as empirical consideration" (p. 10). Theoretically, the investigator is interested in the underlying unobservable concept that is represented by the response. The goal of all measurement is to achieve accurate results. The major methodological issue that a researcher faces in any study is the measurement issue. Basically, the measurement issue is related to reliability and validity.

It is known that an instrument can be reliable but not valid (Cook & Campbell, 1979; Nunnally, 1978; Polit & Hungler, 1983). Brislin (1976) stated that the same methodological issues apply in cross-cultural research.

5. Reliability

Reliability is the degree to which results can be replicated. A measurement is reliable if it tends to be stable. Reliability is associated with measurement error (Knapp, 1985; Nunnally, 1978). The smaller the measurement error, the more reliable the instrument (Carmines & Zeller, 1976). Internal consistency is the reliability aspect most commonly discussed in research reports. Mitchell (1965) and Warwick and Osherson (1973) have recommended that in cross-cultural research the question of accuracy is complicated. Most of the time, the studies that used the Moos MDQ, did not report tests of the reliability of the Moos MDQ in their culture. Often, the same studies modified the Moos MDQ in such a way that the reported reliability is questionable. For example, in the study reported by Abdel-Khaleq (1983), the Moos MDQ was modified and Egyptian university students ($N = 221$) were asked to report whether they experienced the symptom. If the students did have the symptom, they were asked to indicate the severity. However, the investigator asked the women to report the symptoms once, whether they experienced such symptom right before menstruation or during menstruation. Hence in the research of Abdel-Khaleq (1983) the timing of the reported symptoms varies from the three phases used in the Moos MDQ. In reviewing cross-cultural studies, it becomes apparent that the

researchers often assumed that questionnaires developed in one culture (especially Western culture) were reliable and valid in other cultures.

6. Validity

A valid tool measures what it is intended to measure. The concern in determining the validity of a tool is the relationship between a concept and its indicator or measure (Polit & Hungler, 1983). Content validity is the degree to which systematic examination reveals that the desired domain is adequately represented in the instrument. Content validity is often assessed by a panel of experts who are not involved in drafting the instrument (Nunnally, 1978) and who judge the items are relevant to the variables that one is trying to measure or study. Norbeck (1985) stresses that it is useless to consider the reliability of an instrument that does not have content validity. Thus, content validity is a basic or minimal psychometric property in evaluating any instrument. The studies that have used Moos MDQ have assumed the content validity of the instrument and its relevance to their culture. Construct validity is essential when there is no universal acceptance of and/or knowledge about the domain (Kerlinger, 1979; Nunnally, 1978). It is established to assure that the instrument is measuring what it purports to measure and is in accordance with theoretical expectations (Cronbach & Meehl, 1955).

7. Sampling

The methodological concern in sampling is to determine to what degree one can generalize the findings in a population. Random sampling in many cross-cultural studies is a limitation (Brislin & Baumgardner,

1971; Hudson, Barakat, & LaForge, 1953; Mitchell, 1973). Lonner and Berry (1986) pointed out that despite the importance of sampling, there is no guidebook which presents sampling procedure in cross-cultural studies. The more common sampling method used in cross-cultural research is nonrandom sampling (Lonner & Berry, 1986; Naroll & Cohen, 1970; Triandis & Berry, 1980). The researcher needs to discuss in detail the sampling procedure and the characteristics of the sample, at the same time being explicit about the factors that influenced the sampling procedure (Brislin & Baumgardner, 1971; Brislin et al., 1973; Lonner & Berry, 1986). The researcher should report the following characteristics of the sample: age, sex, educational level, status, income, occupation, special training, and place of residence in relation to other members of the culture (Lonner & Berry, 1986). Well described sampling procedures will allow interpretation of data in terms of sample characteristics. At the same time, the researcher and other investigators can evaluate for any validity threats to the results.

In summary, although menstrual cycle symptoms have been studied widely in the West, they have rarely been studied in Middle Eastern cultures and never in Bahrain. Therefore the present study examined the incidence, severity, and lived experience of menstrual cycle symptoms in Bahraini women by using both an open-ended questionnaire and a standardized questionnaire with a representative sample. Also, the study contributes information from Bahraini culture to the menstrual cycle literature.

III. METHODOLOGY

This is a descriptive, exploratory, ex post facto study using open-ended questions and the Moos questionnaire to obtain information about the menstrual symptoms and degree of severity of these symptoms among a representative sample of Bahraini women. The Menstrual Symptoms Questionnaire (Appendix A) was used in face-to-face interviews with 172 Bahraini women who met the criteria for inclusion in the study. The Menstrual Symptoms Questionnaire consisted of three parts: (a) a menstrual cycle characteristics form, (b) the Moos MDQ, Form C, and (c) the sociodemographic form.

A. Setting for the study

Bahrain is a state of 36 islands located in the Arabian Gulf and having a population of 459,929, of whom approximately 305,702 are Bahraini citizens (Statistical Abstract, 1987). It is an Arab country and Islam is the dominant religion. The country is highly urbanized, with 80.7% of its population living in cities. It gained its independence from Britain in August 1971. The main source of economy is oil, which was discovered in 1932, but the government has constantly sought alternative income sources, such as encouraging industry and off-shore banking. The government of Bahrain provides free education and health services for all of the population. It also has encouraged woman's participation in the labor force by including in the constitution equal opportunity for both sexes in the areas of education, occupation, job opportunity, and salary. The discovery of oil has brought rapid changes

in both the social and economic structure of the country and this has affected women. In 1970 only 3% of the Bahraini women worked outside their home. This number had increased to 21% in 1987 (Statistical Abstract, 1988).

Bahraini women, like all other Arab women, are a part of a close-knit family. Even though 70% of the Bahraini families are currently nuclear families (Musaiger, 1981), the strong family ties resemble those of an extended family. The woman is responsible for maintaining the health of self and family (Al-Darazi, 1986). The Bahraini government has adopted the World Health Organization's Alma Ata Declaration (1978) of "Health for all by the year 2000." This goal is to be achieved through implementing a Primary Health Care strategy. Hence, there is a strong emphasis on prevention of illness and promotion of health in health service delivery.

B. Procedure to conduct the study

For the purpose of this study, Form C of the Moos MDQ was used with the written consent of Dr. Rudolf Moos (Appendix B). Written permission was obtained from Dr. Abdul-Khaleq for use of the Arabic version of the Moos MDQ. The Ministry of Health of Bahrain approved the conduct of the interviews in Bahrain. Also, the Principal Nursing Officer for Health Centers and the Dean of the College of Health Sciences reviewed and approved the statement of the purpose of the study. The permission of the academic leaders allowed the help of community health nurses and the interviewers from the Faculty at the College to assist in contacting the women and arranging the time and place of the interview.

An official letter was sent to each woman in the study and signed by the Dean of the College of Health Sciences (Appendix C) to explain the study and to indicate that she would be contacted by the investigator. Twenty-eight letters were not delivered due to problems with the address. The response to these letters was positive and the Bahraini women were eager to participate in the study. Two fathers wrote to inform the investigator that their daughters were abroad. Husbands also called the investigator to arrange appointments for their wives. Many women called the investigator to arrange the time for the interviews. Overall, the response to the request to participate indicated that the community responded positively to what has always been thought to be a sensitive topic to discuss. The women interviewed gave verbal consent to participate in the study.

C. Target population

The population of interest was Bahraini women between the ages of 18 and 44 years. The sampling criteria for inclusion in the study were women who reported (a) being a Bahraini and a citizen; (b) not using an oral contraceptive; (c) not using an intrauterine device; (d) not pregnant at the time of the interview; (e) having an intact uterus; (f) not having lactating amenorrhea; (g) no amenorrhea for the last 3 months without definite cause; and (h) freedom from such chronic illnesses as epilepsy, sickle cell disease, heart disease, hypertension, severe asthma, kidney disease, diabetes, rheumatoid arthritis, and psychiatric diseases. These criteria were used to select a homogeneous sample, to avoid the presence of confounding variables.

D. Sampling procedure

The investigator contacted the Director of the Statistical Office at the Bahrain Central Statistics Organization (Center) for assistance in selecting a sample. The description of the study and the sampling design were discussed with the director. The actual sampling procedure was to select Bahraini housing units randomly. A housing unit includes a house, apartment or flat, group of rooms, or a single room occupied as separate living quarters (Census, 1981). There were a total of 52,810 housing units listed for the 1981 Bahrain census.

Backstrom and Hursh-Cesar (1981) recommend a "model sample," which is a probability sample based on census information and other information about housing units and adults, for survey research with a large population. Housing units can consist of more than one household. Hence the households were selected from the housing units. Household is defined as a "social unit," usually occupied by people who are related to each other and who share their daily living (Bahrain Directory of Statistics, 1981). There are 58,798 households, of which 33,831 households are Bahraini (Statistical Abstract, 1981, p. 36). Then the sample was stratified by nationality, sex, and age. Table XXX, Appendix D, lists the number of women selected per age category. Table I shows the projected 1988 population by age group and nationality based on the 1987 Statistical Abstract.

A working sample size was calculated based on the formula of Warwick and Lininger (1975, p. 112):

TABLE I
PROJECTED POPULATION OF BAHRAIN BY AGE AND GENDER IN 1988^a

Group	Population
Total population	459,929
Female	193,493
Male	266,436
Total Bahraini population	305,702
Bahraini females	152,158
Bahraini females between 18 and 44 years	64,149

^a(Statistical Abstract, 1987)

$$\text{Working sample} = \frac{\text{Completed cases}}{\text{Cooperative} \times \text{eligibility rate}}$$

where the completed cases were planned at 300; the number of cooperative women who agreed to be interviewed, 0.90, and the eligibility rate, 0.65, was calculated based on the criteria for inclusion in the study. Both the cooperation and the eligibility rates were based on personal judgment. Thus,

$$\text{Working sample} = \frac{300}{0.90 \times 0.65} = 517$$

A working sample of 531 was identified as a safeguard against the loss of participants who did not meet eligibility criteria. Of the 531 names drawn by the Center, 21 were men's names and excluded from the sample.

Then a number was designated for each of the 510 names on the sample list. Next, a random number table was used to select names to use in initiating data collection. The random selection was used because the sequence of the names on the list from the Center was based on age categories. Table II presents the percentage of Bahraini female population by region for the working sample and the actual number of completed interviews per region.

A total of 352 home visits by the interviewers were made: 273 (78%) families were met personally by the interviewers; 26 (7%) women were outside Bahrain at the time of data collection; 52 (15%) women were not located or were not at home; 1 (0.2%) was deceased. Of the 273 women met by the interviewers, 190 interviews were conducted and 172 (63%) out of the 190 questionnaires were judged complete and eligible for inclusion in the study. Of the women met who were ineligible for inclusion, 32 (12%) women were pregnant; 21 (8%) were on oral contraceptive pills; 19 (7%) reported breastfeeding with no menses; 11 (4%) reported chronic illnesses, 3 (1%) reported being at a menopausal phase, and 15 (5%) refused to be interviewed. The remaining 158 women from the working sample were not approached due to the time frame and the investigator's inability to communicate with the interviewers from a distance.

Of the women who refused to be interviewed, five women were from one region. They reported that a person had visited their neighborhood disguised as a government employee. These women refused the interviews because of distrust; the disguised person had cheated them. Another two were students and were worried about their exams. The investigator

TABLE II
BAHRAINI WOMEN SAMPLE CHARACTERISTICS BY REGIONS IN BAHRAIN

Region	Bahraini Female Population ^a (%)	Working Sample (N)	Women Approached (N)	Completed Interview (N)	Completed Interview (%) ^b
Hidd	2%	14	5	2	1%
Muharraq	20	92	55	26	15
Manama	24	102	81	37	22
Jidhafs	12	61	44	28	16
Northern	7	29	27	14	8
Sitra	8	34	33	15	9
Central	5	33	27	14	8
Isa Town	8	56	19	8	5
Riffa	6	46	26	11	6
Western	6	25	20	12	7
Hamad	2	18	15	5	3
Total	100%	510	352	172	100%

^aCensus (1981).

^bPercent of 172 completed interviews.

noticed that one interviewer reported a higher rate of refusal than others, and decided to approach the remaining women once more herself, and completed the interviews. This decision was made by the investigator to rule out the possibility of refusal due to interviewer-interviewee conflict. The same interviewer actually completed the fewest interviews, 10 (6%) of the total number of women interviewed for the study, out of which the investigator was present during two interviews. Table XXXI, Appendix E, displays the sample disposition.

The collection of data was time consuming because the interviewer sometimes visited the home of the woman more than once. Thirty-five (20%) of the interviews ($N = 172$) were completed during the second visit and 130 (76%) were completed during the first visit. Table III indicates the frequency of the visits by the interviewer to the women approached and/or included in the study.

TABLE III
FREQUENCY OF DATA COLLECTION VISITS TO
APPROACHED AND/OR INTERVIEWED WOMEN

Visit	Women Approached		Interviews Completed	
	<u>N</u>	%	<u>N</u>	%
First	230	65%	130	76%
Second	103	29	35	20
Third	18	5	6	4
Fourth	1	0	1	1

E. Training of the interviewers

The training of the interviewers took place over a period of 4 days with a total of 12 hours. For potential interviewers the investigator contacted 16 Bahraini female nurses who had been trained and worked as data collectors for other researchers. All were working fulltime at other jobs and seven were unavailable because they were currently collecting data for other studies. The investigator hired and trained eight, but personal reasons led one to drop out after completing the training.

The seven interviewers ranged in age from 21 to 35 and included five nurse-midwives, one of whom was a faculty member at the College, a community health nurse, and an operating theater nurse. They reported becoming involved in data collection in order to gain knowledge and skills in collecting data, to be involved in research, and to help the investigator.

The training program for the interviewers was based on such resources as the University of Michigan training manual (1983) and Warwick and Lininger (1975). An initial meeting with the interviewers was held to review the purpose of the study and the procedures for data collection. A second meeting was used to review interviewing techniques, and a guest lecturer provided information on how to locate the addresses of the women to be interviewed. In addition, the interviewers were asked to critique the translated version of the Moos MDQ. The questionnaire was modified based on their suggestions. Each interviewer pretested the translated questionnaire by interviewing two women.

During the period of data collection an interviewer observed while the investigator interviewed a woman and, in turn, the interviewer interviewed a woman while the investigator observed. Five interviewers completed this interview demonstration. Each interviewer received a copy of a list of names and addresses of the women to be interviewed in the geographical region that she had chosen. The investigator met with the interviewers periodically as a group or individually to review completed questionnaires and discuss potential or actual problems during the data collection process. She kept a diary of the data collection process in order to know the number of women being interviewed and by whom.

F. Description of instrument

1. Menstrual cycle characteristics form

This form was developed by the investigator and included questions regarding (a) age at menarche; (b) regularity of cycle; (c) days of menstruation; (d) experience of symptoms; and (e) self-care measures to relieve the symptoms (Appendix F). The questions were based on a review of the literature regarding menstrual symptoms.

2. Moos Menstrual Distress Questionnaire

The purpose of the Moos MDQ is to estimate the prevalence and severity of symptoms and to explore the nature of a woman's psychological and physiological changes during the menstrual cycle. A psychosomatic or biopsychosocial framework is the theoretical base for the instrument (Moos, 1969, 1985). The instrument measures the presence of somatic, affective, and behavioral symptoms. The 47 items that comprise this tool were derived from responses of 839 women who had completed the

Moos MDQ. The 47 items were factor analyzed and 8 subscales were identified: pain, concentration, behavioral changes, autonomic reactivity, water retention, negative affect, and arousal (Appendix G). The woman completing Form C of the Moos MDQ is asked to retrospectively categorize her symptoms during three phases of the most recent cycle: menstrual, premenstrual (four days before menstruation), intermenstrual (the remainder of the cycle). A 5-point scale is used to evaluate each symptom by its degree of severity at each phase. Thus an individual rates a symptom on a scale from 0 = no experience of symptom; 1 = present, mild; 2 = present, moderate; 3 = present, strong; and 4 = present, severe. The majority of the items focus on somatic changes or symptoms.

The content validity for this instrument was determined by the use of open-ended questions to interview and obtain reports of women's menstrual symptoms; an intensive literature review; and a list of symptoms completed using the Blatt Menopausal Index (Moos, 1969, 1985). The reliability of the instrument was reported by Markum (1976) using Form T (the same tool with no identification of the menstrual cycle phase) with two groups of university students ($N = 47$ in each group). The experimental group was not informed that the instrument was testing for menstrual symptoms. The test-retest reliability was .80 to .88 and the split-half reliability was .75 to .98. Khaleq (1983) administered the Moos MDQ (Arabic version) to 221 Egyptian university students. The questionnaire was modified and the subjects were asked to report the symptom once, regardless if they experienced the symptom during the menstrual or premenstrual phase. No distinctions were made between the

symptoms reported between the two phases. A test-retest reliability and factor analysis were reported with an internal consistency for the eight subscales in the acceptable range of .51 to .89.

In preparation for this current study, the investigator prepared an unpublished paper in 1986 in which she analyzed data from 45 Bahraini women who completed the English version of the Moos MDQ. A convenience sample of educated working Bahraini women completed Form C. The women were asked to complete the Moos MDQ for the three phases of their most recent menstrual cycle. The Cronbach alpha coefficient for the three phases of the scale were .95, premenstrual; .92, intermenstrual; and .93, menstrual. The internal consistency for the subscales ranged from .55 to .89, premenstrual; .40 to .84, intermenstrual; and .48 to .82, menstrual. Monagle (1987) reported Cronbach's alpha reliability of Form C from interviewing 308 Italian women. The reliability reported for the three phases were .86, .86, and .88, respectively.

3. Sociodemographic data

This form gathered information regarding the age of the women, marital status, level of education, occupation, family structure, and parity (Appendix A).

G. Preparation of an Arabic version of the Moos Menstrual Distress Questionnaire

1. Translation

Translation is a central, core issue in a study using a questionnaire developed for another culture (Berry & Lonner, 1986; Brislin, Lonner, & Thorndike, 1973; Triandis & Berry, 1980). Warwick and

Osherson (1973) recommended that the translator of a questionnaire have knowledge of the culture and the language in order to obtain the conceptual equivalence in the final version. Even though Abdel-Khaleq had translated the Moos MDQ into Arabic, he did not report the method of translation. After a review of Abdel-Khaleq's version of the Moos MDQ, it was determined by the investigator that some of the translated items did not have cultural relevance for Bahraini women. For the purpose of this research, the techniques of Campbell (1968) were followed in translating the Moos MDQ from English to Arabic:

1. Back translation: The Moos MDQ Form C was sent to four bilinguals to translate the English version to Arabic. Another four bilinguals were contacted to back-translate the questionnaire from Arabic to English. Then a bilingual reviewer reviewed both versions for accuracy. Four bilinguals were chosen to ensure a minimum reply from two or three translators. (For a copy of the back translation, see Appendix H.)

2. Committee approach: Upon completion of the first draft of the Arabic version, the translated questionnaire was presented in a meeting with the interviewers to obtain their comments on the translation. Modifications were made following this meeting and the second draft of the translated version was ready.

3. Pretesting: Each interviewer tested the second draft of the translated questionnaire by interviewing two women. Upon completion of pilot interviews the interviewers met to determine the final translated version to be used in the study.

2. Modifications

Some of the Moos MDQ items used in the pretest needed further probes and examples to be understood by Bahraini women. The specific items of concern were orderliness, affectionate, poor judgment, and excitement. Monagle (1987) reported having problems with the same items in a study in Italy. The interviewers were instructed to be consistent in their use of probes and to give examples. Also, they were advised to record notes next to the items that needed probing.

In a meeting with the interviewers to review the pilot test, it was decided to add the item "reduced appetite" because the women had frequently referred to such a symptom. The interviewers decided item 28 of the Moos MDQ, "Take a nap, stay at bed," was actually two items. It was noted that "taking nap" was a cultural norm for the Bahraini population. Items such as "taking nap," "stay at home," "avoid social activity," and "orderliness" were probed so that the woman made a distinction about the experience of these symptoms during the different phases of the cycle.

Another major decision following the pilot test was to retain items on the Moos MDQ that allowed the women to indicate the relevancy of the item to Bahraini culture. In this process, the women studied were the panel of experts and not the investigator or the interviewers. The investigator followed the interaction approach in interviewing the women. Hence, the items on the modified Arabic version of the Moos MDQ totaled 49 rather than the 47 on the original Moos MDQ.

H. Data collection procedures

The Menstrual Symptoms Questionnaire, which included the Moos MDQ (Appendix A, Arabic version), was used in a face-to-face interview either at the home of each woman or another place that was convenient for the woman being interviewed. The interviews were conducted in Arabic by the investigator or the trained interviewers. After the sample selection was completed, the addresses of the houses were located on a detailed map of each region of Bahrain. The community health nurses and the interviewers contacted the women to arrange for the time of the interviews. The data collection began in mid-February 1989 and continued through the second week of April 1989. The collection of data was stopped due to religious observance during the month of Ramadan. During this month (April) the followers of Islam fast from sunrise to sunset and the social activities of the people, especially the women, change during this month. The women usually entertain family members after sunset and spend the afternoon preparing various dishes for the family. Another 40 interviews were completed during the last three weeks in May. The investigator conducted a total of 65 (38%) interviews and the interviewers completed 107 (62%).

I. The interview

The women included in the study were responsive and positive toward the interviewer. Many indicated that it was important to conduct such studies. The women wanted to know when they would be helped with their menstrual symptoms. Most of the women were hospitable, offering drinks and coffee to the interviewer and asked her to visit again. The

majority of the women wanted to know about the procedure that was used to select them for inclusion in the study and the investigator's background. A few women questioned the investigator's reason for choosing this topic for her study. Only a few expressed a concern that their names might appear in the report of the study. Each woman was assured that her anonymity was guaranteed. Some women questioned their suitability for inclusion in the study because they reported no experience of symptoms during the menstrual cycle. The women were concerned that they would not be helpful to the investigator. The women were reassured that this was an exploratory study and that whatever they reported was useful. They were reminded that there were no right or wrong answers.

The interviewers indicated that most of the time there were other women present when an interview took place. The interviewers were instructed to tell the women, other than the interviewee, to remain silent during the interview process. Most of the time the interviewee's friends or family members wanted to share their experiences. Hence, the interviewer spent some time at the end of the interview talking with the other women. The investigator believes that the presence of other women probably did not affect the response of the interviewees. Most of the time the interviewee's guest would confirm the interviewee's experience of symptoms.

The interaction between the woman and the interviewer was one of mutual understanding where the woman could ask for more clarification and was encouraged to talk about her experiences related to the menstrual symptoms. For example, when a woman was asked if she experienced

headache during her cycle, indicating the phase and severity, she replied, "I do experience severe headache during menstruation. I always wanted to know why. My sister does not experience anything. She does not have any problem. She even does not feel when she menstruates. Her period comes and goes unnoticed." Even though the response is a rather long answer to a structured questionnaire, it indicates the intent of the interviewer to document the woman's lived experience.

The women in this study freely expressed their ideas and opinions and constantly cautioned the interviewers regarding the limitations with this study. A few women reported experiencing different menstrual symptoms during summer than in winter. Others stressed the need to distinguish between the reports of unmarried and married women, and the number of children when asking about the report of symptoms. The majority of the women indicated that they were reporting their average menstrual symptoms overall and not particular symptoms for the most recent cycle. A few women reported problems with recall and suggested to the investigator that she conduct a prospective study. The majority of the women reported that the premenstrual period was a week before menstruation and not four days prior to menstruation as indicated on the questionnaire. A few women commented that this was the first time they had heard that some of the symptoms on the Moos MDQ were related to the menstrual cycle. These women told the interviewers they would watch for these symptoms with their next cycle.

The total time per interview ranged from 15 to 65 minutes, with a mean of 31 minutes. In addition, the interviewers spent time

introducing the topic at the beginning of each interview and stayed afterwards to listen to the woman and answer her questions. The questions that the women asked varied from concerns regarding menstruation, menstrual cycle, gynecological problems, family planning methods, sexual problems, psychological distress, childbearing, and child-rearing problems. Upon the woman's request, the interviewers usually advised the woman regarding any concerns at the end of the interview. At least 20 women requested information on the time of ovulation and the recording of basal body temperature. Full instructions were provided and the investigator sent them the Basal Body Temperature chart and handouts. The women were told that the investigator would inform them of the results of the study upon its completion.

J. Data analysis procedures

The statistical package SPSSX was used for computer analysis of data. Frequencies and means were computed for age at menarche, menstrual duration, and sociodemographic variables. The prevalence rates for the menstrual symptoms of the Bahraini women were calculated by the following ratio:

$$\text{Prevalence rate} = \frac{\text{Total number of women experiencing specific symptoms}}{\text{Total number of women in the sample}}$$

Variations in menstrual symptom prevalence rates of the Bahraini women were analyzed using chi-square after the prevalence rates were examined by age, occupation, and the number of children (Monagle, 1987). The prevalence rate was also reported for each phase by combining the five descriptive categories on the Moos MDQ into three: 1 = no symptom;

2 = mild + moderate; and 3 = strong + severe. The cyclic variation of the symptoms was tested by Cochran's Q, a nonparametric test.

Cronbach's alpha coefficient was used to assess the internal consistency reliability of the Moos MDQ both for the total scale and for each menstrual cycle phase. Also, reliability was determined for each subscale of the Moos MDQ. According to Nunnally (1978) sampling of items is the major source of error in an instrument and therefore internal consistency reliability should be evaluated on all new instruments. Cronbach's alpha estimates internal consistency based on the average inter-item correlation among items within a test and the number of items. Although the Moos MDQ is not a new instrument, it is considered new when it is to be tested in a different culture.

A principal components factor analysis with varimax rotation was used as an exploratory procedure to assess the construct validity of the Moos MDQ for Bahraini women. Factor analysis is a group of statistical procedures which are used to examine patterns of covariation among observed variables in order to discover a set of underlying factors (Gorsuch, 1983; Long, 1983). Factor analysis is one of the major statistical methods for investigating construct validity (Nunnally, 1978) because it will identify which items relate to each other and thereby will identify factors which are meaningful. The principal components factor extraction method of exploratory factor analysis in SPSSX was used to determine the minimum number of independent factors among the observable variables. Orthogonal rotation in principal components factor extraction was employed in order to arrive at maximum

interpretability. Pearson product-moment correlation was used to determine the relationship between the cluster of menstrual symptoms and both sociodemographic variables and menstrual cycle characteristics.

Open-ended questions were translated and content analyzed in order to categorize the women's responses. The questions were related to (a) description of menstrual cycle, (b) if the women experienced menstrual symptoms, (c) what symptoms they experienced, (d) during which phase, and (e) what self-care measures were used for which symptom.

K. Ethical consideration

The Institutional Review Board, University of Illinois at Chicago, reviewed the proposed study and verified that the participants' rights and privacy were protected. The women were informed of the purpose of the study and that they were free to withdraw from the study at any time or to choose not to answer a question. Each woman's verbal consent to participate was obtained. No names or addresses were attached to the questionnaire. As indicated earlier, the Ministry of Health at Bahrain granted permission for the study.

IV. RESULTS

A. Introduction

This chapter presents the results of data analysis in seven sections. Section B consists of the sociodemographic description of the Bahraini women in the study. Also it includes the menstrual cycle characteristics of the women in the study. Section C reports the reliability estimates and means and standard deviations of Moos MDQ among the Bahraini women and means and standard deviations of the Moos MDQ subscales. The prevalence rates of menstrual symptoms among Bahraini women are reported in Section D. This section reports answers to the first two questions in the study. Section E reports the prevalence rates by age, occupation, number of children, and years of education. Section F reports the construct validity of Moos MDQ among Bahraini women using a factor analysis technique. Section G reports the results of the cluster of symptoms and their relationships with age, age at menarche, cycle length, and the menstrual flow length. Finally, Section H presents the types of and frequency of self-care activity used by the Bahraini women to take care of their symptoms.

B. Sociodemographic characteristics

1. Age and marital status

The women ranged in age from 17-45 years, with a mean of 28 years. Two (1%) of the women did not know their ages. Out of 172 women interviewed, 92 (53%) were married, 56 (33%) were single, 3 (2%) were divorced, and 1 woman was a widow. For the married women the ages of

the husbands ranged from 19-60 years, with a mean of 37 years. Overall, there was an average of 9 years difference between the ages of the women and their husbands. The women's age at marriage ranged from 9-30 years, with a mean of 17 years. The national median age at first marriage is 18 years. The duration of marriage for women ranged from 1-39 years, with a mean of 14 years. Table IV summarizes the age and marital characteristics of the sample. Seventy-nine (86%) of the married women ($N = 92$) were the first wife, 11 (6%) were the second wife, 1 (1%) was a third wife.

2. Education

The Bahrain Directorate of Statistics (1983) defined literacy as the ability to both read and write. Thirty-four (20%) of the women

TABLE IV
CHARACTERISTICS OF THE BAHRAINI WOMEN STUDIED^a

Characteristic	Years		
	Range	Mean	S.D.
Age	17-45	28	7
Husband's age	19-60	37	9
Age at marriage	9-30	17	4
Marriage duration	1-39	14	8
Education	0-22	8	6

^a($N = 172$)

could not read or write. The women's educational attainment ranged from 1-22 years of schooling, with a mean of 8 years. (Educational attainment refers to the highest level of formal schooling, State of Bahrain Cabinet Affairs Directorate of Statistics, 1983).

The educational level of the husbands of the married women ($N = 92$) ranged from 1-18 years, with a mean of 7. Twenty-two (13%) of the married women's husband could not read or write (Table V).

3. Occupation

The Bahraini women's work involvement represents 21% of the total Bahraini labor force (State of Bahrain Cabinet Affairs Directorate

TABLE V
EDUCATIONAL ATTAINMENT OF THE BAHRAINI WOMEN
AND THE SPOUSES OF THE MARRIED WOMEN

Educational Attainment	Interviewee		Spouse	
	n	%	n	%
No schooling	35	20%	28	30%
1-6 years	36	21	17	18
7-12 years	63	37	40	43
13-16 years	34	20	6	7
17 years or more	4	2	1	1
Total	172	100%	92	100%

of Statistics, 1988). Forty-two (24%) of the women in this study worked fulltime outside the home in addition to taking care of their families. The Bahraini women mainly work in professional, technical, clerical, and service job categories. The women in this study were no exception (Table VII). Of the women interviewed, 106 (62%) were housewives and 16 (9%) were students.

4. Family structure

The number of members in each household in this study ranged from 2-26, with a mean of 9. In Bahrain, the national norm is 7 members per household (Directorate of Statistics, 1983). The difference in the average family size may be due to most of these families' having at least a housekeeper who is not a family member, living with them. Of the women interviewed, 96 (56%) lived in nuclear families and 76 (44%) lived in extended families. The number of children for the women ($N = 96$) ranged from 0-12, with a mean of 4.

5. Menstrual cycle characteristics

The following material presents the menstrual cycle characteristics for a sample of Bahraini women. The range in ages for the onset of menstruation is 9-18 years, with 13 as the mean age of menarche. The number of days of menstrual flow ranges from 2-8 days, with a mean of 5 days. The days of menstrual flow until the woman considers herself clean ranges from 2-10 days, with a mean of 7 days. The mean number of days for a single cycle is 28 days and the range of each menstrual cycle is 16-35 days. Blood loss during menstruation was described as light by 11 (6%) of the women, medium by 119 (69%), and heavy by 42 (24%). There

TABLE VI
OCCUPATIONS OF THE BAHRAINI WOMEN STUDIED
AND THE SPOUSES OF THE MARRIED WOMEN

Occupation	Interviewee		Spouse	
	n	%	n	%
Housewife	106	62	-	-
Professional, technical, and related workers	20	12	10	11
Administrative, executive, and managerial workers	2	1	8	9
Clerical workers	21	12	16	17
Sales workers	4	4	3	3
Farmers, fishermen, hunters, and related workers	-	-	5	5
Transport and communications workers	1	1	21	23
Craftsmen and production process workers	-	-	13	14
Services, sports, and recreation workers	2	1	7	8
Retired	-	-	3	3
Unemployed	-	-	6	7
Students	16	9	-	-
Total	172	100	92	100

were 23 (13%) women who reported irregular menstrual cycles and 149 (87%) who reported regular cycles. When asked if they experienced discomfort during menstruation, 74 (43%) women answered positively. The menstrual cycle characteristics of the Bahraini women studied are presented in Tables VII and VIII.

C. Reliability of the Moos Menstrual Distress Questionnaire for Bahraini women studied

Cronbach's alpha was calculated to examine the questionnaire's inter-item correlations. The total questionnaire's reliability (internal consistency) was .93. When internal consistency was evaluated by cycle phase, the menstrual was .89; the premenstrual, .86; and the remainder of the cycle, .67. The reliability for the subscales of the Moos MDQ for the total questionnaire and for each phase are found in

TABLE VII
AGE AT MENARCHE, MENSTRUAL FLOW CHARACTERISTICS,
AND CYCLE LENGTH OF THE BAHRAINI WOMEN STUDIED^a

Characteristic	Range	Mean	S.D.
Age at menarche (years)	9-18	13	1
Menstrual flow--duration (days)	2-8	5	1
Menstrual flow--duration until clean (days)	4-10	7	1
Cycle length	16-35	27	4

^a(N = 172)

TABLE VIII
AMOUNT OF FLOW AND REGULARITY OF CYCLE
OF THE BAHRAINI WOMEN STUDIED^a

Characteristic	n	%
Amount of flow		
Light	11	6
Medium	119	70
Heavy	42	24
Regularity of cycle		
Regular	149	87
Irregular	23	13

^a(N = 172)

Table IX and the means and standard deviations for the three phases of the menstrual cycle are given in Table X. A coefficient alpha greater than .80 was used as an indicator of item homogeneity (Nunnally, 1978). In the item-total correlations, any item that correlated .30 or above with the total score was considered a good item (Nunnally, 1978, p. 263). Deleting items in the menstrual phase that had item-total correlations below .30 for the menstrual phase, increased Cronbach's alpha to .90. The deleted items were weight gain, loneliness, skin disorder, cold sweat, affectionate, forgetfulness, orderliness, chest

TABLE IX

INTERNAL CONSISTENCIES OF THE MOOS MENSTRUAL DISTRESS QUESTIONNAIRE
 SCALES IN THREE PHASES AMONG THE BAHRAINI WOMEN STUDIED^a

Scale	Phase		
	Menstrual	Premenstrual	Intermenstrual
Pain	.73	.66	.39
Water retention	.44	.60	.34
Autonomic reaction	.56	.43	.38
Negative affect	.75	.78	.51
Impaired concentration	.74	.66	.54
Behavior change	.73	.64	.15
Arousal	.53	.56	.61
Control	.65	.45	.48

^a(N = 172)

TABLE X
 MEANS AND STANDARD DEVIATIONS OF THE MOOS MENSTRUAL DISTRESS
 QUESTIONNAIRE SCALES FOR EACH PHASE OF
 THE MOST RECENT MENSTRUAL CYCLE^{a, b}

Scale	Phase					
	Menstrual		Premenstrual		Intermenstrual	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Pain	11.01	4.48	9.64	3.87	6.26	1.01
Water retention	5.01	1.59	5.82	2.51	3.04	.23
Autonomic reaction	5.20	2.06	4.79	2.35	4.09	.21
Negative affect	9.63	3.74	9.69	3.96	6.14	.68
Impaired concentration	11.30	3.80	10.30	2.42	8.19	.84
Behavior change	8.16	4.02	5.97	2.05	4.09	.49
Arousal	6.83	2.75	6.19	2.36	7.30	3.35
Control	7.12	2.25	6.84	1.70	6.09	.66

^a(N = 172)

^bIndividual items within scales had a range from 0-4.

pain, excitement, ringing in the ears, feels well, burst of energy, and increased appetite. Carmines and Zeller (1979) stated that alpha increases as the average correlation among items increases and as the number of items increases. Deletion of items that had correlations below .30 from the premenstrual phase increased the Cronbach's alpha to .88. The deleted items in the premenstrual phase were muscle stiffness, weight gain, bursts of energy, feeling well, skin disorders, affectionate, excitement, ringing in the ears, heart pounding, poor coordination, numbness, minor accidents, blind spots, and increase in appetite. The Moos MDQ scale means for Bahraini women generally were higher in the menstrual and premenstrual phases than in the intermenstrual phase. This is consistent with Moos's (1985) findings.

D. Prevalence rates of symptoms

1. Response to open-ended questions

Of the 172 women interviewed, 153 (90%) stated that they experienced symptoms and distress associated with menstruation, and 18 (10%) denied any experience of symptoms associated with menstruation. In response to the open-ended question regarding symptoms experienced during the menstrual cycle, the women reported approximately 30 different symptoms. The interviewers encouraged the women to categorize their symptoms according to the three cycle phases: menstrual, premenstrual, and the remainder of the cycle. In Table XI the symptoms that Bahraini women reported are ranked by frequency and percentage. The Bahraini women mainly reported physical symptoms during the menstrual and premenstrual phases and negative affect symptoms during the

TABLE XI
SYMPTOMS ASSOCIATED WITH MENSTRUATION BY BAHRAINI WOMEN
IN RESPONSE TO OPEN-ENDED QUESTIONS^a

Symptom	Menstrual			Premenstrual		
	Rank	n	% ^b	Rank	n	%
Cramps	1	105	61%	1	69	40%
Backache	2	95	55	2	63	37
Leg pain	3	41	24	6	25	15
Bodyache	4	31	18	11	12	7
Fatigue	5	28	16	9	15	9
Feeling relieved	6	21	12	21.5	-	-
Nausea	7.5	15	9	14	7	4
Pain in the breast	7.5	15	9	7	21	12
Diarrhea	9	14	8	15.5	6	3
Headache	11	10	6	8	19	11
Nervousness	11	10	6	5	28	16
Vomiting	11	10	6	21.5	-	-
Vaginal pain	13	9	5	18	2	1
Feels light	14.5	8	5	21.5	-	-
Vaginal itching	14.5	8	5	17	3	2
Mood swing	16.5	7	4	3	35	20
Reduced appetite	16.5	7	4	19	1	1
Aggressive	18.5	3	2	13	10	6
Others	19.5	3	2	10	13	8
Acne	21	2	1	4	29	17
Constipation	21	2	1	21.5	-	-
Feels heavy	21	2	1	12	11	6
Bored	23	-	-	15.5	6	3

^a153 women indicated one or more symptoms associated with menstruation.

^bPercentages based on total sample, N = 172.

premenstrual phase. The physical symptoms reported during the menstrual phase were abdominal cramps, 105 (61%); backache, 95 (55%); leg pain, 41 (24%); bodyache, 31 (18%); and fatigue, 28 (16%).

The physical symptoms reported premenstrually by the Bahraini women were abdominal cramp, 69 (40%); backache, 63 (37%); leg pain, 25 (15%); and headache, 19 (11%). There were 36 (21%) women who reported experiencing mood swing premenstrually while only 7 (4%) reported mood swing during menstruation. Other negative affects the Bahraini women reported premenstrually were nervousness and irritability, 28 (16%); aggression, 6 (3%); and feeling bored, 4 (2%). Symptoms reported as "others" were increased vaginal discharge premenstrually, abdominal gases, stuffy nose, coldy body, crying, feverish, and like to sleep. Almost all the women reported feeling relieved, happy, and free during the remainder of the cycle. The women who reported nervousness premenstrually stated that they would be worried if they missed their period. One married woman stated, "When my period is about to come, I cannot sleep. I keep thinking what if I miss it. I really get worried about getting pregnant."

The women always referred to other women's experiences with menstruation. There were 81 (47%) women who stated they had heard of women complaining of symptoms premenstrually and 80 (47%) reported that they had heard of dysmenorrhea. But the majority of the women answered this question after further probing by the interviewer, especially the question if they had heard about PMS. Usually the women gave examples of symptoms that their sisters, friends, colleagues, or mothers suffered

from. They reported their own and others' experience with dysmenorrhea and its disabling effect. Also, 35 (20%) mentioned that the experience of pain and physical symptoms with menstruation is important. One woman stated,

With the pain I really feel I am a woman and that I can bear a child. The pain indicates I am ovulating. Don't you agree? I have been told that a woman who does not feel the pain does not ovulate.

2. Response to Moos Menstrual Distress Questionnaire

The women were asked whether they experienced the 49 symptoms listed on the Moos MDQ and, if so, to indicate the degree to which they experienced them. They were to indicate the degree using the five descriptive categories from no experience of symptoms to severe and disabling. The prevalence rate for each symptom was estimated by dividing the total number of women experiencing a specific symptom by the total number of women in the sample. The rate for specific symptoms, regardless of severity, is presented in Table XII. To obtain a more accurate rate of prevalence of specific symptoms among the Bahraini women, a rate was calculated for each menstrual and premenstrual phase for specific symptoms and based on the 5-point description scale used in the Moos MDQ. The calculation of prevalence rates combined mild and moderate symptoms in one category and strong and severe in another category. The prevalence rate for menstrual/premenstrual symptoms by severity among Bahraini women is found in Table XIII. The average symptoms reported by the study sample were in the "present, mild" range.

First, according to Table XII it is clear that the Bahraini women reported very few symptoms during the intermenstrual phase except for

TABLE XII

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase					
	Menstrual		Premenstrual		Intermenstrual	
	N	%	N	%	N	%
19. Fatigue	96	56	56	33	6	3
10. Cramps	95	55	55	32	2	1
14. Backache	91	53	85	49	4	2
29. Stay in bed	80	47	19	11	2	1
21. General aches and pains	75	44	54	31	3	2
49. Reduced appetite	69	40	28	16	2	1
9. Mood swings	68	40	62	36	3	2
17. Irritability	60	35	55	32	4	2
24. Poor school/work performance	59	34	27	16	-	-
8. Anxiety	51	30	50	29	2	1
15. Swelling (breasts, abdomen)	48	28	66	38	-	-
34. Stay at home	46	27	16	9	1	1
38. Avoid social activities	46	27	14	8	1	1
42. Decreased efficiency	45	26	19	11	2	1
28. Take naps	43	25	15	9	4	2
5. Headache	42	24	43	25	7	4
16. Hot flashes	39	23	28	16	3	2

TABLE XII (continued)

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase					
	Menstrual		Premenstrual		Intermenstrual	
	N	%	N	%	N	%
11. Painful or tender breasts	37	22	61	35	3	2
22. Restlessness	37	22	40	23	1	1
23. Insomnia	35	20	20	12	6	3
35. Excitement	34	20	18	10	1	1
12. Nausea, vomiting	32	19	26	15	4	2
3. Dizziness, faintness	32	19	20	12	4	2
39. Feelings of well-being	31	18	17	10	58	34
18. Tension	30	17	27	16	-	-
37. Difficulty concentrating	30	17	14	8	3	2
13. Crying	29	17	23	13	1	1
30. Orderliness	27	16	26	15	16	9
47. Poor motor coordination	27	16	13	8	-	-
41. Distractable	26	15	15	9	2	1
43. Bursts of energy, activity	25	15	14	8	42	24
25. Affectionate	25	15	13	8	12	7
1. Muscle stiffness	24	14	23	13	1	1
32. Confusion	24	14	19	11	2	1

TABLE XII (continued)

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase					
	Menstrual		Premenstrual		Intermenstrual	
	N	%	N	%	N	%
26. Feelings of suffocation	24	14	18	10	1	1
20. Feeling sad or blue	23	13	23	13	4	2
4. Loneliness	23	13	22	13	3	2
40. Heart pounding	23	13	17	10	1	1
33. Poor judgment	23	13	16	9	1	1
44. Numbness, tingling	22	13	10	6	3	2
46. Blind spots, fuzzy vision	20	12	16	9	3	2
27. Forgetfulness	16	9	18	10	3	2
7. Cold sweats	16	9	5	3	2	1
2. Weight gain	14	8	25	15	1	1
48. Increased appetite	14	8	12	7	15	9
45. Minor accidents	13	8	8	5	1	1
31. Chest pains	12	7	11	6	2	1
6. Skin blemish or disorder	9	5	6	3	3	2
36. Ringing in the ears	8	5	8	5	1	1

^a(N = 172)

TABLE XIII

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE
SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY,
BY MENSTRUAL CYCLE PHASE AND BY SEVERITY^a

Item # and Symptom	Menstrual			Premenstrual		
	N ^b	M/M ^c	S/S ^d	N	M/M	S/S
19. Fatigue	44	41	15	67	22	11
10. Cramps	45	36	20	66	24	11
29. Stay in bed	54	34	13	89	9	2
21. General aches and pains	56	33	11	69	22	9
14. Backache	47	32	21	51	38	11
49. Reduced appetite	60	29	12	84	10	6
9. Mood swings	61	29	11	64	23	13
17. Irritability	65	28	7	68	20	12
15. Swelling (breasts, abdomen)	72	26	2	62	27	12
8. Anxiety	70	24	5	71	20	9
24. Poor school/work performance	66	22	12	84	11	5
5. Headache	76	18	6	75	14	11
42. Decreased efficiency	74	17	9	89	9	2
16. Hot flashes	77	17	5	84	13	4
22. Restlessness	79	17	5	77	17	6
28. Take naps	75	16	9	91	6	2
11. Painful or tender breasts	79	16	5	65	24	11
12. Nausea, vomiting	81	16	3	85	12	3

TABLE XIII (continued)

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE
SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY,
BY MENSTRUAL CYCLE PHASE AND BY SEVERITY^a

Item # and Symptom	Menstrual			Premenstrual		
	N ^b	M/M ^c	S/S ^d	N	M/M	S/S
34. Stay at home	73	15	12	91	6	3
3. Dizziness, faintness	81	15	4	88	11	1
18. Tension	83	15	3	84	13	2
37. Difficulty concentrating	83	14	4	92	8	1
35. Excitement	80	13	7	90	7	4
33. Poor judgment	87	13	1	91	9	1
38. Avoid social activities	73	12	15	92	7	1
13. Crying	83	12	5	87	8	5
41. Distractable	85	12	3	91	8	1
32. Confusion	86	12	2	89	11	1
26. Feelings of suffocation	86	12	2	90	7	4
23. Insomnia	80	11	9	88	7	5
39. Feelings of well-being	82	11	7	90	4	6
30. Orderliness	84	11	5	87	5	8
47. Poor motor coordination	84	11	5	92	7	1
1. Muscle stiffness	86	11	3	87	12	2
20. Feeling sad or blue	87	11	3	87	12	1
40. Heart pounding	87	10	4	90	6	4

TABLE XIII (continued)

PREVALENCE RATES FOR MOOS MENSTRUAL DISTRESS QUESTIONNAIRE
SYMPTOMS AS REPORTED BY BAHRAINI WOMEN IN THE STUDY,
BY MENSTRUAL CYCLE PHASE AND BY SEVERITY^a

Item # and Symptom	Menstrual			Premenstrual		
	N ^b	M/M ^c	S/S ^d	N	M/M	S/S
44. Numbness, tingling	87	10	3	94	4	2
25. Affectionate	86	9	6	92	5	2
4. Loneliness	87	9	4	87	9	4
27. Forgetfulness	91	9	1	90	9	2
43. Bursts of energy, activity	86	8	6	91	4	5
46. Blind spots, fuzzy vision	88	8	4	91	7	2
2. Weight gain	92	8	1	86	11	4
7. Cold sweats	91	6	4	97	2	1
45. Minor accidents	92	6	1	95	5	-
31. Chest pains	93	6	1	94	5	2
6. Skin blemish or disorder	95	5	5	97	3	1
48. Increased appetite	92	5	3	93	5	2
36. Ringing in the ears	95	4	1	95	4	1

^a(N = 172)

^bN = Percent with no experience of symptom

^cM/M = Percent who experience symptom, mild or moderate

^dS/S = Percent who experience symptom, strong or severe

item #39, "feeling well," reported by 58 (34%), and item #34, "burst of energy," reported by 42 (24%).

Second, only 10 of the 49 symptoms on the Moos MDQ had a prevalence rate of 30% or greater. That is, 30% or more of the women suffer from these 10 symptoms. The symptoms reported during the menstrual phase and having a prevalence rate of 30% or greater were fatigue (56%), cramps (55%), backache (53%), stay in bed (47%), general ache (44%), reduced appetite (40%), mood swing (40%), irritability (35%), poor school or work performance (34%), and anxiety (30%). The symptoms listed here can be categorized broadly into pain and negative affect.

Third, the premenstrual symptoms reported among Bahraini women with a prevalence rate of 30% or more were backache (49%), anxiety (38%), mood swing (36%), painful or tender breasts (35%), cramps (34%), fatigue (33%), irritability (32%), and stay in bed (30%). Symptoms that were reported as highly prevalent in the menstrual phase were also reported to be high during the premenstrual phase.

Fourth, the symptoms with a prevalence rate less than 10% in the menstrual phase were cold sweat, forgetfulness, weight gain, increased appetite, minor accident, chest pain, skin disorder, and ringing in the ear. On the other hand, the symptoms that had a prevalence rate of less than 10% in the premenstrual phase were stay at home, avoid social activity, take a nap, difficulty concentrating, poor coordination, distractable, affectionate, burst of energy, poor judgment, and numbness.

Cochran's Q , a nonparametric statistical test, determines whether proportions in categories are the same across variables. It uses a $2 \times k$ contingency table (category by variable) for dichotomous variables and computes the proportion for each variable. Cochran's Q has approximately the same distribution as chi-square. Table XIV indicates the cyclic variations of the symptoms.

E. Prevalence rates of menstrual symptoms for Bahraini women calculated by age, occupation, parity, and years of education

Differences in the menstrual symptom prevalence rates based on the sociodemographic characteristics of the Bahraini women studied, were evaluated for statistical significance using chi-square. The Crosstabs procedure of SPSSX counts the number of times combinations of values of variables occur and is used to study relationships between variables that have distinct categories.

1. Prevalence rate by age

The age variable in this study was divided into three categories based on the frequency and median. The categories were 17-24 years (Group 1), 25-34 years (Group 2), and 35-45 years (Group 3). Of the 49 symptoms in the modified Moos MDQ, 12 were significantly related to age at $p \leq .05$ in the menstrual phase, but only 2 were significantly related to age in the premenstrual phase. Table XXXII, Appendix G, presents the chi-square distribution of all the age categories for both the menstrual and premenstrual phases. Table XV indicates the significant differences in menstrual symptom prevalences by the three age categories. The pattern in the menstrual phase was that the youngest age group (17-24

TABLE XIV

COCHRAN'S Q FOR PREVALENCE RATES OF MOOS MENSTRUAL DISTRESS
QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN
IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase			Q^b
	Menstrual %	Premenstrual %	Intermenstrual %	
29. Stay in bed	46.5	11.0	1.2	120.7**
14. Backache	52.9	49.4	2.3	117.0**
10. Cramps	55.2	34.3	1.2	116.8**
19. Fatigue	56.4	32.6	3.5	111.3**
21. General aches and pains	43.6	31.4	1.7	93.5**
49. Reduced appetite	40.1	16.3	1.2	83.5**
15. Swelling (breasts, abdomen)	27.9	38.4	.0	82.2**
24. Poor school/work performance	34.3	15.7	.0	75.9**
9. Mood swings	39.5	36.0	1.7	74.2**
11. Painful or tender breasts	21.5	35.5	1.7	73.9**
17. Irritability	34.9	32.0	3.3	66.2**
38. Avoid social activities	26.7	.81	.6	63.0**
34. Stay at home	26.7	9.3	.6	61.8**
8. Anxiety	29.7	29.1	1.2	61.1**
42. Decreased efficiency	26.2	11.0	1.2	56.3**

TABLE XIV (continued)

COCHRAN'S Q FOR PREVALENCE RATES OF MOOS MENSTRUAL DISTRESS
 QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN
 IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase			Q^b
	Menstrual %	Premenstrual %	Intermenstrual %	
22. Restlessness	21.5	23.3	.6	48.8**
39. Feelings of well-being	18.0	10.0	34.0	39.5**
5. Headache	24.4	25.0	4.1	36.1**
16. Hot flashes	22.7	16.3	1.7	35.2**
18. Tension	17.4	15.7	.0	32.8**
47. Poor motor coordination	15.7	7.6	.0	32.2**
13. Crying	16.9	13.4	.6	29.7**
37. Difficulty concentrating	17.4	.81	1.7	29.2**
41. Distractable	15.1	8.7	1.2	27.0**
23. Insomnia	20.3	11.6	3.5	26.9**
3. Dizziness, faintness	18.6	11.6	2.3	26.9**
2. Weight gain	8.1	14.5	.6	26.3**
1. Muscle stiffness	14.0	13.4	.6	26.0**
12. Nausea, vomiting	18.6	15.1	2.3	25.6**
32. Confusion	14.0	11.0	1.2	24.5**
33. Poor judgment	13.4	9.3	.6	24.4**

TABLE XIV (continued)

COCHRAN'S Q FOR PREVALENCE RATES OF MOOS MENSTRUAL DISTRESS
 QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN
 IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase			Q^b
	Menstrual %	Premenstrual %	Intermenstrual %	
26. Feelings of suffocation	14.0	10.0	.6	23.8**
4. Loneliness	13.4	12.8	1.7	23.0**
40. Heart pounding	13.4	9.9	.6	22.8**
43. Bursts of energy, activity	14.5	8.1	24.4	21.8**
20. Feeling sad or blue	13.4	13.4	2.3	20.7**
44. Numbness, tingling	12.8	5.8	1.7	19.8**
46. Blind spots, fuzzy vision	11.6	9.3	1.7	16.9**
7. Cold sweats	9.3	2.9	1.2	14.9**
27. Forgetfulness	9.3	10.0	1.7	14.7**
45. Minor accidents	7.6	4.7	.6	12.2**
25. Affectionate	14.5	7.6	7.6	9.9**
31. Chest pains	7.0	6.4	1.2	9.2**
35. Excitement	19.8	10.5	.6	6.9*
36. Ringing in the ears	4.7	4.7	.6	6.6*
30. Orderliness	15.7	13.4	9.3	4.9

TABLE XIV (continued)

COCHRAN'S Q FOR PREVALENCE RATES OF MOOS MENSTRUAL DISTRESS
QUESTIONNAIRE SYMPTOMS AS REPORTED BY BAHRAINI WOMEN
IN THE STUDY, BY MENSTRUAL CYCLE PHASE^a

Item # and Symptom	Phase			Q^b
	Menstrual %	Premenstrual %	Intermenstrual %	
6. Skin blemish or disorder	5.2	3.5	1.7	4.2
48. Increased appetite	8.1	7.0	8.7	.5

^a($N = 172$)

^bCochran's Q

*
 $p \leq .05$

**
 $p \leq .01$

TABLE XV
SIGNIFICANT PHASE DIFFERENCES IN MENSTRUAL SYMPTOM
PREVALENCE RATES BY AGE CATEGORY^a

Item # and Symptom	Age Group			Chi-square	p
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)		
Menstrual Phase					
10. Cramps	67	60	32	12.53	.00
14. Backache	64	57	32	10.13	.00
29. Stay in bed	59	16	3	7.96	.01
9. Mood swings	53	38	24	8.93	.01
17. Irritability	48	32	21	7.93	.01
49. Reduced appetite	46	47	18	9.99	.01
8. Anxiety	41	27	18	6.32	.04
13. Crying	27	16	3	10.17	.00
18. Tension	26	19	3	8.68	.01
47. Poor motor coordination	26	14	5	7.85	.01
19. Fatigue	17	12	32	9.28	.00
39. Feelings of well-being	17	12	32	6.40	.04
Premenstrual Phase					
12. Nausea, vomiting	5	19	24	7.40	.02
17. Irritability	26	42	21	6.45	.03

^a(N = 172)

years) reported a higher rate of symptoms compared to the other age groups except for decreased appetite (25-34 years, 47%) and feeling well (35-45 years, 32%). Symptoms reported most frequently by the 17-24 years age group were cramps (67%), backache (64%), stay in bed (59%), mood swing (53%), irritability (48%), anxiety (41%), crying (27%), tension (26%), and poor coordination (26%). Premenstrually, nausea was reported most frequently by the 35-45 year age group (24%), and irritability by the 25-34 year age group (42%). Surprisingly, the younger age group, 17-24 years, reported more experience of hot flashes (19%) compared to the other two age groups (25-34 years, 14%; 35-45 years, 16%). This result contradicts the literature which indicates hot flashes are usually experienced by older women.

2. Prevalence rate by parity

The menstrual symptoms of Bahraini women were cross-tabulated with the women's number of children. Out of 92 married women, only 5 did not have any children. The parity (number of children) was categorized as no children, 81 (47%); 1-4 children, 50 (29%); and 5 or more children, 41 (24%). Table XVI shows the significant phase differences in menstrual symptom prevalence rates by the number of children (Table XXXIII, Appendix H, contains the complete rates). The same pattern as in the age category was observed for the menstrual phase, where the women with no children reported a significantly higher ($p \leq .05$) prevalence rate for the following symptoms: cramps (70%), decreased appetite (48%), irritability (44%), and crying (26%). For the premenstrual phase, seven symptoms were significantly ($p \leq .05$) related to parity.

TABLE XVI
SIGNIFICANT PHASE DIFFERENCES IN MENSTRUAL SYMPTOM
PREVALENCE RATES BY PARITY^a

Item # and Symptom	Number of Children			Chi-square	p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)		
Menstrual Phase					
10. Cramps	70	52	29	18.90	.00
13. Crying	26	12	5	9.79	.01
17. Irritability	44	38	12	12.77	.00
49. Reduced appetite	48	40	24	6.39	.04
Premenstrual Phase					
1. Muscle stiffness	11	8	24	5.90	.05
14. Backache	40	68	46	10.24	.01
17. Irritability	36	42	12	10.24	.01
21. General aches and pains	24	28	51	10.12	.01
9. Mood swings	37	46	22	5.72	.05
11. Painful or tender breasts	46	30	22	7.62	.02
13. Crying	14	22	2	7.45	.02

^a(N = 172)

However, there was no pattern as there had been in the menstrual phase. Women with 5 or more children had the highest prevalence rates for general ache (51%) and muscle stiffness (24%). Women with 1-4 children had the highest prevalence rates for backache (68%), mood swing (46%), irritability (42%), and crying (22%). Painful breast was most commonly reported by the childless women (46%).

3. Prevalence rate by place of occupation

The Bahraini women's place of occupation was divided into two categories, work at home and work outside the home, and cross-tabulated with the reported menstrual symptoms. Three symptoms were significantly different ($p \leq .05$) (Table XVII presents the significant differences; Table XXXIV, Appendix I, the complete set of data) for the menstrual phase, but there was no pattern to the responses. Women who worked at home were higher for hot flashes (27% vs. 12%) and excitement (24% vs. 10%). Women who worked outside the home were higher for tension (26% vs. 14%). For the premenstrual phase, there were six symptoms related to place of occupation and in all cases women who worked outside the home reported symptoms more frequently than women who worked at home: mood swings (58%), swelling of the breasts or abdomen (54%), irritability (54%), crying (24%), and difficulty concentrating (16%).

4. Prevalence rate by years of education

To analyze relationships between the prevalence rate of the menstrual cycle symptoms and education, years of education were first divided into three groups: 0-5 years, 6-11 years, 12 or more years. In the menstrual phase, 12 symptoms significantly ($p \leq .05$) related to

TABLE XVII
SIGNIFICANT PHASE DIFFERENCES IN MENSTRUAL SYMPTOM
PREVALENCE RATES BY PLACE OF OCCUPATION^a

Item # and Symptom	Place of Occupation		Chi-square	p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)		
Menstrual Phase				
16. Hot flashes	27	12	4.59	.03
35. Excitement	24	10	4.25	.03
18 Tension	14	26	3.59	.05
Premenstrual Phase				
15. Swelling (breasts, abdomen)	32	54	7.29	.05
9. Mood swings	27	58	14.74	.00
17. Irritability	23	54	15.72	.00
13. Crying	9	24	6.88	.01
37. Difficulty concentrating	5	16	5.34	.01

education (Table XVIII presents the significant relationships; Table XXXV, Appendix J, presents all relationships). For all 12 symptoms, the 0-5 years group reported the fewest complaints. For seven symptoms the 6-11 years group clearly had the highest prevalence rate, with the 12 or more years group between the two extremes: fatigue (75%), reduced appetite (63%), irritability (53%), decreased efficiency (47%), headache (41%), painful breasts (38%), and difficulty concentrating (34%). For two symptoms the 6-11 and 12 or more years groups were virtually identical: cramps (72% vs. 70%) and mood swings (50% vs. 49%). For two of the remaining symptoms the 12 or more years group had the highest prevalence rate, but the 6-11 years prevalence rate was closer to the high than to the low: stay in bed (57% vs. 50% vs. 39%) and anxiety (38% vs. 31% vs. 19%). Only for restlessness was the 6-11 years group closer to the 0-5 years group than to the 12 years or more group: (30% vs. 16% vs. 14%).

For the premenstrual phase, the more educated women produced higher prevalence rates for all five symptoms related to education: mood swings (53%), irritability (53%), swelling breasts or abdomen (52%), painful breasts (47%), and anxiety (46%). For mood swings, irritability, swelling breasts, and painful breasts the 5-11 years group had prevalence rates between the 0-5 and 12 or more years group. However, for anxiety the prevalence rate of 16% was identical for both the 5-11 years and the 0-5 years groups.

TABLE XVIII
SIGNIFICANT PHASE DIFFERENCES IN MENSTRUAL SYMPTOM
PREVALENCE RATES BY YEARS OF EDUCATION^a

Item # and Symptom	Years of Education			Chi-square	p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)		
Menstrual Phase					
19. Fatigue	42	75	61	10.29	.01
29. Stay in bed	39	50	57	8.08	.01
10. Cramps	30	72	70	26.95	.00
9. Mood swings	23	50	49	11.07	.00
49. Reduced appetite	23	63	45	14.77	.00
8. Anxiety	19	31	38	6.33	.04
17. Irritability	17	53	42	15.26	.00
42. Decreased efficiency	17	47	25	9.83	.01
5. Headache	16	41	25	7.25	.02
22. Restlessness	14	16	30	6.20	.04
11. Painful or tender breasts	13	38	22	7.96	.01
37. Difficulty concentrating	11	34	16	8.39	.01
Premenstrual Phase					
15. Swelling (breasts, abdomen)	22	38	52	13.92	.00
11. Painful or tender breasts	20	38	47	11.19	.00
9. Mood swings	17	34	53	18.99	.00
8. Anxiety	16	16	46	19.05	.00
17. Irritability	13	22	53	27.57	.00

^a(N = 172)

F. Construct validity of the Moos Menstrual Distress Questionnaire among the Bahraini women

Cronbach and Meehl (1955), who first introduced the idea of construct validity, asserted that construct validity should be examined whenever there is lack of agreement as to which components adequately define a conceptual domain and what dimensions of the concepts are being measured. Because the Moos MDQ was tested for the first time among the Bahraini population, its construct validity was examined for this culture. Construct validation is achieved through factor analysis by mathematically determining to what extent items measure the same things or break up in clusters measuring different things (Kim & Mueller, 1978a; Nunnally, 1978). Factor analysis is one of the major statistical methodologies for investigating construct validity (Nunnally, 1978) because it identifies which items relate to each other, thereby delineating the salient dimension of a concept.

An exploratory factor analysis without prior specification about the nature of the underlying factors was done using SPSSX (Norusis, 1985). Factor analysis is a group of statistical procedures which are used to examine patterns of covariation among observed variables in order to discover a set of underlying factors (Gorsuch, 1983; Long, 1983).

1. Selection of the items

According to Norusis (1985) the first step in factor analysis is to examine the correlation matrix. One of the goals of factor analysis is to obtain "factors" that help explain these correlations, so the variables must be related to each other for the factor model to be

appropriate (Comrey, 1978). If the correlations between variables are small, it is unlikely that they share common factors (Gorsuch, 1983; Nunnally, 1978). Therefore, both Pearson product-moment correlations and corrected item-total correlations from the total scale reliability were used to examine the correlation matrix for the menstrual and premenstrual phases of the Moos MDQ. The Pearson product-moment correlation coefficients and corrected item-total correlations were used to identify the items that could be entered into the factor analysis. According to Nunnally (1978), the corrected item-total correlation provides information about each item's contribution to the internal consistency of the overall instrument. The correlation coefficients need to be 0.3 at a minimum (Gorsuch, 1983; Nunnally, 1978). It determines signs and sizes of coefficients in the linear combination that produces the factors.

Of the 49 items in the modified Moos MDQ, 36 for the menstrual phase and 35 for the premenstrual phase had correlation coefficients of .30 or above in the respective correlation matrices. The inter-item correlation matrix was examined to identify redundant items (correlations above .70), but none were found.

Gorsuch (1983) recommended that the correlation matrix always be tested for significance. Bartlett's test of sphericity, which is based on the chi-square transformation of the determinant of the correlation matrix, was done for the extracted items on the both the menstrual and premenstrual phases. Bartlett's test is used to test the hypothesis that the correlation matrix is an identity matrix, that is, all the

diagonal elements are 1 and all off-diagonal elements are 0. Its coefficient is usually large and the associated alpha is small. Norusis (1985) recommended the Kaiser-Meyer-Olkin (KMO) test to measure the sampling adequacy of the items extracted so that a factor analysis could be performed. Small values on KMO indicate that a factor analysis of the variable may not be explained by another variable.

The result of the Bartlett test of sphericity for the 36 extracted items on menstrual phase was 2782.99 at $\alpha = .0000$ and the KMO measure of sampling adequacy was .8362. For the 35 extracted items on the premenstrual phase, the result of the Bartlett test of sphericity was 2424.45 at $\alpha = .0000$ and the KMO measure of sampling adequacy was .787. The conclusion was that both phases had adequate numbers of items for factor analysis to be performed and that because the KMO value for both phases exceeded .5, factor analysis was appropriate to perform (Norusis, 1985). Kaiser characterized KMO values in the .80s as meritorious and in the .70s as middling.

2. Reliability of the extracted items

Nunnally (1978) cautioned that the sampling of items is the major source of error in an instrument. He recommended that internal consistency reliability should be evaluated on all new instruments. As stated earlier, Cronbach's alpha estimates internal consistency based on the average inter-item correlation among items within a test and the number of items. Comrey (1978) strongly recommended developing good reliable measures of variables, especially if Kaiser criterion eigenvalue-one procedure is used to determine the number of factors.

The reliability of Moos MDQ menstrual phase with 36 extracted variables was $\alpha = .92$, which indicates a very high internal consistency for the questionnaire. Table XXXVI, Appendix K, shows the results of the item-total statistics for reliability of the menstrual phase and Table XXXVII, Appendix L, the item-total statistics for reliability of the premenstrual phase. The reliability of Moos MDQ premenstrual phase with 35 extracted variables was $\alpha = .88$, which is also considered high.

3. Determining the number of factors

Comrey (1978) recommended using more than one criterion in determining the number of factors, for each criterion has its own weaknesses. Two criteria were used for this study: (a) the Kaiser, or eigenvalue criterion ($\text{eigenvalue} \geq 1$), and (b) the scree plot. Exploratory, rather than confirmatory, analysis was used to identify the cluster of symptoms from the Moos MDQ for the Bahraini women. The principal components factor analysis method was used to extract factors from a correlation matrix (Gorsuch, 1983). This method determines the minimum number of independent factors among observable variables. Each factor accounts for the maximum possible amount of the variance of the variables being factored. The first factor accounts for the largest amount of variance in the sample. The second factor accounts for the next largest amount of variance and is uncorrelated with the first factor. The successive factors explain progressively smaller proportions of the total sample variance and all are uncorrelated with each other.

Table XIX contains the eigenvalues, percent of variance, and cumulative percent of variance attributable to each factor in the Moos MDQ menstrual phase using the principal components method of extraction. The initial factor analysis for menstrual phase with 36 items yielded a 10-factor solution with eigenvalues above 1 and explained variance of 65.7%. Factor 1 for the menstrual phase explained 28.6% of the variance by itself.

Table XX reports the same as above but for the premenstrual phase of the Moos MDQ. Factor analysis for the premenstrual phase also yielded a 10-factor solution with an explained variance of 64.7%. Factor 1 for the premenstrual phase explained 24.4% of the variance.

The second criterion used was the scree plot. This test plots the factors against the eigenvalues or the amount of variance they explain (Cattell, 1978). The number of factors is determined by finding the point where the curve levels off and no further factors are interpreted. The scree plot leveled off at nine factors for the menstrual phase, explaining 62.8% of the variance. For the premenstrual phase, the scree plot leveled off at 6 factors, explaining 61.5% of the variance.

To arrive at the maximum interpretability of the factors, varimax orthogonal rotation was used (Kim & Mueller, 1978a). Norusis (1985) mentioned that the varimax rotation method attempts to minimize the number of variables that have high factor loadings on a factor. It assumes that the factors are uncorrelated. Rotated solutions also were examined to determine the proper number of factors. Rotated solutions for nine-, eight-, seven-, and six-factor models were examined for

TABLE XIX
 EIGENVALUES, PERCENT OF VARIANCE EXPLAINED, AND
 CUMULATIVE PERCENT OF VARIANCE EXPLAINED BY TEN
 FACTORS ON THE MENSTRUAL PHASE OF THE MOOS
 MENSTRUAL DISTRESS QUESTIONNAIRE

Factor	Eigenvalue	Percent of Variance	Cumulative Percent of Variance
1	10.29435	28.6	28.6
2	1.89991	5.3	33.9
3	1.85599	5.2	39.0
4	1.83554	5.1	44.1
5	1.67758	4.7	48.8
6	1.48506	4.1	52.9
7	1.28498	3.6	56.5
8	1.17865	3.3	59.8
9	1.10290	3.1	62.8
10	1.03314	2.9	65.7

TABLE XX
EIGENVALUES, PERCENT OF VARIANCE EXPLAINED, AND
CUMULATIVE PERCENT OF VARIANCE EXPLAINED BY TEN
FACTORS ON THE PREMENSTRUAL PHASE OF THE MOOS
MENSTRUAL DISTRESS QUESTIONNAIRE

Factor	Eigenvalue	Percent of Variance	Cumulative Percent of Variance
1	8.54558	24.4	24.4
2	2.37081	6.8	31.2
3	2.11129	6.0	37.2
4	1.75763	5.0	42.2
5	1.50209	4.3	46.5
6	1.40572	4.0	50.6
7	1.33948	3.8	54.4
8	1.31335	3.8	58.1
9	1.17295	3.4	61.5
10	1.11721	3.2	64.7

simple structure and trivial factors for the menstrual phase. The same tests were performed for the premenstrual phase with eight, seven, and six factors.

Kim and Mueller (1978a) indicated that simple structure is present when some factor loadings are relatively high on a factor (close to 1) and the rest are low (close to 0). To identify the factors, it is necessary to group the variables that have high loadings for the same factors. One way is to sort the factor pattern matrix so that variables with higher loadings on the same factor appear together, with small factor loadings omitted. The factor loadings are standardized regression coefficients in the multiple regression equation. The factor loading represents the correlation between factor and item where only a single common factor is involved or where multiple common factors are orthogonal, or independent of each other (Norusis, 1985). The range of factor loadings is between -1.00 and 1.00 (Kerlinger, 1973). When a factor loading of .40 is used as cutoff point for the selection of items, there are fewer split items in the factor solution (Nunnally, 1978). (A split item is one that loads significantly on two or more factors in the factor solution.) Loading on the same item, it is difficult to distinguish between factors (Norusis, 1985). Gorsuch (1983) called factors that have no items that load on that factor alone, trivial factors.

Table XXI reports the factor loading of the nine-factor solutions for the menstrual phase. It also shows the items that have loadings greater than .4 on more than one factor. Factor 8 consisted of only two

TABLE XXI

FACTOR LOADINGS OF .4 AND ABOVE FOR THE 36 MOOS MENSTRUAL DISTRESS QUESTIONNAIRE ITEMS
 SELECTED FOR THE MENSTRUAL PHASE PRINCIPAL COMPONENT EXTRACTION AND VARIMAX ROTATION:
 NINE-FACTOR SOLUTION

Factor name	Factor Number								
	1	2	3	4	5	6	7	8	9
General									
Menstrual									
Discomfort									
POORI	.66165								
ACHEI	.62071								
CRAMPI	.55748								
LAPPETI	.55314								
FATGI	.54846								
CONCENI	.51181								
BACKI	.48805								
Behavior									
Change									
INBED1		.71877							
HOME1		.68644							
AVOID1		.59501							
COORI		.57642							
DECREASI		.56351							
DISTI		.54319							

FACTOR LOADINGS OF .4 AND ABOVE FOR THE 36 MOOS MENSTRUAL DISTRESS QUESTIONNAIRE ITEMS
SELECTED FOR THE MENSTRUAL PHASE PRINCIPAL COMPONENT EXTRACTION AND VARIMAX ROTATION:
NINE-FACTOR SOLUTION

[illegible]

items, loading on each other. These were "painful breast" and "swelling of breast or abdomen." The item "cold sweat" did not load on any factor.

Table XXII reports the results of factor loading of the six-factor solutions for the premenstrual phase. The item "poor judgment" had a high loading greater than .4 on both Factor 1, "Physiological Premenstrual Discomfort," and Factor 2, "Lower Concentration." The item "backache" had a high loading on Factor 1, "Physiological Premenstrual Discomfort," and Factor 4, "Behavior Change."

4. Reliability

The reliability estimates for the menstrual and premenstrual scales and the reliability of the factors are shown in Tables XXIII and XXIV. The reliability estimates for the seven factors of the menstrual phase ranged from .64 to .81, while the reliability estimates for the premenstrual phase's six factors ranged from .63 to .81.

G. Relationships between the symptom clusters and age, years of education, age at menarche, cycle interval, and flow

Pearson correlations were generated to determine the relationships between the aggregates of symptoms (factor score coefficient) and the selected sociodemographic variables and menstrual cycle characteristics (Table XXV). The nine factors on the menstrual phase and the six factors on the premenstrual phase were treated as dependent variables, while the sociodemographic and menstrual cycle characteristics were treated as independent variables. The sociodemographic independent variables were age and years of education. The menstrual cycle

TABLE XXII

FACTOR LOADINGS OF .4 AND ABOVE FOR THE 35 MOOS MENSTRUAL
DISTRESS QUESTIONNAIRE ITEMS SELECTED FOR THE PREMENSTRUAL
PHASE PRINCIPAL COMPONENT EXTRACTION AND VARIMAX ROTATION:
SIX-FACTOR SOLUTION

Factor name		Factor Number					
Variable	1	2	3	4	5	6	
Physiological							
Premenstrual							
Discomfort							
IRRIT2	.76945						
BREAST2	.62725						
REST2	.61838						
ANXITY2	.55982						
MOOD2	.54873						
SWELL2	.53942						
BACK2	.53781						
JUDG2	.51304	.41634		.43436			
CRAMP2	.42210						
Lower							
Concentration							
CONF2		.73987					
LONE2		.64321					
DIST2		.63965					
FORGET2		.58641					
CONCEN2		.54660					
HOME2		.49145					
Physical							
Premenstrual							
Discomfort							
NAP2			.73366				
CHEST2			.71022				
HOT2			.65443				
ACHE2			.60650				
SUFFO2			.59473				
ORDER2			.47230				
FATG2			.42178				
LAPPET2			.35320				

TABLE XXII (continued)

FACTOR LOADINGS OF .4 AND ABOVE FOR THE 35 MOOS MENSTRUAL
DISTRESS QUESTIONNAIRE ITEMS SELECTED FOR THE PREMENSTRUAL
PHASE PRINCIPAL COMPONENT EXTRACTION AND VARIMAX ROTATION:
SIX-FACTOR SOLUTION

Factor name		Factor Number					
Variable	1	2	3	4	5	6	
Behavior							
Change							
DECREAS2				.70307			
AVOID2				.69887			
POOR2				.48640		.40040	
INBED2				.48298			
Fluid							
Retention							
NAUSEA2					.62217		
HEADACH2					.60012		
INSOM2					.59644		
DIZZI2					.57390		
COLD2					.44257		
Affect							
CRYING2						.76782	
TENS2						.68682	
SAD2		.44346				.49598	

TABLE XXIII

RELIABILITY OF SUBSCALES FROM FACTOR ANALYSIS OF MENSTRUAL PHASE
OF MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

Factor Variable		Cronbach's Alpha	Percent of Variance	Cumulative Percent of Variance
General Menstrual Discomfort		.81	28.6	28.6
Poor school work	.77			
General ache	.77			
Cramp	.80			
Loss of appetite	.79			
Fatigue	.77			
Difficulty concentrating	.79			
Backache	.80			
Behavior Change		.81	5.3	33.9
Stay in bed	.79			
Stay at home	.79			
Avoid social activity	.77			
Poor coordination	.79			
Decrease efficiency	.76			
Distractable	.80			
Somatic Complaints		.73	5.2	39.0
Heart pounding	.66			
Dizziness	.66			
Blind spots	.67			
Numbness	.72			
Headache	.69			
Emotional States		.71	5.1	44.1
Minor accidents	.70			
Feeling sad	.61			
Anxiety	.59			
Insomnia	.70			
Autonomic Reaction		.64	4.7	48.8
Nausea	.50			
Hot flashes	.57			
Feeling of suffocation	.60			
Crying	.60			

TABLE XXIII (continued)

RELIABILITY OF SUBSCALES FROM FACTOR ANALYSIS OF MENSTRUAL PHASE
OF MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

Factor Variable		Cronbach's Alpha	Percent of Variance	Cumulative Percent of Variance
Affect		.73	4.1	52.9
Mood swing	.67			
Irritability	.65			
Restlessness	.65			
Tension	.71			
Impaired Functioning		.58	3.6	56.5
Confusion	.71			
Muscle stiffness	.71			
Poor judgment	.60			

TABLE XXIV

RELIABILITY OF SUBSCALES FROM FACTOR ANALYSIS OF PREMENSTRUAL PHASE
OF MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

Factor Variable	Cronbach's Alpha	Percent of Variance	Cumulative Percent of Variance
Physiological Premenstrual Discomfort	.81	24.4	24.4
Irritability	.77		
Painful breast	.78		
Restlessness	.79		
Anxiety	.79		
Mood swings	.79		
Swelling	.80		
Backache	.80		
Poor judgment	.80		
Cramps	.80		
Lower concentration	.75	6.8	31.2
Confusion	.70		
Loneliness	.67		
Distractable	.71		
Forgetfulness	.74		
Difficulty concentrating	.74		
Stay at home	.71		
Physical Premenstrual Discomfort	.78	6.0	37.2
Take naps	.74		
Chest pain	.74		
Hot flashes	.72		
General aches and pain	.70		
Feeling of suffocation	.73		
Orderliness	.76		
Fatigue	.73		
Loss of appetite	.75		
Behavior change	.67	5.0	42.2
Decreased efficiency	.55		
Avoid social activities	.62		
Poor school/work performance	.57		
Stay in bed	.66		

TABLE XXIV (continued)

RELIABILITY OF SUBSCALES FROM FACTOR ANALYSIS OF PREMENSTRUAL PHASE
OF MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

Factor Variable		Cronbach's Alpha	Percent of Variance	Cumulative Percent of Variance
Fluid retention		.63	4.3	46.5
Nausea	.58			
Headache	.62			
Insomnia	.49			
Dizziness	.55			
Cold sweat	.62			
Affect		.72	4.0	50.6
Tension	.65			
Sad	.64			
Crying	.59			

TABLE XXV
CORRELATIONS BETWEEN SYMPTOM SCORES AND SELECTED
DEMOGRAPHIC AND MENSTRUAL CYCLE VARIABLES

Factor Name	Age	Years of Education	Age at Menarche	Flow Length	Flow Interval
Menstrual Phase					
General Menstrual Discomfort	-.25**	.18*	-.08	.06	.02
Behavior Change	-.05	.06	.02	.04	.02
Somatic Complaints	-.08	.05	.02	-.13	-.14
Emotional States	.08	-.09	-.02	.09	-.10
Autonomic Reaction	-.24***	.21***	.14*	.22***	-.04
Affect	-.25**	.21**	.14	.23**	.02
Impaired Functioning	.01	.02	-.01	-.08	.09
Breast Changes	.06	.11	-.11	.02	-.11
Cold Sweat	.03	.05	-.07	-.03	-.00
Premenstrual Phase					
Physiological Premenstrual Discomfort	.05	.35***	-.09	.10	-.03
Lower Concentration	-.09	.10	-.05	.15*	.00
Physical Premenstrual Discomfort	-.01	-.15*	-.08	.05	-.08
Behavior Change	.04	-.09	-.02	.05	-.03
Fluid Retention	.13	-.05	-.20*	-.05	.05
Affect	-.03	.07	-.05	-.04	-.05

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$

characteristics were age at menarche, cycle interval, and number of days of menstrual flow.

1. The menstrual phase

Age is significantly negatively correlated with both Factor 1, "General Menstrual Discomfort," ($r_{pb}[172] = -.249$, $p \leq .01$) and with Factor 6, "Affect," ($r_{pb}[172] = -.246$, $p \leq .01$). That is, the younger the woman, the more she reports the experience of aggravation of these symptoms. The woman's years of education were positively correlated with both the "General Menstrual Discomfort" factor ($r_{pb}[172] = .179$, $p \leq .01$) and the "Affect" factor ($r_{pb}[172] = .211$, $p \leq .01$). This indicates the higher the education of the woman, the more she reports the symptom.

2. The premenstrual phase

Years of education is significantly positively correlated with Factor 1, "Physiological Premenstrual Discomfort" ($r_{pb}[172] = .35$, $p \leq .001$), and significantly negatively correlated with Factor 3, "Physical Premenstrual Discomfort" ($r_{pb}[172] = -.15$, $p \leq .05$). The more educated women reported more premenstrual physical changes. Age at menarche was significantly negatively correlated with Factor 5, "Fluid Retention." It also negatively correlated with all the other factors. That is, the higher the age at menarche the less experience of symptoms. The days of menstrual flow was significantly positively correlated with Factor 2, "Lower Concentration."

H. Self-care measures reported by Bahraini women for their symptoms

To answer the research question, What are the self-care measures of Bahraini women for their symptoms, the women's responses on self-care measures for the symptoms were content analyzed, coded, and categorized. The frequency and percentage of these self-care measures are listed in Table XXVI for the highly-reported symptoms. Of the 172 women interviewed, 154 (90%) responded to this question.

Fifty-two (34%) of the 154 Bahraini women reported using Panadol tablets (an analgesic) for cramps, and 43 (28%) used it for backache. Thirty-eight (25%) lay down for cramps and thirty-five (23%) lay down for backache. Seventeen (11%) women avoided social activities when experiencing nervousness or feeling aggressive or irritable.

Besides the self-care measures reported for individual symptoms, the Bahraini women reported measures used generally during menstruation. Fifteen (10%) reported the use of exercise and eating well as methods to reduce the severity of symptoms. Women reported avoiding certain foods, such as lemon (20%), and vegetables that produce gases, such as radish and bagel (a locally grown vegetable) (11%). Also, women reported avoiding food cold in temper, such as yogurt (10%), because it might stop the menstrual flow. Menstrual blood is believed to be hot in temper. A few women (13%) reported eating hot temper foods, such as shrimp and Julab, to increase the menstrual flow and to expedite removal of menstrual blood, which is considered important to the body. Julab is prepared from grain, flour, fat, sugar, cinnamon, and water. Herbal teas, such as cinnamon and thyme, were used by 29 (17%) women. The

TABLE XXVI
SELF-CARE ACTIVITIES USED BY BAHRAINI WOMEN TO COPE WITH MENSTRUAL SYMPTOMS

Self-care	Symptom											
	Back		Cramp		Head		Leg Pains		Fatigue		Psyche	
	n	%	n	%	n	%	n	%	n	%	n	%
Panadol	43	28	52	34	16	11	14	9	5	3	-	-
Lie down	35	23	38	25	6	4	10	7	9	6	1	1
Rest	23	15	21	14	7	5	6	4	9	6	2	1
Nothing	20	12	17	10	1	1	8	5	5	3	14	9
Hot drink	18	12	41	27	1	1	-	-	-	-	-	-
Hot pad back	15	10	15	10	-	-	1	1	-	-	-	-
Massage back	15	10	1	1	1	1	3	2	-	-	-	-
Ignore	15	10	20	13	4	3	6	4	4	3	5	3
Sleep	10	7	13	9	8	5	3	2	6	4	-	-
Herbal	7	5	29	17	4	3	1	1	-	-	-	-
Keep busy	6	4	5	3	-	-	1	1	2	1	6	4
Drink fluids	5	3	8	5	3	2	1	1	1	1	-	-
Get injection	5	3	6	4	1	1	2	1	-	-	-	-
Others	5	3	5	3	2	1	1	1	2	1	3	2
Bear the pain	5	3	4	2	-	-	2	1	-	-	-	-
Cry	-	-	-	-	-	-	-	-	-	-	-	-
Avoid	-	-	-	-	-	-	5	3	-	-	17	11
Press or raise leg	-	-	-	-	-	-	3	2	-	-	-	-

reasons given for using herbal tea and medicine were (a) to relieve the pain and distention and (b) to drain the menstrual flow and to prevent a smelly discharge. The same reasons were reported by other studies for the use of herbal medicine during postpartum (Al-Darazi, 1986; Mohammed, 1985). One unusual practice which was reported was the use of a mamool by 10 (6%) of the women during menstruation. It is the first time that the investigator has encountered such a practice for purposes other than postpartum. Mamool is a combination of herbs used as a vaginal pessary by women during postpartum. Its purpose, as reported by other studies, is to enhance the uterus and vaginal involution, reduce vaginal laxity, and drain lochia postpartally (Al-Darazi, 1987; Al-Gasseer, 1987; Mohammed, 1985). In this study the women who used mamool stated that it would initiate menstrual flow. Five women (3%) reported another practice to initiate menstrual flow--sitting on a hot pad.

Of the 172 women interviewed, only 21 (15%) reported smoking. Smoking was reported by the women as a means to relieve life tensions and stress. In the words of one woman, "It makes me relieved and relaxed and forget my problems." Two smoked cigarettes and the rest smoked tobacco using Hubble Bubble. Hubble Bubble, called Gadoo in the Bahraini culture, is a type of water pipe for smoking tobacco. It consists of three parts: the lower part is a water chamber with a pipe connecting it to the top; the upper part is the fire chamber where the tobacco and a burning coal are placed; the third part is a pipe from the water chamber to the smoker's mouth. When the smoker inhales through

the pipe, the tobacco smoke is drawn from the top through the connecting pipe to the water and then to the smoker's lungs.

The above results indicate that the Bahraini women reported activities and practices as self-care measures. However, not necessarily all the measures reported could be considered useful. In fact, some methods are considered harmful, such as smoking, and others are questionable, such as the use of mamool.

V. DISCUSSION

The purpose of this research was to (a) identify the menstrual symptoms that Bahraini women experience, (b) present the details of methodological issues that need to be considered when using a questionnaire developed in one culture with another culture, and (c) report the reliability and validity of the Moos MDQ in a Bahraini population.

The study used the 172 Bahraini women's reports of their menstrual experience with menstrual cycle symptoms. Pennebaker (1982) has stated that symptom reporting can be viewed as a stable, unidimensional construct. However, he noted that some individuals are more likely to report symptoms than others and that a number of situational factors influence the perception of symptoms. Self-reported symptoms of a woman depend on her judgments and/or her emotions.

The degree of symptom severity depends on the subjects' awareness of their mood and willingness to report how they feel (Parlee, 1973). Potential confounding factors are general cultural stereotypes, the expectations for self, and the specific information received from others. These factors jointly contribute to an individual's self-reported experiences of menstrual symptoms (Brooks et al., 1980).

Since self-reporting is a function of perception, it is possible that the manifestations of symptoms are different or that similar manifestations are perceived differently. The studies of symptoms associated with menstruation usually rely on self-reports with the result that prevalence figures are based on reports of perception.

The women retrospectively indicated their menstrual symptom experiences during the menstrual, premenstrual, and intermenstrual phases of their most recent cycle using the Menstrual Symptom Questionnaire, which included the Moos MDQ. The menstrual phases were defined respectively as days of menstrual flow (menstrual), within four days before the onset of the menstrual flow (premenstrual), and the remaining days of the cycle (intermenstrual).

When a questionnaire reports retrospective information, there is a possibility of respondent recall bias. The women may have difficulty recalling symptoms of minimal intensity. Hence, they may claim symptoms they believe should be associated with menstruation rather than those they have experienced. Woods, Most, and Dery (1982a) reported that "enumerating the symptoms for subjects may elicit greater prevalence rates than simply asking the subjects to list their symptoms" (p. 90).

Even though the interviewers were instructed to repeat the definitions of the different phases, the Bahraini women defined the premenstrual period as more than four days prior to menstruation. They reported this period to be a week before menstruation. Also, the women stated that the symptoms they were reporting represented their general menstrual symptoms and not necessarily symptoms experienced during the last menstrual cycle.

A. The menstrual cycle characteristics of Bahraini women

The menstrual cycle characteristics of the Bahraini women were similar to those of their colleagues in other cultures. The mean age at menarche was reported as 13 years (Snowden & Christian, 1983). Woods et

al. (1982) reported the mean age at menarche of 12.3 years for an American population, Most et al. (1981) reported a mean age of 13.9 years for an Israeli population, and Monagle (1987) reported a mean of 12.4 years for an Italian population. Moderate blood loss was reported by 69% of the Bahraini women compared to 55% of Americans in Woods et al. (1982) and 58% among Israeli women in Most et al. (1981). The mean menstrual flow was 5 days (Monagle, 1987; Most et al., 1981; Woods et al., 1982c) and the average time for a single cycle was reported as 28 days. But the mean number of days of menstrual flow until the women consider themselves clean is 7 days. On which day a woman is considered clean is based on her assessment that the flow has ceased. The Muslim woman is expected to learn and follow the purity rules (al-tahra) of Islam when she is menstruating as well as the rules for prayer (al-sala), reading the revealed holy book, the Quran, fasting (al-siaam), and pilgrimage (al-hajj).

The prophet Mohammed stated that a woman menstruates for 6 to 7 days on average and can fulfill religious duty for 23 or 24 days each month. Also, different Islamic law schools have described the characteristics of the menstrual cycle in terms of timing, duration, amount, color, smell, and consistency of menstrual blood. They have also distinguished between the menstrual blood (Al-Haidh) and other forms of vaginal bleeding, called Istahadah. These detailed descriptions have been offered by different sects, as the woman needs to be knowledgeable of her periods in order to fulfill her religious duties toward Allah. If she is ignorant of these rules, her ignorance might harm her and lead her to

practice the forbidden (Harram). Hj'arpe (1983) mentioned that "Pre-scriptions concerning ritual purity influence the ritual status of women's menstruation . . . [and] give women the greater ritual impurity" (p. 13). The menstruating woman is relieved from her daily prayers and fasting during the period of impurity (najasah). Also during this time, she is forbidden to have sexual contact with her husband. She is to resume her religious duty after she performs a ritual bath (al-ghosal). This bath is taken when her menstrual flow stops and the woman checks herself to be free from blood spots. When taking this bath, she needs to start with God's name, then washes her hands three times, her hair three times, pours water all over her body three times, and then over each side of her body three times while reciting religious words. After this ritual she will be pure (tahraha). Some authors have claimed that Islam has taken into account the physical and psychological changes in women in terms of relieving her from her religious duty while menstruating (Al-Torki, 1986; Hatimy, 1979; Jameelah, 1982).

B. Perception of menstruation among the Bahraini women

The Bahraini women saw their menstrual period as "normal," or part of life's process. Common terms used by the Bahraini women for menstruation were the period Al-Dawra, the habit Al-Ada, the guest Al-Daifa, the visitor Al-Zaira, the friend Al-Sadika, and the curse Al-Lana. They described the menstrual symptoms as healthy, as an essential part of being a woman. Women who described menstruation and menstrual symptoms as healthy stated that they feel reassured that their bodies are functioning well and that menstruation makes them feel feminine. Abel and

Joffe (1950) found the same attitude in different European cultures. They reported that women in those cultures viewed menstruation as a sign of continuity, youth, femininity, and fertility. This attitude conforms with the expectation of the society of a woman to be productive. At the same time the Bahraini women perceived the menstruation as unclean and described it as an illness. Bahraini women used the term "illness" to refer to menstruation; menstruation meant getting rid of poisonous blood from the body. This perception coincides with both Paige and Paige's (1981) and Snowden and Christian's (1983). These authors reported that the women from different cultures referred to menstruation as pollution. The Bahraini women's view is derived from the verse in the Quran which is very explicit regarding menstruation. Surrah II, called "The Cow" (al-Baqara), in the Quran says,

They question thee (O Mohammad) concerning menstruation. Say: It is an illness, so let women alone at such times and go not in unto them till they are cleaned. And when they have purified themselves, then go in unto them as Allah hath enjoined upon you. Truly Allah Loveth all those who turn unto Him, and Loveth who have a care for cleanness. (Verse 222)

Allah in this text refers to God. Most of the Bahraini women reported that at some time during menstruation they have to or feel like performing less of their daily activities. The women who reported "feel like" mentioned that they had to do their work anyway to keep the home clean and take care of the children. Even though the Bahraini women reported menstruation as an illness, like women in other cultures (World Health Organization, 1981a) they did not adopt the sick role. Thus, based on

the above, the Bahraini women hold mixed views of menstruation, those of health and illness.

C. Prevalence estimates

1. Bahraini women's reports

Results from the retrospective administration of the Moos MDQ are presented in the first three columns of Table XII. The most frequently reported symptoms on the Moos MDQ were cramps, backache, fatigue, headache, mood swings, swelling, irritability, tension, painful or tender breasts, anxiety, and crying. The least frequently reported symptoms were those in the control category of the Moos MDQ except for forgetfulness. These included feelings of suffocation, forgetfulness, chest pain, ringing in the ears, heart pounding, numbness or tingling, and blind spots.

The women believed that some symptoms reported on the Moos MDQ were not relevant to the menstrual cycle, i.e., weight gain, insomnia, crying, forgetfulness, avoiding social activity, difficulty in concentrating, distractability, accidents, mood swings, and lowered motor coordination. The remaining Moos MDQ symptoms were reported infrequently.

The women reported that they do not weigh themselves and thus do not know if they gain weight at certain points in the menstrual cycle. These women differ from Western women who are more body-conscious and weight-conscious. Bahraini women view gaining weight as a sign of health. Also, the Bahraini women reported that they believed that forgetfulness, distractability, and difficulty in concentrating were

dependent on environmental and situational factors. The women indicated that if children are present, they will be distracted. They reported that high levels of forgetfulness were due to being busy with many things. Further, the women reported that crying, anxiety, and forgetfulness were not necessarily due to the menstrual cycle but part of what happens during everyday life.

The tendency to stay at home and avoid social activity were judged by the Bahraini women to be culturally relevant. Many women reported staying at home most of the time and that this behavior is the norm for them. This is another cultural difference between the Western and Bahraini women. Staying at home and avoiding social activities might be considered nonsocial. However, in the Bahraini culture staying at home is viewed as positive.

The reported menstrual cycle symptoms in this sample of Bahraini women were similar to those for most of the other populations of women studied to date. But the prevalence estimates of symptoms among the Bahraini women are considerably lower than those reported in other cultures such as American, Italian, and Egyptian, but not Israeli.

Moos (1968) reported that the women had higher somatic scores on the Moos MDQ during menstruation and higher psychological scores premenstrually. The same pattern was not observed in the Bahraini culture, since the Bahraini women reported the same symptoms with almost the same frequency during both phases, menstrual and premenstrual. However there is a continuing need to differentiate the degree of the severity of the experience of symptoms. Symptoms experienced can range from mild

to severe. Between 1 to 21% of the Bahraini women reported the experience of each symptom on the Moos MDQ as strong and severe. Thus, the range of Bahraini women experiencing the symptom as severe is higher than what is reported in the literature, which is 2-10% (Moos, 1968) and 2-12% (Woods et al., 1982a, 1982b, 1982c). Referring to Table XIII, the menstrual symptoms reported as strong or severe by 11% to 21% of the Bahraini women were fatigue, cramps, backache, avoid social activities, stay in bed, general aches, reduced appetite, mood swing, and poor work performance. The premenstrual symptoms reported as strong or severe by 11% to 13% of the women were fatigue, cramps, backache, reduced appetite, mood swings, irritability, swelling, headache, and painful breasts. Thus, the Bahraini women experience more physical symptoms with more severity in the menstrual phase compared to the premenstrual phase.

Some women reported feeling well (34%) during the remainder of the cycle and being more energetic (24%). The women remarked that they would be free from uncleanness and will be able to practice their religion. Sommer (1980) mentioned that the menstrual cycle may have both positive and negative as well as neutral effects on feelings and behavior of the women. Overall, the Bahraini women reported more fatigue-related symptoms menstrually and premenstrually.

2. Bahraini women compared to southern Italian women

In Chapter II, the literature review section, the importance of adding to the knowledge of menstrual cycle research by cross-cultural comparison of scientific studies was mentioned. Thus findings of this

study were compared with those of a study of southern Italian women by Monagle (1987). The Italian study was used for comparison since it used the same menstrual symptoms measure (Moos MDQ) and had a large, randomly selected sample. The Bahraini women were not compared with Egyptian women because Badaway et al. (1983a) used a different methodology and sample selection procedure. Further, the participants in the Egyptian study were younger, with a mean age of 17.9 years and a standard deviation of 1.18 years, and were high school students.

In order to make a comparison between this study and Monagle's (1987), the two studies are described explicitly. Both of the studies used a random sampling procedure to select the participants. Four of the questions that were studied by Monagle were also addressed in this study: (a) the prevalence of menstrual cycle symptoms using Moos MDQ; (b) cluster of symptoms ; (c) variation of menstrual cycle symptoms according to age, occupation, and number of children; and (d) variation of menstrual cycle symptoms according to age at menarche, cycle length, and flow length.

Monagle (1987) studied 308 southern Italian women, 96% of whom were Catholic. The sample size in the present study was 172 Bahraini women, all of whom were Muslim. The women in both studies were reported to be healthy and free from chronic diseases. The age range of the Italian women in Monagle's (1987) study was 20 to 49 years, with a mean of 35 years, compared to a range of 17 to 45 years and a mean of 28 years for the Bahraini women. The Italian women had an average of three children, and the Bahraini women, four. The educational level for the majority of

the Italian women was 5 to 8 years, while 20% of the Bahraini women could neither read nor write. Approximately 80% of the Italian women were housewives compared to 71% of the Bahraini women. Also 82.2% of the Italian women were married compared to 53% of the Bahraini women. None of the Bahraini women were on oral contraceptive pills, compared to about 10% of the Italian women. In brief, the Italian women were older and had higher education than their Bahraini counterparts. Also, more Italian women were married compared to the Bahraini women.

Table XXVII presents the comparison of the menstrual symptoms prevalence rate for the Bahraini women and the Italian women. The symptoms that are reported higher by Bahraini women are underlined. Stay in bed, take naps, reduced appetite, and increased appetite were removed from the table because these four items were combined into two items in Monagle's study (1987).

The pattern which is observed from Table XXVII is that the Italian women reported more symptoms with a higher prevalence rate than the Bahraini women. For the menstrual phase the Bahraini women reported 8 symptoms with a prevalence rate $> 30\%$ compared to 22 symptoms reported by the Italian women with a prevalence rate $> 30\%$. The eight symptoms for the Bahraini women were fatigue, cramps, backaches, general aches, mood swing, irritability, poor school work or performance, and anxiety. The same symptoms were reported by the Italian women except for the absence of general aches.

For the premenstrual phase the Bahraini women again had 8 symptoms with a prevalence rate $> 30\%$, which was fewer than the Italian women's

TABLE XXVII

PREVALENCE RATES OF MENSTRUAL SYMPTOMS AMONG BAHRAINI AND ITALIAN WOMEN

Bahraini Women (Current Study, N = 172)			Italian Women (Monagle, 1983, N = 308)			
Item # and Symptom	Menstrual	Premenstrual	Intermenstrual	Menstrual	Premenstrual	Intermenstrual
19. Fatigue	56	33	3	67	34	20
10. Cramps	55	32	1	46	20	3
14. Backache	53	49	2	59	40	12
21. General aches and pains	44	31	2	20	17	11
9. Mood swings	40	36	2	48	36	23
17. Irritability	35	32	2	50	37	17
24. Poor school or work performance	34	16	0	41	11	3
8. Anxiety	30	29	1	36	28	15
15. Swelling (breasts, abdomen)	28	38	0	41	64	5

TABLE XXVII (continued)

PREVALENCE RATES OF MENSTRUAL SYMPTOMS AMONG BAHRAINI AND ITALIAN WOMEN

Item # and Symptom	Bahraini Women (Current Study, N = 172)			Italian Women (Monagle, 1983, N = 308)		
	Menstrual	Premenstrual	Intermenstrual	Menstrual	Premenstrual	Intermenstrual
34. Stay at home	27	9	1	50	13	14
38. Avoid social activities	27	8	1	28	9	5
42. Decreased efficiency	26	11	1	33	13	4
5. Headache	24	25	4	47	42	22
16. Hot flashes	23	16	2	35	29	15
11. Painful or tender breasts	22	35	2	25	55	4
22. Restlessness	22	23	1	53	40	20
23. Insomnia	<u>20</u>	12	3	15	14	11
35. Excitement	20	10	1	31	29	15
12. Nausea, vomiting	19	15	2	21	15	4

TABLE XXVII (continued)

PREVALENCE RATES OF MENSTRUAL SYMPTOMS AMONG BAHRAINI AND ITALIAN WOMEN

Item # and Symptom	Bahraini Women (Current Study, N = 172)			Italian Women (Monagle, 1983, N = 308)		
	Menstrual	Premenstrual	Intermenstrual	Menstrual	Premenstrual	Intermenstrual
3. Dizziness, faintness	19	12	2	36	28	18
39. Feelings of well-being	18	10	34	63	50	67
18. Tension	17	16	0	59	49	29
37. Difficulty concentrating	<u>17</u>	8	2	14	9	5
13. Crying	<u>17</u>	13	1	14	10	7
30. Orderliness	16	15	9	0	0	0
47. Poor motor coordination	16	8	0	20	9	5
41. Distractable	15	9	1	29	22	18
43. Bursts of energy, activity	15	8	24	58	62	63

TABLE XXVII (continued)

PREVALENCE RATES OF MENSTRUAL SYMPTOMS AMONG BAIIRAINI AND ITALIAN WOMEN

Item # and Symptom	Bahraini Women (Current Study, <u>N</u> = 172)			Italian Women (Monagle, 1983, <u>N</u> = 308)		
	Menstrual	Premenstrual	Intermenstrual	Menstrual	Premenstrual	Intermenstrual
25. Affectionate	15	8	7	39	38	37
1. Muscle stiffness	14	13	1	20	12	6
32. Confusion	14	11	1	24	17	13
26. Feelings of suffocation	14	10	1	9	10	7
20. Feeling sad or blue	13	13	2	34	27	16
4. Loneliness	13	13	2	21	18	11
40. Heart pounding	13	10	1	31	29	20
33. Poor judgment	13	9	1	0	0	0
44. Numbness, tingling	13	6	2	27	25	18

TABLE XXVII (continued)

PREVALENCE RATES OF MENSTRUAL SYMPTOMS AMONG BAHRAINI AND ITALIAN WOMEN

Item # and Symptom	Bahraini Women (Current Study, <u>N</u> = 172)			Italian Women (Monagle, 1983, <u>N</u> = 308)		
	Menstrual	Premenstrual	Intermenstrual	Menstrual	Premenstrual	Intermenstrual
46. Blind spots, fuzzy vision	12	9	2	21	14	10
27. Forgetfulness	9	10	2	20	20	17
7. Cold sweats	9	3	1	15	11	7
2. Weight gain	8	15	1	11	11	9
45. Minor accidents	8	5	1	13	10	7
31. Chest pains	7	6	1	13	10	7
6. Skin blemish or disorder	5	3	2	12	34	3
36. Ringing in the ears	5	5	1	14	10	8

^aUnderlining indicates symptom has higher prevalence rate among Bahrainis than among Italians.

14 symptoms with a prevalence rate $> 30\%$. The eight symptoms were fatigue, cramps, backache, general aches, mood swing, irritability, swelling, and painful breasts. These symptoms were included in the premenstrual symptoms reported by the Italian women, except for general aches. It is to be noted that the symptom "general aches" is the only symptom that had a higher prevalence rate among the Bahraini women. For the premenstrual phase, besides general aches, cramps and backaches had a higher prevalence rate among the Bahraini women. Monagle (1987) did not report about the degree of severity of symptoms experienced by the Italian women.

Another observation that needs to be made is that the Italian women had a higher prevalence rate of symptom reporting during intermenstrual phase compared to the symptoms reported by the Bahraini women. In this study of Bahraini women, only two symptoms were reported highly during the intermenstrual phase. These were feeling of well-being and burst of energy. The difference in prevalence between the Italian women and the Bahraini women might be due to (a) the fact that the interviewers in the Bahraini study might have probed further for each symptom and requested the women to report the variation according to the phases and (b) some Bahraini women view menstruation as an illness.

The cycle phase variations for the Bahraini women in the menstrual symptom reporting were significant at $p = .01$ for all the symptoms except for the following: excitement, ringing in the ears, orderliness, skin disorder, and increased appetite. On the contrary, in the Italian study the symptoms that did not have significant cycle variations were

forgetfulness, insomnia, well-being, suffocation, and affectionate behavior. However, it has to be remarked that in the Bahraini study the sample size is approximately half of the sample size in the Italian study. Both of these studies report cyclic variation, contrary to Woods et al.'s (1982b) suggestion that there is one construct, the perimenstrual. As in the Italian study, the current study also showed that the more physiological and fatigue-related symptoms had the greatest variation across cycle phases. In summary, both the Bahraini women and the Italian women experience menstrual distress.

3. Prevalence rates of menstrual symptoms for Bahraini women calculated by age, occupation, parity, and years of education

The relationships among menstrual symptom reports and the sociodemographic factors such as age, occupation, parity, and years of education were examined. According to the literature, it has been noted that age is a variable that introduces great variability in menstrual cycle symptom reporting. The younger women experience discomfort during their menstrual periods while the older women experience discomfort premenstrually (Dalton, 1964; Moos, 1969; Snowden & Christian, 1983; Taylor, 1974). In this study the younger women significantly ($p < .05$) reported nine menstrual symptoms: cramps, backache, stay in bed, mood swings, irritability, anxiety, crying, tension, and poor coordination. The older women reported more fatigue and well-being menstrually. In Monagle's (1987) study the older Italian women reported feelings of well-being. For the premenstrual phase only two symptoms varied significantly ($p < .05$) according to the three age categories: nausea (older

women) and irritability (women between 25-34 years). Monagle (1987) reported no pattern for menstrual or premenstrual symptoms by age categories at $p < .01$. For this study the younger women reported more somatic and mood changes than the older women menstrually. Monagle (1987) reported lowered work and skin disorders among the younger Italian women menstrually and hot flashes and ringing in the ears among the oldest women premenstrually. Contrary to the Italian women, the younger the Bahraini women, the more they reported menstrual symptoms. But there was no pattern of premenstrual symptom variations and age categories.

Like other studies, women with children reported less experience of menstrual symptoms (Asso, 1984; Woods et al., 1982a). Among the Bahraini women, the women with no children significantly reported more menstrual symptoms. These were cramps, crying, irritability, and reduced appetite. Painful or tender breasts was reported by women who did not have children.

When the relationship between the menstrual cycle symptom variation and women's occupation was examined, only three menstrual symptoms and five premenstrual symptoms varied significantly at a p value of .05. The women working at home reported more hot flashes and excitement menstrually and women working outside the home reported more tension. The women working outside their homes reported five premenstrual symptoms: swelling breasts, mood swings, irritability, crying, and difficulty concentrating. If this study is compared with the study on Italian women at a p value of .01, only four premenstrual symptoms varied with the

women's occupation. Thus, caution needs to be taken in generalizing the results of menstrual cycle symptom variation and occupation since 76% of the women in this study and 80% of the Italian women were housewives. There are studies that reported a relationship between stressful life events and perimenstrual symptoms (Woods, 1986; Woods et al., 1982a).

Finally, the menstrual cycle symptom variation with years of education was tested. It was hypothesized that the more educated women would report more symptoms. This relationship was borne out by the data, in contrast to the findings of Woods et al. (1982c) that women with more education reported lower prevalence of symptoms. Bahraini women reported 12 menstrual symptoms which varied with education and the women five years or less education reported fewer symptoms than the more educated women. The explanation for this finding might be either that Bahraini women with more education were more aware of their body and experienced the symptom changes or that the Bahraini women with less education experienced the symptoms but did not relate them to symptoms of the menstrual cycle.

In summary, further studies with a large sample need to be done to find the relationship between sociodemographic symptoms and menstrual cycle symptomatology among Bahraini women. The findings revealed that the younger women reported more menstrual symptoms and women with five or more children reported more general aches and muscle stiffness premenstrually. The latter might be due to the medical or physical condition and also the effect of age and parity together on the experience of menstrual symptoms.

D. Reliability and validity of the Moos Menstrual Distress
Questionnaire among Bahraini women

1. Reliability

The study data suggested that overall the menstrual symptoms recall was highly reliable. Women were able to retrospectively recall the three phases of menstrual cycle and distinguish variations of symptoms experienced. However, the low reliability of intermenstrual phase indicates that the item correlation is low. This is expected as the Moos MDQ is testing mainly symptoms related to premenstrual and menstrual phases. The reliability for the extracted factors ranged from 0.64 to 0.81 for the menstrual phase and 0.63 to 0.81 for the premenstrual phase.

2. Validity

It is observed, based on the results of open-ended questions, that Bahraini women reported at least 11 symptoms that are reported on the Moos MDQ: cramps, backache, body ache, fatigue, nausea and vomiting, pain in the breast, headache, nervousness, mood swings, aggressiveness, and acne. These reported symptoms confirm the content validity of the Moos MDQ.

Factor analysis was used to arrive at the construct validity of the Moos MDQ. As stated earlier, factor analysis has the capability to reduce the data into smaller components that can give a theoretical basis for the factor. The Pearson correlation matrix and the item-total correlations were examined to delete items that had a correlation below .30. Thus, 36 items on the Moos MDQ were extracted for the menstrual

phase and 35 items for the premenstrual phase. Items deleted in the factor analysis in the menstrual phase were weight gain, loneliness, skin disorder, cold sweat, affectionate, forgetfulness, orderliness, chest pain, excitement, ringing in the ears, feels well, bursts of energy, and increased appetite. For the premenstrual phase, the deleted items from the factor analysis were muscle stiffness, weight gain, bursts of energy, feeling well, skin disorders, affectionate, excitement, ringing in the ears, heart pounding, poor coordination, numbness, minor accidents, blind spots, and increase in appetite. Six of the items extracted from the menstrual phase and eight extracted from the premenstrual phase were also deleted in studies done by Woods et al. (1982a, 1982b, 1982c). The items that were deleted from Woods et al.'s study were affectionate, orderliness, excitement, chest pain, well-being, ringing in the ears, tingling hands, visual disturbances, suffocation, palpitations, and full of energy. The authors of these studies referred to these items as not reflecting the perimenstrual. Monagle (1987) reported five symptoms' being absent from the three factor analytic results: headache, affectionate, nausea/vomiting, accidents, and blind spots.

Table XXVIII shows the comparison on factors in Moos (1968), Monagle (1987), and this study. Abdel-Khaleq (1983) had arrived at the same factors in the Egyptian study as Moos had earlier. Neither Moos nor Abdel-Khaleq described the method of arriving at eight factors in either the menstrual or the premenstrual phase. Monagle's (1987) study on randomly selected Italian women was a large study but still did not report

TABLE XXVIII

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR MENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (N = 839)	Monagle (1987) (N = 308)	Current Study (1989) (N = 172)
Factor 1 Pain Muscle stiffness Headache Cramps Backache Fatigue General aches and pains	Factor 1 (20.0%)^a Decreased Activity Take naps/Stay in bed Poor school or work performance Stay at home Fatigue Change in eating Decreased efficiency Avoid social activities	Factor 1 (28.6%) General Menstrual Discomfort Poor school or work performance General aches and pains Cramps Reduced appetite Fatigue Difficulty concentrating Backache
Factor 2 Water Retention Weight gain Skin blemish or disorder Painful or tender breasts Swelling (breasts, abdomen)	Factor 2 (8.8%) Autonomic/Control System Ring in the ears Heart pounding Chest pains General aches and pains Cold sweats Hot flashes Anxiety	Factor 2 (5.3%) Behavior Change Stay in bed Stay at home Avoid social activities Poor motor coordination Decreased activity Distractable

TABLE XXVIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR MENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 3 <u>Autonomic Reactions</u> Dizziness, faintness Cold sweats Nausea, vomiting Hot flashes	Factor 3 (4.2%) <u>Distractedness</u> Forgetfulness Confusion Distractable Difficulty concentrating Poor motor coordination	Factor 3 (5.2%) <u>Somatic Complaints</u> Heart pounding Dizziness, faintness Blind spots, fuzzy vision Numbness, tingling Headache
Factor 4 <u>Negative Affect</u> Loneliness Anxiety Mood swings Crying Irritability Tension Feeling sad or blue Restlessness	Factor 4 (3.7%) <u>Activation/Negative Affect</u> Irritability Restlessness Nervous tension Depression Anxiety Mood swings	Factor 4 (5.1%) <u>Emotional States</u> Minor accidents Feeling sad or blue Anxiety Insomnia

TABLE XXVIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR MENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 5 <u>Impaired Concentration</u> Insomnia Forgetfulness Confusion Poor judgment Difficulty concentrating Distractable Minor accidents Poor motor coordination	Factor 5 (3.4%) <u>Sense of Well-Being</u> Bursts of energy, activity Feelings of well-being Orderliness	Factor 5 (4.7%) <u>Autonomic Reaction</u> Nausea, vomiting Hot flashes Feelings of suffocation Crying
Factor 6 <u>Behavior Change</u> Poor school or work performance Take naps, stay in bed Stay at home Avoid social activities Decreased efficiency	Factor 6 (3.4%) <u>Water Retention</u> Swelling (breasts, abdomen) Painful or tender breasts Cramps	Factor 6 (4.1%) <u>Affect</u> Mood swings Irritability Restlessness Tension
Factor 7 <u>Arousal</u> Affectionate Orderliness Excitement Feelings of well-being Bursts of energy, activity		Factor 7 (3.6%) <u>Impaired Function</u> Confusion Muscle stiffness Poor judgment

TABLE XXVIII (continued)
MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR MENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 8 <u>Control</u> Feelings of suffocation Chest pains Ringing in the ears Heart pounding Numbness, tingling Blind spots, fuzzy vision		Factor 8 (3.3%) <u>Breast Changes</u> Painful or tender breasts Swelling (breasts, abdomen)
		Factor 9 (3.1%) <u>Cold Sweat</u>
aPercentage of variance explained by factor.		

on the correlation of items that were included in the factor analysis. She also did not report the criteria used to arrive at the number of factors except for eigenvalues of 1.00. She arrived at six factors for the menstrual phase and eight factors for the premenstrual phase. For this study a minimum eigenvalue of 1.00 and the initial scree test were the criteria used in selecting significant factors.

As indicated in Table XXIX, this study arrived at six factors for the premenstrual phase and seven factors for the menstrual phase. The intermenstrual phase was not factor analyzed due to low reporting of symptoms. The items clustered in a factor for either menstrual or premenstrual phase did not have a consistent pattern since some of them had high prevalence rates, some had low prevalence rates, and some had variations across menstrual cycle phases.

The seven factors (underlined) for the menstrual phase (followed by the symptoms in parentheses) in this study were General Menstrual Discomfort (poor school or work performance, general aches or pain, cramps, reduced appetite, fatigue, difficulty concentrating, and backache), Behavior Change (stay in bed, stay at home, avoid social activities, poor motor coordination, decreased activity, and distractable), Somatic Complaints (heart pounding, dizziness, blind spots, numbness, and headache), Emotional States (minor accidents, feeling sad or blue, anxiety, and insomnia), Autonomic Reactions (nausea and vomiting, hot flashes, feelings of suffocation, and crying), Affect (mood swing, irritability, restlessness, and tension), and Impaired Functioning (confusion, muscle stiffness, and poor judgment). The eighth factor had only two symptoms.

TABLE XXIX

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR PREMENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 1 <u>Pain</u> Muscle stiffness Headache Cramps Backache Fatigue General aches and pains	Factor 1 (17.6%)^a <u>Well-Being</u> Full of energy Feelings of well-being Orderliness	Factor 1 (24.4%) <u>Premenstrual Discomfort</u> Irritability Painful or tender breasts Restlessness Anxiety Mood swings Swelling (breasts, abdomen) Backache Poor judgment Cramps
Factor 2 <u>Water Retention</u> Weight gain Skin blemish or disorder Painful or tender breasts Swelling (breasts, abdomen)	Factor 2 (6.8%) <u>Activation/Negative Affect</u> Irritability Restlessness Mood swings Nervous tension Excitement Anxiety Backache	Factor 2 (6.8%) <u>Lower Concentration</u> Confusion Loneliness Distractable Forgetfulness Difficulty concentrating Stay at home

TABLE XXIX (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR PREMENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 3 <u>Autonomic Reactions</u> Dizziness, faintness Cold sweats Nausea, vomiting Hot flashes	Factor 3 (4.6%) <u>Autonomic</u> Ringling in the ears Hot flashes Cold sweats Numbness, tingling General aches and pains	Factor 3 (6.0%) <u>Somatic Complaints</u> Take naps Chest pains Hot flashes General aches and pains Feelings of suffocation Orderliness Fatigue Reduced appetite
Factor 4 <u>Negative Affect</u> Loneliness Anxiety Mood swings Crying Irritability Tension Feeling sad or blue Restlessness	Factor 4 (4.1%) <u>Emotional</u> Crying Loneliness Depression Insomnia Heart pounding Anxiety	Factor 4 (6.0%) <u>Behavior Change</u> Decreased efficiency Avoid social activities Poor school or work performance Stay in bed

TABLE XXIX (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR PREMENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 5 <u>Impaired Concentration</u> Insomnia Forgetfulness Confusion Poor judgment Difficulty concentrating Distractable Minor accidents Poor motor coordination	Factor 5 (3.6%) <u>Distractedness</u> Forgetfulness Confusion Distractable Difficulty concentrating	Factor 5 (4.3%) <u>Fluid Retention</u> Nausea, vomiting Headache Insomnia Dizziness, faintness Cold sweats
Factor 6 <u>Behavior Change</u> Poor school or work performance Take naps, stay in bed Stay at home Avoid social activities Decreased efficiency	Factor 6 (3.4%) <u>Decreased Activity</u> Take naps/Stay in bed Avoid social activities Stay at home Fatigue	Factor 6 (4.0%) <u>Affect</u> Tension Feeling sad or blue Crying

TABLE XXIX (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE FACTORS FOR PREMENSTRUAL PHASE:
COMPARISON OF CURRENT STUDY WITH MOOS'S AND MONAGLE'S FACTORS

Moos (1968) (<u>N</u> = 839)	Monagle (1987) (<u>N</u> = 308)	Current Study (1989) (<u>N</u> = 172)
Factor 7 <u>Arousal</u> Affectionate Orderliness Excitement Feelings of well-being Bursts of energy, activity	Factor 7 (3.2%) <u>Lowered Movement</u> Poor motor coordination Decreased efficiency Muscle stiffness	
Factor 8 <u>Control</u> Feelings of suffocation Chest pains Ringing in the ears Heart pounding Numbness, tingling Blind spots, fuzzy vision	Factor 8 (3.1%) <u>Water Retention</u> Swelling (breasts, abdomen) Painful or tender breasts Weight gain	

^aPercentage of variance explained by factor.

The six factors in the premenstrual phase in this study were Premenstrual Discomfort (irritability, painful breasts, restlessness, anxiety, mood swings, swelling, backache, poor judgment, and cramps), Lower Concentration (confusion, loneliness, distractable, forgetfulness, difficulty concentrating, and stay at home), Somatic Complaints (take naps, chest pains, hot flashes, general aches, feelings of suffocation, orderliness, fatigue, and reduced appetite), Behavior Change (decreased efficiency, avoid social activities, poor school or work performance, and stay in bed), Fluid Retention (nausea and vomiting, headache, insomnia, dizziness, and cold sweats), and Affect (tension, feeling sad or blue, and crying).

Factor 3 in this study, Somatic Complaints, consisted of items that had the lowest prevalence and therefore the least cyclic variation. These items were heart pounding, dizziness, numbness, and headache. These symptoms might be explained if the Bahraini women were experiencing such health problems as anemia or not eating well.

It was observed that items in the factors in this study are not exactly as reported by Moos (1969) or Monagle (1987). However, there are some similarities of factors derived in this study and those of Moos and Monagle. In the premenstrual phase, Premenstrual Discomfort Symptoms explained the most variance (24.4%) in this study and consisted of items found in Monagle's (1987) Activation/Negative Affect (6.8%). Lower Concentration (5.3%) in this study includes the same items in Distractedness (3.6%) and Impaired Concentration as reported by Moos. Behavior Change (6.0%), Decreased Activity (3.4%), and Behavior Change

are almost the same for this study, Monagle, and Moos, respectively. Three out of the five symptoms in Fluid Retention in this study are the same as the four symptoms in Autonomic Reactions in Moos. All three Affect (4.0%) symptoms in this study were included in Negative Affect by Moos. Wellbeing explained the most premenstrual variance (17.6%) in Monagle's study.

For the menstrual phase, four of the seven symptoms in General Menstrual Discomfort (28.6%) in this study were included in the six symptoms clustered as Pain in Moos's (1969) study. Behavior Change (5.3%) in this study has the same symptoms as in Decreased Activity (20.0%) and Behavior Change in Moos; Somatic Complaints (5.2%), Activation/Negative Affect (3.7%), and Control had the same symptoms in this study, Monagle, and Moos, respectively. Affect (4.1%) in this study, Activation/Negative Affect (3.7%) in Monagle, and Negative Affect in Moos, consisted of similar items.

From the above it can be concluded that symptoms in Moos MDQ clustered differently in the three studies with different degrees of variance. But there were similarities between the clusters of the symptoms in the three studies.

Therefore, from the findings with factor analysis, certain items on the Moos MDQ appear to be valid in measuring the menstrual and premenstrual symptoms among Bahraini women. However, this result needs to be interpreted cautiously. The different clusters of symptoms found in this study might be related to sociocultural and religious variables.

These variables and their effect on the menstrual cycle symptomatology need to be studied further.

4. Relationship between the symptom clusters and age, years of education, age at menarche, cycle interval, and flow

The scores obtained from the factor analysis results of both menstrual phase and premenstrual phase were correlated with age, years of education, age at menarche, cycle interval, and flow length. For the menstrual phase (a) the younger the Bahraini women, the more they reported General Menstrual Discomfort, Autonomic Reaction, and Affect symptoms; (b) also, the Bahraini women with more education reported more General Menstrual Discomfort, Autonomic Reaction, and Affect symptoms, too; (c) age at menarche was correlated significantly only with Autonomic Reaction, that is, the older the women at menarche, the more they reported the Autonomic Reaction symptoms; and (d) the more days of menstrual flow, the more the Bahraini women reported Autonomic Reaction and Affect symptoms. For the premenstrual phase, (a) none of the symptom clusters correlated significantly with age; (b) only Physiological Premenstrual Discomfort and Physical Premenstrual Discomfort had a significant correlation with years of education, that is, the more educated women reported symptoms in these clusters; (c) age at menarche was significantly correlated with Lower Concentration, that is, the older the women at menarche, the more they reported symptoms in this cluster; and (d) days of menstrual flow did not exhibit any significant correlation with premenstrual symptom clusters.

From the above, it is observed that the women's age was not significantly correlated with the six premenstrual phase symptom clusters. This result is not consistent with Moos's (1969) and Monagle's (1987) findings. Both of those authors reported a significant positive correlation between age and premenstrual symptom clusters. Unlike other investigators who reported that longer days of menstrual flow were related to Lower Concentration premenstrually (Vaitukaitis, 1984; Woods et al., 1982a), the Bahraini women with longer menstrual flow did not report premenstrual symptoms.

Three of the menstrual symptom clusters were highly related to age and were not related to age at menarche or cycle length. But the menstrual flow length was positively significantly correlated with the Autonomic Reaction and Affect clusters among the Bahraini women. Thus, the results of menstrual cycle symptoms variation according to menstrual cycle characteristics in this study need to be interpreted cautiously.

As in Moos's (1969) study, no significant association was found between menstrual and premenstrual symptoms and age at menarche, except for weak associations with Autonomic Reaction symptoms menstrually and Fluid Retention premenstrually.

5. Methodological issues in this study

In order to avoid the problem of uncontrolled variables which might cause methodological problems reported in the literature (O'Neill, Lancee, & Freeman, 1984; Rubinow, Roy-Byrne, Hoban, Gold, & Post, 1984; Sommer, 1981; Yikovkalai & Dawood, 1978), this study selected a more homogeneous sample. Those variables that are reported in the literature

which contribute inconsistencies to menstrual symptomatology are age, use of oral contraceptive pills, parity, and psychopathology.

An initial difficulty is what is the potential bias created by repeatedly questioning the women about each menstrual cycle symptom per phase and then requesting the severity of each symptom. Does this questioning produce the expectation of experiencing the symptom and result in increased reporting of symptoms by Bahraini women? The women were requested to rate their experience of symptoms based on a Likert-type scale. For the Bahraini women, it was easier to report whether the symptom was present or not. The interviewers had to repeatedly describe the Moos MDQ categories for each of the three phases to distinguish between the presence and the severity of the symptom. This might have affected the way the Bahraini women responded to the report of the symptom and its severity.

Another methodological problem that might limit the interpretation of the results of this study is that the women were asked to report symptoms experienced during the most recent menstrual cycle. The literature reports that women experience and report menstrual symptoms differently from one cycle to another (Dalton, 1984; Lewis, 1987; Vila & Beech, 1980). Hence, studying only one cycle retrospectively will limit the investigator's observation of trends in cycle-to-cycle variability and menstrual symptom variations in the same woman. Bahraini women did report their experience of different symptoms from one cycle to another.

At the beginning of this discussion the investigator mentioned the problems with retrospective studies and memory recall by the women of

their menstrual cycle symptoms. Also, Ruble (1977) found that the women's reporting of symptoms is influenced by their knowledge of menstrual cycle phases and ability to identify their symptoms by phase. It has been found that in retrospective studies the women over-report the experience of menstrual symptoms (Moos, 1985; Paulee, 1974; Rose et al., 1983; Slade, 1984). This investigator agrees with the preceding authors that prospective, rather than retrospective, menstrual cycle research should be conducted.

Although translating the questionnaire was time consuming, problems with some items arose during the data collection. Certain items presented a dilemma for the woman. For example, the woman's reaction to "stay in bed" would be "I wanted to, but I could not." Then the question is whether she ranked her response based on what she wanted to do or on what she did. Also, the women found it difficult to discriminate differences between such items as tension, irritability, and anxiety. The problems with the meaning of symptoms by the women has been reported in the literature (Dalton, 1984; Lewis, 1987; Monagle, 1987). Lewis (1987) reported that each woman brings her own meaning to the word. Sommer (1981) stated that information about how women feel, expressed in their own words, can contribute to the improvement of the instrument.

Jones (1986) stated that the validity of an instrument can be improved if both quantitative and qualitative methodologies are used in cross-cultural studies. In cross-cultural research, authors need to be explicit in describing the means for data analysis used, especially the procedure to determine construct validity.

E. Self-care

Levin, Kat, and Holtz (1979) referred to self-care as indigenous to the culture, informally organized and shaped by socialization and reflection on personal experiences. The Bahraini women used both traditional practices and modern medicine to handle their symptoms. The women reported use of exercise, drinking fluids, body massage, and drinking herbal tea/medicine to handle their menstrual symptoms. Like the women in other studies (Maunz & Woods, 1986; World Health Organization, 1981a), they also used over-the-counter medicine to relieve the pain. They reported avoiding certain foods and eating others, and some women reported the importance of eating well to reduce the menstrual cycle symptom, discomfort. Abplanalp and Rose (1983) referred to the importance of eating a well-balanced meal, regular sleep habits, and daily exercise. The Bahraini women categorized the food as "hot" or "cold." The nature of the food is determined by the quality of the food, not the actual temperature or spiciness. This belief is rooted in the tradition of Galenic medicine and the humoral balance theory (Al-Darazi, 1984). One practice that needs to be further investigated is the use of mamool (vaginal pessaries) during menstruation. The prevalence of its use and its effect on women need to be studied. Also, the few Bahraini women who reported smoking Hubble Bubble (Gadoo) as a measure of self-care need to be educated by health professionals regarding the hazards of smoking and to have alternative measures provided to them.

The Bahraini women were not knowledgeable about their general body functions. This was demonstrated through their questions and request for advice from the interviewer at the end of the interview. They wanted to know how menstrual flow happens and the time of ovulation. Wilhelm-Hass (1984) recommended workshops and support groups be organized for women regarding the menstrual cycle. Dan and Leppa (1988) recommended stress management for women reporting menstrual cycle symptoms. Likewise, Rose and Abplanalp (1983) and Dan et al. (1986) emphasized the need for health professionals to provide counseling sessions for women who experience menstrual cycle symptom discomforts.

In summary, the Bahraini women do use certain self-care measures. They reported self-care measures not only as a reaction to illness but also as a measure to maintain health and well-being. Nurses and health professionals need to encourage the useful self-care measures and identify the harmful ones used by women.

F. Implications for nursing

1. Research

First, it is suggested to conduct prospective longitudinal studies to follow the women over more than one cycle. It is proposed to use another daily assessment questionnaire besides the modified Moos MDQ derived from this study in order to distinguish between stereotypical symptoms reported and actual symptoms. Following the women over more than one cycle will allow the investigator to examine the type and degree of severity of symptoms reported by the women. This will provide the investigator with information to distinguish between menstrual

symptoms and nonspecific symptoms reported by the women. Also, the investigator can assess the menstrual symptom variations in the same woman over more than one cycle.

Second, since the menstrual symptom experiences of the Bahraini women might reflect a combination of the influences of culture, family, and religious backgrounds, the effect of these variables needs to be examined further. Hence, it is recommended that in-depth qualitative studies be conducted on the experience of menarche and sociocultural and religious influence on Bahraini women experiencing menstrual symptoms. This type of qualitative study would provide a conceptual base for the conduct of further studies in this area. The women's perception of the symptoms needs to be examined, too.

Third, further studies need to be conducted to explore the relationship between life event and/or daily experiences and the report of menstrual cycle symptoms by the Bahraini women. Such a study will enrich the nurses' knowledge regarding possible stressors which can be detected and addressed in the lifestyle of the women. Also, studies of stress should be replicated with Bahraini women, testing for relationships between stress and experiences of menstrual cycle symptoms.

Fourth, the Bahraini women reported various self-care measures taken in response to their symptoms. Hence, there is a need to investigate these measures further, assess the prevalence of their use, and distinguish between useful and harmful ones.

Finally, it is recommended researchers engaged in cross-cultural studies be explicit in describing the process used in translating a

standardized questionnaire for use in another culture. More than one technique should be combined during the translation process and more than one person should work on the translation. Ideally, more than one person would translate from the original source and more than one person would do the back translation, with an independent bilingual individual comparing all translations for accuracy. Then a committee would review and pretest the translated version to determine that the items will provide valid insight into the lived experiences of the participants. If necessary, the questionnaire would be modified based on the pretest results.

2. Education and practice

Nurses working in the area of women's health need to acknowledge that the Bahraini women are no longer reluctant to discuss their menstrual symptoms and menstruation experiences with others. Therefore, the nurse can initiate the discussion of this topic with women. She can play a major critical role in educating and counseling women regarding the menstrual cycle, that is, about its physiology, what happens in a woman's body, and how she can be aware of her bodily changes. The following paragraphs suggest a few of the nursing actions that nurses can take to work with women.

First, it is important to develop a modified version of the Menstrual Symptoms Questionnaire, based on Moos MDQ, to identify women who experience strong and disabling symptoms. Second, nurses need to identify women who diagnose themselves as experiencing menstrual distress and premenstrual symptoms. Third, they should follow a group of

women reporting distress and try various interventions, such as self-help groups or following certain diets. The nurse needs to recognize and plan care based on the knowledge that age, occupation, number of children, and years of education are factors that might affect the experiences of menstrual symptoms reported by the women. Fourth, they could organize a series of educational sessions for different women's groups on body awareness. These sessions can be arranged with the help of different women's associations.

Fifth, the Bahraini women reported active involvement in managing their menstrual symptoms. Therefore, nurses need to recognize the importance of women's ability to handle their experiences. Nurses need to identify and assess the self-care measures used by the women and use the information in planning care. Finally, the investigator recommends developing a research information system to record the effect of menstrual cycle symptoms on the productivity of women.

To conclude, the results of this study supported the findings of other investigators which indicated that women experience menstrual symptoms (Awaritefe, Awaritefe, Diejomaoh, & Ebie, 1980; Badaway et al., 1983a, 1983b; Janiger et al., 1972; Monagle, 1987; Moos, 1968; Most et al., 1981). The Bahraini women do experience symptoms that they associate with the menstrual cycle, specifically menstrual flow symptoms. The Bahraini women freely expressed their views regarding the symptoms covered by the Moos MDQ. They shared their lived experience of the menstrual cycle with the interviewers. Psychometrically, the Moos MDQ in the Bahraini culture proved to be reliable and valid.

VI. APPENDICES

Appendix A
MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

12/88

Sequence # _____

Experience of Menstrual Symptoms
Among Bahraini Women

Conducted by
Naeema Al-Gasseer

Interviewer: Before the interview begins, determine that the woman to be interviewed is

1. a Bahraini and a citizen;
2. not using an oral contraceptive;
3. not using an intrauterine device;
4. not pregnant at the time of the interview;
5. having an intact uterus;
6. not having lactating amenorrhea;
7. no amenorrhea for the last 3 months without definite cause; and
8. free from such chronic illnesses as epilepsy, sickle cell disease, heart disease, hypertension, severe asthma, kidney disease, diabetes, rheumatoid arthritis, and psychiatric treatment.

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

Time interview began ____ AM ____ PM

Setting (Indicate the place of the interview):

I want to thank you for participating in this study. This is a study to find out if Bahraini women experience menstrual symptoms and if they do, what symptoms they experience. A list of symptoms will be presented and you are asked to indicate whether you experience the symptom and the severity of the symptom(s) that you experience.

There are no right or wrong answers to the questions. Please ask if you do not understand a word or a question. I am interested in your opinions and experiences. You are free to withdraw from participation in this study at any time. Thank you for your cooperation.

Menstrual cycle characteristics form

Please do answer the following questions regarding your menstruation. I would like you to give me a brief description of the characteristics of your menstrual history before I ask you in detail about your menstrual symptoms. This information will help me to compare the characteristics of your menstruation with the possible symptoms that you experience.

1. How old were you at the time you had your first menstruation?
_____ years old.
2. What is the time period for you between one menstruation and the other? _____ days. (Count the first day of bleeding as day one.)
3. How do you describe your menstruation?
(Probe for duration, regularity, amount, flow, and discomfort)
(Record verbatim)

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

4. Do you experience symptoms with or before menstruation?
Yes _____ No _____ Sometimes _____
- If yes, what symptoms do you experience? (record verbatim)
- | | | |
|---------------|------------|-------|
| During menses | Pre menses | After |
|---------------|------------|-------|
5. If you experience the symptoms, what measures do you take to relieve your symptoms? (record verbatim, specify which measure is used for which symptom)
6. Have you ever heard about the premenstrual tension?
Yes _____ No _____
7. Have you every heard about dysmenorrhea?
Yes _____ No _____
8. Do you smoke?
Yes _____ No _____
9. How often do you smoke?
(state frequency of using Hubble Bubble)

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)Menstrual Distress Questionnaire
Form C

Copyright 1968, 1984, by Rudolf H. Moos
Stanford University Medical Center
Palo Alto, CA 94305

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For each answer please choose the category that best describes your experience of that symptom during that time. Tell me the number of that category in the space provided. Even if none of the categories is exactly correct, choose the one that best describes your experience. (Do not leave any blank spaces.)

Descriptive Categories

- | | |
|------------------------------|---------------------|
| 0 - No experience of symptom | 3 - Present, strong |
| 1 - Present, mild | 4 - Present, severe |
| 2 - Present, moderate | |

	1 Most recent flow (A)	2 Four days before (B)	3 Remainder of cycle (C)
1. Muscle stiffness	_____	_____	_____
2. Weight gain	_____	_____	_____
3. Dizziness, faintness	_____	_____	_____
4. Loneliness	_____	_____	_____
5. Headache	_____	_____	_____
6. Skin blemish or disorder	_____	_____	_____
7. Cold sweats	_____	_____	_____
8. Anxiety	_____	_____	_____
9. Mood swings	_____	_____	_____
10. Cramps	_____	_____	_____
11. Painful or tender breasts	_____	_____	_____
12. Nausea, vomiting	_____	_____	_____
13. Crying	_____	_____	_____
14. Backache	_____	_____	_____
15. Swelling (breasts, abdomen)	_____	_____	_____

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)Menstrual Distress Questionnaire
Form C

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Stanford University Medical Center
Palo Alto, CA 94305

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Descriptive Categories

- | | |
|------------------------------|---------------------|
| 0 - No experience of symptom | 3 - Present, strong |
| 1 - Present, mild | 4 - Present, severe |
| 2 - Present, moderate | |

	1 Most recent flow (A)	2 Four days before (B)	3 Remainder of cycle (C)
16. Hot flashes	—	—	—
17. Irritability	—	—	—
18. Tension	—	—	—
19. Fatigue	—	—	—
20. Feeling sad or blue	—	—	—
21. General aches and pains	—	—	—
22. Restlessness	—	—	—
23. Insomnia	—	—	—
24. Poor school or work performance	—	—	—
25. Affectionate	—	—	—
26. Feelings of suffocation	—	—	—
27. Forgetfulness	—	—	—
28. Take naps	—	—	—
29. Stay in bed	—	—	—
30. Orderliness	—	—	—
31. Chest pains	—	—	—
32. Confusion	—	—	—
33. Poor judgment	—	—	—
34. Stay at home	—	—	—
35. Excitement	—	—	—

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)Menstrual Distress Questionnaire
Form C

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Stanford University Medical Center
Palo Alto, CA 94305

(Used with permission of the author)

Descriptive Categories

- | | |
|------------------------------|---------------------|
| 0 - No experience of symptom | 3 - Present, strong |
| 1 - Present, mild | 4 - Present, severe |
| 2 - Present, moderate | |

	1 Most recent flow (A)	2 Four days before (B)	3 Remainder of cycle (C)
36. Ringing in the ears	_____	_____	_____
37. Difficulty concentrating	_____	_____	_____
38. Avoid social activities	_____	_____	_____
39. Feelings of well-being	_____	_____	_____
40. Heart pounding	_____	_____	_____
41. Distractable	_____	_____	_____
42. Decreased efficiency	_____	_____	_____
43. Bursts of energy, activity	_____	_____	_____
44. Numbness, tingling	_____	_____	_____
45. Minor accidents	_____	_____	_____
46. Blind spots, fuzzy vision	_____	_____	_____
47. Poor motor coordination	_____	_____	_____
48. Increased appetite	_____	_____	_____
49. Reduced appetite	_____	_____	_____

50. Would you like to add any other symptom? (record verbatim)

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

Sociodemographic Data

Age

1a. How old are you? ____ years

Marital Status2a. What is your marital status? (Circle one only)

Never married	 1
Married	 2
Divorced	 3
Widowed	 4

(Ask Q2b to Q2g if the woman is married)

2b. How old is your husband? ____ years

2c. How old were you when you got married? ____ years

2d. How long have you been married? ____ years

2e. Does your husband currently have another wife?

Yes	 1
No (skip to Q2g)	 2

2f. (If yes) Are you the

First Wife	 1
Second Wife	 2
Third	 3
Fourth	 4

2g. Did your husband have another wife previously?

Yes	 1
No	 2

Interviewee's Level of Education

3a. Do you read?

Yes	 1
No	 2

3b. Do you write?

Yes	 1
No	 2

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)3c. What is your highest year of schooling? (Circle one only)

None	00
Primary	01 02 03 04 05 06
Intermediate	07 08 09
Secondary	10 11 12
Undergraduate	13 14 15 16
Graduate: Masters'	17 18
Ph.D.	19 20 21 22

(If married ask Q4a to Q4c)

Husband's Level of Education

4a. Does your husband read?

Yes	1
No	2

4b. Does your husband write?

Yes	1
No	2

4c. What is your husband's highest year of schooling? (Circle one only)

None	00
Primary	01 02 03 04 05 06
Intermediate	07 08 09
Secondary	10 11 12
Undergraduate	13 14 15 16
Graduate: Masters'	17 18
Ph.D.	19 20 21 22

Occupation

5a. Do you work outside of your home?

Yes	1
No	2

5b. Do you work

Yes	1
No	2

5c. What is your main occupation or job title?

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

5d. What kind of work do you do; that is, what are your duties on this job?

(If married, ask Q6a to Q6e)

6a. Is your husband presently

Employed 1
Retired (skip to Q6e) . . . 2
Unemployed (skip to Q6d) . . 3

6b. What is your husband's main occupation or job title?

6c. What kind of work does he do?

6d. What is the reason he is unemployed?

6e. Who helps you financially?

Geographical Region

7a. Where do you live?

7b. Is your house

Your own 1
Rental 2
Government housing 3
Something else (Specify) . . 4

Household Size and Composition

8a. Including yourself, how many people live in your household? _____

8b. Who lives with you? (Determine family structure)

Nuclear 1
Extended 2

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ENGLISH VERSION)

(If married, ask Q8c to Q8f)

8c. How many children do you have? _____

8d. How many times did you get pregnant? _____

(If the interviewee has had other marriages, ask Q8d and Q8e)

8e. How many children do you have from the previous marriage? _____

8f. How old is your last child? _____

9. What further comments or experience would you like to share with me?

Thank you for your cooperation.

10. Time interview ended _____ AM _____ PM

11. Total minutes required for interview: _____ minutes

12. Date of interview ____ / ____ / ____

13. Interview I.D. # _____

14. Record any comments you have about this interview.

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رسم التمثيل _____

استبيان لدراسة تجربة المرأة العربية لامراض
الدورة الشهرية

اعداد

معدة من التفسير

ملاحظة:

في هذا المقياس نأخذ من تواتر الأعراض التالية في المرأة الممران
أعراض المقياس - 1:

- 1 شاحح حنون مع الحمل
- 2 تستخدم أدوات الرحم كمنع الحمل
- 3 تكون حاملًا مثل فترة أهرام المقياس
- 4 تكون قد أهرمت بعد معدة استئصال الرحم
- 5 تكون أما مرممة المقياس مع الحقن
- 6 تكون قد تأخرت عن الحقن لديها لمدة ثلاثة أشهر من دون
سبب واضح.
- 7 تتغير من أعراض مرممة مثل الحرق، الألم، المقياس،
أعراض الغثاء المرممة، ارتفاع في ضغط الدم، التشنج
الشد، صد في الظهر، الترويض، مثل كسوف، صوم
السكر، الإصراي المقياس.

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التلميز _____

صاحبة _____

وقت إجراء المقابلة _____

صاحب _____

المكان _____

أنا _____ صاحبة من كتبة المعلوم المقيمة أدنى
إن أخرى مقابلة شخصية معك حدود التعرف على شخصك ومشاركته مع المراسم
الدورة الشهرية.

الرجاء الضغط بالاحقة على الأسئلة الواردة بالاستبيان والتي وضعت لغرض
جمع المعلومات من هذا الموضوع. وبمساعدتك الاستبيان من أي جوانب ممكنة
التي كما يمكنك إبداء المقابلة في وقتك. وفي جميع الأحوال فإن اسمك
ليس سيعبر عنك.

شاكركم لند تعاونكم معنا، ودمت لكم لخدمتكم ورفاهتكم.

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التلـ _____

استبان من صفات الدورة
الشهرية لديك

في البداية أرحب منك الإجابة على الأسئلة التالية من سؤال الحـمـ (العادة، الطمث) لديك مع المراهقة سابقاً، سدة متعرجة من تحركت مع الدورة الشهرية (العادة). هذه المعلومات سوف تساعدنا في هذه الدراسة لفهمك تحركت الشحمة مع تحركت بعض النساء الحركات.

1- كم كان معدل من سول الحـمـ عدد أول مرة ؟ (أول سولك) _____ سنة

2- ماهي العشرة الرتبة من دورة وأخرى لديك؟ _____ يوم أبع الإحـمـ بالاعتبار من أول يوم من سول الدم سألوه الأول.

3- كيف تعكس سول الحـمـ الدورة، العادة، عدد (الطـمـ من متغيرة سول الحـمـ، الاستمرارية، الانتهاء، الكمية، إذا كان في أصغر من معاد سولك أكثرى حركت).

4- هل لديك امراض مع او قبل سول الحـمـ خاصة؟

نعم لا استعمل أس سؤال - مع الاوقات

إذا كانت الإجابة نعم او مع الاوقات، ماهي الامراض التي لديك (أكثرى حركت).

نعم لا مع

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رسم الشخص _____

5- اذا كان لديك امراض خلال الدورة الشهرية، ماهي الاغذية التي تتجنبها لارالة الامراض. (اكتسى حرميا الغرطة ولاى مرضي)

6- هل سمعت من اثريشات التي قد تصيب المرأة قبل الحيض؟

_____ ن

7- هل سمعت من مرض الغرطة؟

_____ ن

8- هل تدخن؟

_____ ن

اذا كانت الاجابة نعم، كم مرة في اليوم تدخن؟ _____ مرة

والآن سوف امرى عليك بعض الامراض التي قد تحدث لديك خلال فترة الدورة الشهرية والمطلوب منك ان تملئ هذه بطاقة حركت الشهية، ماالشيء شعرت به من امراض في آخر دورة شهرية لديك، ارجو ذكر الامراض ادا كان موجودا قبل الحيض، اشياء الحمى او بعد الحيض مع وصف شدة العرض السببي فغالب ما شعرت بها في:

معلومات اخرى:

1- اسم المرض:

2- الامراض موجودة ولكن طفيفة او شدة

3- الامراض موجودة متوسطة

4- الامراض موجودة وقوية

5- الامراض موجودة ويعتد لديك جدا

6- غير وارد

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)Menstrual Distress Questionnaire
Form C

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Palo Alto, CA 94305

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معلومات شخصية:

- 1- اسم المريض: _____
 2- العمر: _____
 3- الحالة الاجتماعية: _____
 4- الحالة الصحية: _____
 5- الحالة النفسية: _____
 6- التاريخ: _____

1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22- 23- 24- 25- 26- 27- 28- 29- 30- 31- 32- 33- 34- 35- 36- 37- 38- 39- 40- 41- 42- 43- 44- 45- 46- 47- 48- 49- 50- 51- 52- 53- 54- 55- 56- 57- 58- 59- 60- 61- 62- 63- 64- 65- 66- 67- 68- 69- 70- 71- 72- 73- 74- 75- 76- 77- 78- 79- 80- 81- 82- 83- 84- 85- 86- 87- 88- 89- 90- 91- 92- 93- 94- 95- 96- 97- 98- 99- 100- 101- 102- 103- 104- 105- 106- 107- 108- 109- 110- 111- 112- 113- 114- 115- 116- 117- 118- 119- 120- 121- 122- 123- 124- 125- 126- 127- 128- 129- 130- 131- 132- 133- 134- 135- 136- 137- 138- 139- 140- 141- 142- 143- 144- 145- 146- 147- 148- 149- 150- 151- 152- 153- 154- 155- 156- 157- 158- 159- 160- 161- 162- 163- 164- 165- 166- 167- 168- 169- 170- 171- 172- 173- 174- 175- 176- 177- 178- 179- 180- 181- 182- 183- 184- 185- 186- 187- 188- 189- 190- 191- 192- 193- 194- 195- 196- 197- 198- 199- 200- 201- 202- 203- 204- 205- 206- 207- 208- 209- 210- 211- 212- 213- 214- 215- 216- 217- 218- 219- 220- 221- 222- 223- 224- 225- 226- 227- 228- 229- 230- 231- 232- 233- 234- 235- 236- 237- 238- 239- 240- 241- 242- 243- 244- 245- 246- 247- 248- 249- 250- 251- 252- 253- 254- 255- 256- 257- 258- 259- 260- 261- 262- 263- 264- 265- 266- 267- 268- 269- 270- 271- 272- 273- 274- 275- 276- 277- 278- 279- 280- 281- 282- 283- 284- 285- 286- 287- 288- 289- 290- 291- 292- 293- 294- 295- 296- 297- 298- 299- 300- 301- 302- 303- 304- 305- 306- 307- 308- 309- 310- 311- 312- 313- 314- 315- 316- 317- 318- 319- 320- 321- 322- 323- 324- 325- 326- 327- 328- 329- 330- 331- 332- 333- 334- 335- 336- 337- 338- 339- 340- 341- 342- 343- 344- 345- 346- 347- 348- 349- 350- 351- 352- 353- 354- 355- 356- 357- 358- 359- 360- 361- 362- 363- 364- 365- 366- 367- 368- 369- 370- 371- 372- 373- 374- 375- 376- 377- 378- 379- 380- 381- 382- 383- 384- 385- 386- 387- 388- 389- 390- 391- 392- 393- 394- 395- 396- 397- 398- 399- 400- 401- 402- 403- 404- 405- 406- 407- 408- 409- 410- 411- 412- 413- 414- 415- 416- 417- 418- 419- 420- 421- 422- 423- 424- 425- 426- 427- 428- 429- 430- 431- 432- 433- 434- 435- 436- 437- 438- 439- 440- 441- 442- 443- 444- 445- 446- 447- 448- 449- 450- 451- 452- 453- 454- 455- 456- 457- 458- 459- 460- 461- 462- 463- 464- 465- 466- 467- 468- 469- 470- 471- 472- 473- 474- 475- 476- 477- 478- 479- 480- 481- 482- 483- 484- 485- 486- 487- 488- 489- 490- 491- 492- 493- 494- 495- 496- 497- 498- 499- 500- 501- 502- 503- 504- 505- 506- 507- 508- 509- 510- 511- 512- 513- 514- 515- 516- 517- 518- 519- 520- 521- 522- 523- 524- 525- 526- 527- 528- 529- 530- 531- 532- 533- 534- 535- 536- 537- 538- 539- 540- 541- 542- 543- 544- 545- 546- 547- 548- 549- 550- 551- 552- 553- 554- 555- 556- 557- 558- 559- 560- 561- 562- 563- 564- 565- 566- 567- 568- 569- 570- 571- 572- 573- 574- 575- 576- 577- 578- 579- 580- 581- 582- 583- 584- 585- 586- 587- 588- 589- 590- 591- 592- 593- 594- 595- 596- 597- 598- 599- 600- 601- 602- 603- 604- 605- 606- 607- 608- 609- 610- 611- 612- 613- 614- 615- 616- 617- 618- 619- 620- 621- 622- 623- 624- 625- 626- 627- 628- 629- 630- 631- 632- 633- 634- 635- 636- 637- 638- 639- 640- 641- 642- 643- 644- 645- 646- 647- 648- 649- 650- 651- 652- 653- 654- 655- 656- 657- 658- 659- 660- 661- 662- 663- 664- 665- 666- 667- 668- 669- 670- 671- 672- 673- 674- 675- 676- 677- 678- 679- 680- 681- 682- 683- 684- 685- 686- 687- 688- 689- 690- 691- 692- 693- 694- 695- 696- 697- 698- 699- 700- 701- 702- 703- 704- 705- 706- 707- 708- 709- 710- 711- 712- 713- 714- 715- 716- 717- 718- 719- 720- 721- 722- 723- 724- 725- 726- 727- 728- 729- 730- 731- 732- 733- 734- 735- 736- 737- 738- 739- 740- 741- 742- 743- 744- 745- 746- 747- 748- 749- 750- 751- 752- 753- 754- 755- 756- 757- 758- 759- 760- 761- 762- 763- 764- 765- 766- 767- 768- 769- 770- 771- 772- 773- 774- 775- 776- 777- 778- 779- 780- 781- 782- 783- 784- 785- 786- 787- 788- 789- 790- 791- 792- 793- 794- 795- 796- 797- 798- 799- 800- 801- 802- 803- 804- 805- 806- 807- 808- 809- 810- 811- 812- 813- 814- 815- 816- 817- 818- 819- 820- 821- 822- 823- 824- 825- 826- 827- 828- 829- 830- 831- 832- 833- 834- 835- 836- 837- 838- 839- 840- 841- 842- 843- 844- 845- 846- 847- 848- 849- 850- 851- 852- 853- 854- 855- 856- 857- 858- 859- 860- 861- 862- 863- 864- 865- 866- 867- 868- 869- 870- 871- 872- 873- 874- 875- 876- 877- 878- 879- 880- 881- 882- 883- 884- 885- 886- 887- 888- 889- 890- 891- 892- 893- 894- 895- 896- 897- 898- 899- 900- 901- 902- 903- 904- 905- 906- 907- 908- 909- 910- 911- 912- 913- 914- 915- 916- 917- 918- 919- 920- 921- 922- 923- 924- 925- 926- 927- 928- 929- 930- 931- 932- 933- 934- 935- 936- 937- 938- 939- 940- 941- 942- 943- 944- 945- 946- 947- 948- 949- 950- 951- 952- 953- 954- 955- 956- 957- 958- 959- 960- 961- 962- 963- 964- 965- 966- 967- 968- 969- 970- 971- 972- 973- 974- 975- 976- 977- 978- 979- 980- 981- 982- 983- 984- 985- 986- 987- 988- 989- 990- 991- 992- 993- 994- 995- 996- 997- 998- 999- 1000- 1001- 1002- 1003- 1004- 1005- 1006- 1007- 1008- 1009- 1010- 1011- 1012- 1013- 1014- 1015- 1016- 1017- 1018- 1019- 1020- 1021- 1022- 1023- 1024- 1025- 1026- 1027- 1028- 1029- 1030- 1031- 1032- 1033- 1034- 1035- 1036- 1037- 1038- 1039- 1040- 1041- 1042- 1043- 1044- 1045- 1046- 1047- 1048- 1049- 1050- 1051- 1052- 1053- 1054- 1055- 1056- 1057- 1058- 1059- 1060- 1061- 1062- 1063- 1064- 1065- 1066- 1067- 1068- 1069- 1070- 1071- 1072- 1073- 1074- 1075- 1076- 1077- 1078- 1079- 1080- 1081- 1082- 1083- 1084- 1085- 1086- 1087- 1088- 1089- 1090- 1091- 1092- 1093- 1094- 1095- 1096- 1097- 1098- 1099- 1100- 1101- 1102- 1103- 1104- 1105- 1106- 1107- 1108- 1109- 1110- 1111- 1112- 1113- 1114- 1115- 1116- 1117- 1118- 1119- 1120- 1121- 1122- 1123- 1124- 1125- 1126- 1127- 1128- 1129- 1130- 1131- 1132- 1133- 1134- 1135- 1136- 1137- 1138- 1139- 1140- 1141- 1142- 1143- 1144- 1145- 1146- 1147- 1148- 1149- 1150- 1151- 1152- 1153- 1154- 1155- 1156- 1157- 1158- 1159- 1160- 1161- 1162- 1163- 1164- 1165- 1166- 1167- 1168- 1169- 1170- 1171- 1172- 1173- 1174- 1175- 1176- 1177- 1178- 1179- 1180- 1181- 1182- 1183- 1184- 1185- 1186- 1187- 1188- 1189- 1190- 1191- 1192- 1193- 1194- 1195- 1196- 1197- 1198- 1199- 1200- 1201- 1202- 1203- 1204- 1205- 1206- 1207- 1208- 1209- 1210- 1211- 1212- 1213- 1214- 1215- 1216- 1217- 1218- 1219- 1220- 1221- 1222- 1223- 1224- 1225- 1226- 1227- 1228- 1229- 1230- 1231- 1232- 1233- 1234- 1235- 1236- 1237- 1238- 1239- 1240- 1241- 1242- 1243- 1244- 1245- 1246- 1247- 1248- 1249- 1250- 1251- 1252- 1253- 1254- 1255- 1256- 1257- 1258- 1259- 1260- 1261- 1262- 1263- 1264- 1265- 1266- 1267- 1268- 1269- 1270- 1271- 1272- 1273- 1274- 1275- 1276- 1277- 1278- 1279- 1280- 1281- 1282- 1283- 1284- 1285- 1286- 1287- 1288- 1289- 1290- 1291- 1292- 1293- 1294- 1295- 1296- 1297- 1298- 1299- 1300- 1301- 1302- 1303- 1304- 1305- 1306- 1307- 1308- 1309- 1310- 1311- 1312- 1313- 1314- 1315- 1316- 1317- 1318- 1319- 1320- 1321- 1322- 1323- 1324- 1325- 1326- 1327- 1328- 1329- 1330- 1331- 1332- 1333- 1334- 1335- 1336- 1337- 1338- 1339- 1340- 1341- 1342- 1343- 1344- 1345- 1346- 1347- 1348- 1349- 1350- 1351- 1352- 1353- 1354- 1355- 1356- 1357- 1358- 1359- 1360- 1361- 1362- 1363- 1364- 1365- 1366- 1367- 1368- 1369- 1370- 1371- 1372- 1373- 1374- 1375- 1376- 1377- 1378- 1379- 1380- 1381- 1382- 1383- 1384- 1385- 1386- 1387- 1388- 1389- 1390- 1391- 1392- 1393- 1394- 1395- 1396- 1397- 1398- 1399- 1400- 1401- 1402- 1403- 1404- 1405- 1406- 1407- 1408- 1409- 1410- 1411- 1412- 1413- 1414- 1415- 1416- 1417- 1418- 1419- 1420- 1421- 1422- 1423- 1424- 1425- 1426- 1427- 1428- 1429- 1430- 1431- 1432- 1433- 1434- 1435- 1436- 1437- 1438- 1439- 1440- 1441- 1442- 1443- 1444- 1445- 1446- 1447- 1448- 1449- 1450- 1451- 1452- 1453- 1454- 1455- 1456- 1457- 1458- 1459- 1460- 1461- 1462- 1463- 1464- 1465- 1466- 1467- 1468- 1469- 1470- 1471- 1472- 1473- 1474- 1475- 1476- 1477- 1478- 1479- 1480- 1481- 1482- 1483- 1484- 1485- 1486- 1487- 1488- 1489- 1490- 1491- 1492- 1493- 1494- 1495- 1496- 1497- 1498- 1499- 1500- 1501- 1502- 1503- 1504- 1505- 1506- 1507- 1508- 1509- 1510- 1511- 1512- 1513- 1514- 1515- 1516- 1517- 1518- 1519- 1520- 1521- 1522- 1523- 1524- 1525- 1526- 1527- 1528- 1529- 1530- 1531- 1532- 1533- 1534- 1535- 1536- 1537- 1538- 1539- 1540- 1541- 1542- 1543- 1544- 1545- 1546- 1547- 1548- 1549- 1550- 1551- 1552- 1553- 1554- 1555- 1556- 1557- 1558- 1559- 1560- 1561- 1562- 1563- 1564- 1565- 1566- 1567- 1568- 1569- 1570- 1571- 1572- 1573- 1574- 1575- 1576- 1577- 1578- 1579- 1580- 1581- 1582- 1583- 1584- 1585- 1586- 1587- 1588- 1589- 1590- 1591- 1592- 1593- 1594- 1595- 1596- 1597- 1598- 1599- 1600- 1601- 1602- 1603- 1604- 1605- 1606- 1607- 1608- 1609- 1610- 1611- 1612- 1613- 1614- 1615- 1616- 1617- 1618- 1619- 1620- 1621- 1622- 1623- 1624- 1625- 1626- 1627- 1628- 1629- 1630- 1631- 1632- 1633- 1634- 1635- 1636- 1637- 1638- 1639- 1640- 1641- 1642- 1643- 1644- 1645- 1646- 1647- 1648- 1649- 1650- 1651- 1652- 1653- 1654- 1655- 1656- 1657- 1658- 1659- 1660- 1661- 1662- 1663- 1664- 1665- 1666- 1667- 1668- 1669- 1670- 1671- 1672- 1673- 1674- 1675- 1676- 1677- 1678- 1679- 1680- 1681- 1682- 1683- 1684- 1685- 1686- 1687- 1688- 1689- 1690- 1691- 1692- 1693- 1694- 1695- 1696- 1697- 1698- 1699- 1700- 1701- 1702- 1703- 1704- 1705- 1706- 1707- 1708- 1709- 1710- 1711- 1712- 1713- 1714- 1715- 1716- 1717- 1718- 1719- 1720- 1721- 1722- 1723- 1724- 1725- 1726- 1727- 1728- 1729- 1730- 1731- 1732- 1733- 1734- 1735- 1736- 1737- 1738- 1739- 1740- 1741- 1742- 1743- 1744- 1745- 1746- 1747- 1748- 1749- 1750- 1751- 1752- 1753- 1754- 1755- 1756- 1757- 1758- 1759- 1760- 1761- 1762- 1763- 1764- 1765- 1766- 1767- 1768- 1769- 1770- 1771- 1772- 1773- 1774- 1775- 1776- 1777- 1778- 1779- 1780- 1781- 1782- 1783- 1784- 1785- 1786- 1787- 1788- 1789- 1790- 1791- 1792- 1793- 1794- 1795- 1796- 1797- 1798- 1799- 1800- 1801- 1802- 1803- 1804- 1805- 1806- 1807- 1808- 1809- 1810- 1811- 1812- 1813- 1814- 1815- 1816- 1817- 1818- 1819- 1820- 1821- 1822- 1823- 1824- 1825- 1826- 1827- 1828- 1829- 1830- 1831- 1832- 1833- 1834- 1835- 1836- 1837- 1838- 1839- 1840- 1841- 1842- 1843- 1844- 1845- 1846- 1847- 1848- 1849- 1850- 1851- 1852- 1853- 1854- 1855- 1856- 1857- 1858- 1859- 1860- 1861- 1862- 1863- 1864- 1865- 1866- 1867- 1868- 1869- 1870- 1871- 1872- 1873- 1874- 1875- 1876- 1877- 1878- 1879- 1880- 1881- 1882- 1883- 1884- 1885- 1886- 1887- 1888- 1889- 1890- 1891- 1892- 1893- 1894- 1895- 1896- 1897- 1898- 1899- 1900- 1901- 1902- 1903- 1904- 1905- 1906- 1907- 1908- 1909- 1910- 1911- 1912- 1913- 1914- 1915- 1916- 1917- 1918- 1919- 1920- 1921- 1922- 1923- 1924- 1925- 1926- 1927- 1928- 1929- 1930- 1931- 1932- 1933- 1934- 1935- 1936- 1937- 1938- 1939- 1940- 1941- 1942- 1943- 1944- 1945- 1946- 1947- 1948- 1949- 1950- 1951- 1952- 1953- 1954- 1955- 1956- 1957- 1958- 1959- 1960- 1961- 1962- 1963- 1964- 1965- 1966- 1967- 1968- 1969- 1970- 1971- 1972- 1973- 1974- 1975- 1976- 1977- 1978- 1979- 1980- 1981- 1982- 1983- 1984- 1985- 1986- 1987- 1988- 1989- 1990- 1991- 1992- 1993- 1994- 1995- 1996- 1997- 1998- 1999- 2000- 2001- 2002- 2003- 2004- 2005- 2006- 2007- 2008- 2009- 2010- 2011- 2012- 2013- 2014- 2015- 2016- 2017- 2018- 2019- 2020- 2021- 2022- 2023- 2024- 2025- 2026- 2027- 2028- 2029- 2030- 2031- 2032- 2033- 2034- 2035- 2036- 2037- 2038- 2039- 2040- 2041- 2042- 2043- 2044- 2045- 2046- 2047- 2048- 2049- 2050- 2051- 2052- 2053- 2054- 2055- 2056- 2057- 2058- 2059- 2060- 2061- 2062- 2063- 2064- 2065- 2066- 2067- 2068- 2069- 2070- 2071- 2072- 2073- 2074- 2075- 2076- 2077- 2078- 2079- 2080- 2081- 2082- 2083- 2084- 2085- 2086- 2087- 2088- 2089- 2090- 2091- 2092- 2093- 2094- 2095- 2096- 2097- 2098- 2099- 2100- 2101- 2102- 2103- 2104- 2105- 2106- 2107- 2108- 2109- 2110- 2111- 2112- 2113- 2114- 2115- 2116- 2117- 2118- 2119- 2120- 2121- 2122- 2123- 2124- 2125- 2126- 2127- 2128- 2129- 2130- 2131- 2132- 2133- 2134- 2135- 2136- 2137- 2138- 2139- 2140- 2141- 2142- 2143- 2144- 2145- 2146- 2147- 2148- 2149- 2150- 2151- 2152- 2153- 2154- 2155- 2156- 2157- 2158- 2159- 2160- 2161- 2162- 2163- 2164- 2165- 21

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

Menstrual Distress Questionnaire
Form C

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Palo Alto, CA 94305

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رئيسة: _____

مستجيبة: _____

1. في الشهر الماضي: _____

2. في الشهر الماضي: _____

3. في الشهر الماضي: _____

4. في الشهر الماضي: _____

5. في الشهر الماضي: _____

6. في الشهر الماضي: _____

7. في الشهر الماضي: _____

8. في الشهر الماضي: _____

9. في الشهر الماضي: _____

10. في الشهر الماضي: _____

11. في الشهر الماضي: _____

12. في الشهر الماضي: _____

13. في الشهر الماضي: _____

14. في الشهر الماضي: _____

15. في الشهر الماضي: _____

16. في الشهر الماضي: _____

17. في الشهر الماضي: _____

18. في الشهر الماضي: _____

19. في الشهر الماضي: _____

20. في الشهر الماضي: _____

21. في الشهر الماضي: _____

22. في الشهر الماضي: _____

23. في الشهر الماضي: _____

24. في الشهر الماضي: _____

25. في الشهر الماضي: _____

26. في الشهر الماضي: _____

27. في الشهر الماضي: _____

28. في الشهر الماضي: _____

29. في الشهر الماضي: _____

30. في الشهر الماضي: _____

31. في الشهر الماضي: _____

32. في الشهر الماضي: _____

33. في الشهر الماضي: _____

34. في الشهر الماضي: _____

35. في الشهر الماضي: _____

36. في الشهر الماضي: _____

37. في الشهر الماضي: _____

38. في الشهر الماضي: _____

39. في الشهر الماضي: _____

40. في الشهر الماضي: _____

41. في الشهر الماضي: _____

42. في الشهر الماضي: _____

43. في الشهر الماضي: _____

44. في الشهر الماضي: _____

45. في الشهر الماضي: _____

46. في الشهر الماضي: _____

47. في الشهر الماضي: _____

48. في الشهر الماضي: _____

49. في الشهر الماضي: _____

50. في الشهر الماضي: _____

51. في الشهر الماضي: _____

52. في الشهر الماضي: _____

53. في الشهر الماضي: _____

54. في الشهر الماضي: _____

55. في الشهر الماضي: _____

56. في الشهر الماضي: _____

57. في الشهر الماضي: _____

58. في الشهر الماضي: _____

59. في الشهر الماضي: _____

60. في الشهر الماضي: _____

61. في الشهر الماضي: _____

62. في الشهر الماضي: _____

63. في الشهر الماضي: _____

64. في الشهر الماضي: _____

65. في الشهر الماضي: _____

66. في الشهر الماضي: _____

67. في الشهر الماضي: _____

68. في الشهر الماضي: _____

69. في الشهر الماضي: _____

70. في الشهر الماضي: _____

71. في الشهر الماضي: _____

72. في الشهر الماضي: _____

73. في الشهر الماضي: _____

74. في الشهر الماضي: _____

75. في الشهر الماضي: _____

76. في الشهر الماضي: _____

77. في الشهر الماضي: _____

78. في الشهر الماضي: _____

79. في الشهر الماضي: _____

80. في الشهر الماضي: _____

81. في الشهر الماضي: _____

82. في الشهر الماضي: _____

83. في الشهر الماضي: _____

84. في الشهر الماضي: _____

85. في الشهر الماضي: _____

86. في الشهر الماضي: _____

87. في الشهر الماضي: _____

88. في الشهر الماضي: _____

89. في الشهر الماضي: _____

90. في الشهر الماضي: _____

91. في الشهر الماضي: _____

92. في الشهر الماضي: _____

93. في الشهر الماضي: _____

94. في الشهر الماضي: _____

95. في الشهر الماضي: _____

96. في الشهر الماضي: _____

97. في الشهر الماضي: _____

98. في الشهر الماضي: _____

99. في الشهر الماضي: _____

100. في الشهر الماضي: _____

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التقييم: _____

المعلومات الشخصية

واتر اود ان اكتب من معلومات شخصية عند:

العمر

- في كم مرة؟ _____ سنة

الحالة الاجتماعية

2- في ما هي حالتك الاجتماعية؟

- 1 غير متزوجة - غير متزوجة - 2.5
- 2 متزوجة
- 3 مطلقة
- 4 متزوجة

الاجال سؤال 2.5 - 2.8 اذا كانت متزوجة

2- كم عمر زوجتك؟

2- كم كان عمرك عندما تزوجت؟ (الاول) _____

3- كم عمر طفلي رواجك؟ _____

4- في كم زوج زوجة اخرى في الوقت الحاضر

- 1 معك
- 2 لا (استعمل اس سؤال 2.3)

3- في كم الزوجات

- 1 الاولى
- 2 الثانية
- 3 الثالثة او
- 4 الرابعة

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التعليل _____

7- هل كان لدى روضة أخرى - صفاء؟

1 صفاء

2 لا

التعليل _____

8- هل مررت بتعليل اختارته المرأة؟
أيضا من - صفاء صفاء

9- هل مررت بتعليل؟

1 صفاء

2 لا

8- هل مررت بتعليل؟

1 صفاء

2 لا

9- ما هي التعليل دراسة التعليل؟ (مع دائرة حول آخر عدد دراسي
اختارته المرأة؟) (اختار واحدة فقط)

1 صفاء

06 05 04 03 02 01 صفاء

09 08 07 صفاء

12 11 10 صفاء

16 15 14 13 صفاء

19 18 صفاء

22 21 20 19 صفاء

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التلسل: _____

أمر مرحلة تعلية اختيارها التروج
بما من دة معقول من "أمة"

تد من لمر لمر

1 م

2 7

تد من لمر

1 م

2 7

تد من لمر مرحلة دراسة التكملة مع دائرة حول آخر تد دراسة
اختارها التروج؟ (أداة واحدة فقط)

1 لمر

16 05 04 03 02 01 ابتدائي

09 08 07 اعدادي

12 11 10 ثانوي

16 15 14 13 المرحلة الجامعة الأولى

12 11 10 المرحلة الجامعة الثانية

22 21 20 19 دكتوراه

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رئيس المقيس _____

الاسم _____

صحة المرأة:

1. كم مرة تعاني من أعراض الدورة الشهرية:

1. مرة

2. (أقل من مرة واحدة في الشهر)

3. من غير متكرر

4. من غير متكرر

5. من غير متكرر

6. ما هي نسبة الأعراض التي تعاني منها:

7. ما هي نسبة الأعراض التي تعاني منها:

8. ما هي نسبة الأعراض التي تعاني منها:

صحة الرجل:

9. كم مرة تعاني من أعراض الدورة الشهرية:

1. مرة

2. (أقل من مرة واحدة في الشهر)

3. من غير متكرر (أقل من مرة واحدة في الشهر)

4. ما هي نسبة الأعراض التي تعاني منها:

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رئيس المقياس _____

1- ما هو نوع العمل الذي تقوم به يومك؟

2- ما هو عدد عمل يومك؟

3- من الذي يملكك مادتك؟

المسافة الحاصلة

4- كم سافر هذا من تسكن المرأة _____

5- هل كنت

1.

2.

3.

4.

5.

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رسم النسل _____

معكم وشركم الأسرة

3- كم شعور يمكن من شركم، ما هم؟

3- من شركم؟

تأكد من تركب الأسرة؟

1 حارس

2 مربية

4- كم فعلت؟

5- ما هي عدد المرات التي فعلت؟

6- كانت قد شربوا المرأة حافض، حال سؤال 2.2

7- كم فعلت لديك من رواتب النساء؟

8- كم فعلت فعلت؟

Appendix A (continued)

MENSTRUAL SYMPTOMS QUESTIONNAIRE
(ARABIC VERSION)

رقم التلسل _____

هل هناك أي شيء آخر تريد أن نذكره ؟ (اكتبه في هذه الموضات)

شكرًا لك

Appendix B

LETTER OF PERMISSION TO USE MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

May 29, 1986

Naeema Al-Gasseer
809 South Damen
Room #1112
Chicago, Illinois 60612

Dear Ms. Al-Gasseer:

Thank you for your letter and interest in the Menstrual Distress Questionnaire (MDQ). You are welcome to use the Arabic version of the two forms of the MDQ in your dissertation.

For your information, the MDQ and manual are scheduled to be published by Western Psychological Services in Los Angeles and you should reference them as the publisher. In addition, I would very much appreciate your sending me a copy of your dissertation and any manuscripts you write reporting your results. Please also remember to include the copyright notice on all forms of the MDQ you use.

Good luck with your study.

Sincerely yours,

Appendix C

LETTER FROM DEAN OF COLLEGE OF HEALTH SCIENCES
SENT TO EACH WOMAN IN STUDY

المعترمة

الفاضلة/

• • • • •
تعبة طيبة وبعد

غيتكم كلية العلوم الصحية بأن إحدى أعضاء الهيئة التدريسية الأستاذة • تعبة النعير •
مستحوم أحمر، دراسة ميدانية شاملة حول • تجربة المرأة البحرينية مع أمراض العيى وسر الطمث •
وذلك أعتارا من شهر فبراير ١٩٨٩ م.

لقد تم اختيارك ضمن مجموعة من المواطنات البحرنيات من قبل المهاز المركز، الأما •
لدمج المعلومات حول هذا الموضوع الهام • سوف تزوركى فى وقت لاحق باحثه لأتمام القابلة •
الشمية و، لك التعرف عليها بواسطة بطاقة خاصة بالبحث وستتلقى القابلة حوالى الساعة •

نود ان نؤكد لك بأن جميع المعلومات التى ستعطين بها سوف تعامل بسرية تامة • وسوف
لن يذكر اسمك أو يكتب على الاستبيان • كما أنه لن تظهر أية معلومات شخصية منك • علما بأن المعلومات
التي ستعطين بها ستكون بالغة الأهمية لهذه الدراسة والتي سيكون لها مردودا كبيرا فى تطوير مستوى صحة
المواطنات بهذا البلد العزيز •

شاكرين اكن تعاوتكن معننا •

مع أطيب التحيات

Appendix D

TABLE XXX

SAMPLING DONE BY STATE OF BAHRAIN
CENTRAL STATISTIC ORGANIZATION
STATISTIC DEPARTMENT

Age of Women	Number of Records Read	Number in Sample
44 years old	950	20
43 years old	1,506	20
42 years old	908	20
41 years old	1,019	20
40 years old	1,274	20
39 years old	1,122	20
38 years old	1,754	20
37 years old	1,364	15
36 years old	1,813	20
35 years old	1,752	20
34 years old	2,120	20
33 years old	2,254	20
32 years old	2,516	20
31 years old	2,562	20
30 years old	2,905	19
29 years old	2,989	20
28 years old	3,012	20
27 years old	2,968	19
26 years old	3,359	20
25 years old	3,188	20
24 years old	3,270	20
23 years old	3,438	18
22 years old	3,345	20
21 years old	3,277	20
20 years old	3,414	21
19 years old	3,294	20
18 years old	2,776	19
Total	64,149	531

Appendix E

TABLE XXXI

SAMPLE DISPOSITION BY REGION

Disposition	Region												Total
	1	2	3	4	5	6	7	8	9	10	12		
Letter returned	1	6	9	1	-	1	2	3	3	-	2	28	
Traveled	3	6	5	2	1	2	1	1	2	1	2	26	
Not home	-	3	4	-	-	-	2	-	-	4	2	15	
House not located	-	5	14	3	2	2	2	2	2	-	-	32	
Moved	-	3	3	-	-	-	-	-	-	-	-	6	
Mortality	-	-	-	-	-	-	-	-	1	-	-	1	
Refused	-	2	3	1	3	-	-	-	5	-	1	15	
Pregnant	1	4	5	4	3	4	3	3	1	2	2	32	
Oral contraceptive	-	3	4	2	2	2	1	3	2	-	2	21	
Sick	-	1	3	1	-	3	2	-	-	-	1	11	
Breastfeeding	1	2	3	2	2	3	2	2	1	1	-	19	
Menopausal state	-	-	-	1	-	2	-	-	-	-	-	3	
Total	6	35	53	17	13	19	15	14	17	8	12	209	

Appendix F

BACK-TRANSLATION OF INSTRUMENT FROM ARABIC TO ENGLISH

- | | |
|---------------------------------------|---|
| 1. Muscle stiffness | 28. Take naps |
| 2. Weight gain | 29. Desire to stay in bed |
| 3. Fainting, drowsiness | 30. Keeping things neat and tidy, keeping things in place |
| 4. Loneliness | 31. Chest pains |
| 5. Headache | 32. Confused |
| 6. Skin patches/bruises, skin changes | 33. Poor judgment |
| 7. Cold sweat | 34. Desire to stay at home (feels to isolate) |
| 8. Irritability/anxiety | 35. Excitement (feeling of joy and happiness) |
| 9. Moody/chage in mood | 36. Ringing in ear |
| 10. Abdominal or leg cramps | 37. Difficulty to concentrate |
| 11. Breast tenderness/painful breast | 38. Avoid social activity |
| 12. Nausea, vomiting | 39. Feeling fit, feeling healthy and well |
| 13. Crying or desire to cry | 40. Heart pounding/tachycardia |
| 14. Back pain | 41. Loss of attention/distraction |
| 15. Breast or abdominal swelling | 42. Inefficient |
| 16. Feverish, flushing | 43. Increase in activity and energy |
| 17. Nervousness | 44. Numbness, tingling of hands and feet |
| 18. Feeling of tension | 45. Minor accidents, such as injury to fingernails or breaking dishes |
| 19. Fatigue | 46. Blurred vision |
| 20. Feeling sad | 47. Poor coordination in movement |
| 21. Fatigue and pain in all body | 48. Increase appetite |
| 22. Irritable | 49. Decrease appetite |
| 23. Insomnia | |
| 24. Less productive in school or work | |
| 25. Affectionate, caring and loving | |
| 26. Feeling of suffocation | |
| 27. Forgetfulness | |

Appendix G

TABLE XXXII

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			p
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)	
Menstrual Phase				
1. Muscle stiffness	17	11	16	
2. Weight gain	12	8	3	
3. Dizziness, faintness	26	18	11	
4. Loneliness	19	11	11	
5. Headache	31	22	21	
6. Skin blemish or disorder	7	7	0	
7. Cold sweats	10	11	5	
8. Anxiety	41	27	18	.04
9. Mood swings	53	38	24	.01
10. Cramps	67	60	32	.00
11. Painful or tender breasts	28	18	21	
12. Nausea, vomiting	21	19	16	
13. Crying	28	16	3	.00
14. Backache	64	57	32	.00
15. Swelling (breasts, abdomen)	31	23	34	
16. Hot flashes	28	22	18	

Appendix G (continued)

TABLE XXXII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			p
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)	
Menstrual Phase				
17. Irritability	48	32	21	.01
18. Tension	26	19	3	.01
19. Fatigue	71	55	40	.00
20. Feeling sad or blue	16	12	13	
21. General aches and pains	50	42	40	
22. Restlessness	28	23	11	
23. Insomnia	21	23	16	
24. Poor school or work performance	45	31	26	
25. Affectionate	12	18	13	
26. Feelings of suffocation	16	16	8	
27. Forgetfulness	7	11	11	
28. Take naps	36	19	21	.06
29. Stay in bed	59	42	40	.09
30. Orderliness	24	16	3	.01
31. Chest pains	9	7	5	
32. Confusion	16	16	8	
33. Poor judgment	17	14	8	

Appendix G (continued)

TABLE XXXII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			p
	17-24	25-34	35-45	
	(<u>n</u> = 58)	(<u>n</u> = 74)	(<u>n</u> = 38)	
Menstrual Phase				
34. Stay at home	33	28	16	
35. Excitement	14	7	13	
36. Ringing in the ears	9	4	0	
37. Difficulty concentrating	26	14	13	
38. Avoid social activities	28	30	21	
39. Feelings of well-being	18	12	32	
40. Heart pounding	17	14	8	
41. Distractable	22	10	16	
42. Decreased efficiency	29	26	24	
43. Bursts of energy, activity	17	14	13	
44. Numbness, tingling	17	12	8	
45. Minor accidents	12	5	5	
46. Blind spots, fuzzy vision	17	10	8	
47. Poor motor coordination	26	14	5	
48. Increased appetite	12	7	5	
49. Reduced appetite	47	47	18	

Appendix G (continued)

TABLE XXXII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			P
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)	
Premenstrual Phase				
1. Muscle stiffness	7	15	21	
2. Weight gain	12	18	13	
3. Dizziness, faintness	12	10	16	
4. Loneliness	9	19	8	
5. Headache	21	24	32	
6. Skin blemish or disorder	5	3	3	
7. Cold sweats	3	1	3	
8. Anxiety	29	32	21	
9. Mood swings	28	45	34	
10. Cramps	35	34	34	
11. Painful or tender breasts	36	34	34	
12. Nausea, vomiting	36	39	29	.02
13. Crying	12	16	11	
14. Backache	43	54	50	
15. Swelling (breasts, abdomen)	31	38	50	
16. Hot flashes	19	14	16	
17. Irritability	26	42	21	

Appendix G (continued)

TABLE XXXII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			p
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)	
Premenstrual Phase				
18. Tension	9	22	16	.03
19. Fatigue	29	34	34	
20. Feeling sad or blue	12	18	8	
21. General aches and pains	28	28	42	
22. Restlessness	21	23	29	
23. Insomnia	10	11	16	
24. Poor school or work performance	16	14	18	
25. Affectionate	10	7	5	
26. Feelings of suffocation	9	11	11	
27. Forgetfulness	16	9	8	
28. Take naps	5	10	13	
29. Stay in bed	7	11	18	
30. Orderliness	17	14	8	
31. Chest pains	9	5	3	
32. Confusion	9	15	8	
33. Poor judgment	9	14	3	
34. Stay at home	9	12	5	

Appendix G (continued)

TABLE XXXII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND AGE^a

Symptom	Age Group			p
	17-24 (<u>n</u> = 58)	25-34 (<u>n</u> = 74)	35-45 (<u>n</u> = 38)	
Premenstrual Phase				
35. Excitement	17	20	24	
36. Ringing in the ears	9	4	0	
37. Difficulty concentrating	10	7	8	
38. Avoid social activities	3	11	11	
39. Feelings of well-being	12	7	13	
40. Heart pounding	12	7	11	
41. Distractable	7	10	11	
42. Decreased efficiency	9	12	13	
43. Bursts of energy, activity	9	10	5	
44. Numbness, tingling	7	4	5	
45. Minor accidents	3	5	5	
46. Blind spots, fuzzy vision	12	10	5	
47. Poor motor coordination	9	7	5	
48. Increased appetite	2	8	13	
49. Reduced appetite	12	19	16	

^a(N = 172)

Appendix H

TABLE XXXIII

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Menstrual Phase				
1. Muscle stiffness	17	6	17	
2. Weight gain	16	16	10	
3. Dizziness, faintness	24	16	12	
4. Loneliness	17	8	12	
5. Headache	26	24	22	
6. Skin blemish or disorder	7	4	2	
7. Cold sweats	11	8	7	
8. Anxiety	36	26	22	
9. Mood swings	47	38	26	.09
10. Cramps	70	52	29	.00
11. Painful or tender breasts	27	18	15	
12. Nausea, vomiting	25	14	12	
13. Crying	26	12	5	.01
14. Backache	59	50	44	
15. Swelling (breasts, abdomen)	32	26	22	
16. Hot flashes	28	18	17	
17. Irritability	44	38	12	.00

Appendix H (continued)

TABLE XXXIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Menstrual Phase				
18. Tension	21	20	7	.08
19. Fatigue	61	60	42	
20. Feeling sad or blue	14	12	15	
21. General aches and pains	37	44	56	
22. Restlessness	25	24	12	
23. Insomnia	25	16	17	
24. Poor school or work performance	40	26	34	
25. Affectionate	12	22	10	
26. Feelings of suffocation	15	12	15	
27. Forgetfulness	6	14	10	
28. Take naps	30	24	17	
29. Stay in bed	51	46	39	
30. Orderliness	17	20	7	
31. Chest pains	6	6	10	
32. Confusion	15	14	12	
33. Poor judgment	14	14	12	
34. Stay at home	32	22	22	

Appendix H (continued)

TABLE XXXIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Menstrual Phase				
35. Excitement	19	16	27	
36. Ringing in the ears	4	8	2	
37. Difficulty concentrating	24	10	15	
38. Avoid social activities	25	34	22	
39. Feelings of well-being	16	18	22	
40. Heart pounding	15	12	12	
41. Distractable	16	16	12	
42. Decreased efficiency	25	30	24	
43. Bursts of energy, activity	14	16	15	
44. Numbness, tingling	15	16	5	
45. Minor accidents	7	8	7	
46. Blind spots, fuzzy vision	12	12	10	
47. Poor motor coordination	17	18	10	
48. Increased appetite	9	12	2	
49. Reduced appetite	48	40	24	.04

Appendix H (continued)

TABLE XXXIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Premenstrual Phase				
1. Muscle stiffness	11	8	24	.05
2. Weight gain	10	8	5	
3. Dizziness, faintness	9	14	15	
4. Loneliness	12	14	12	
5. Headache	24	30	22	
6. Skin blemish or disorder	5	2	2	
7. Cold sweats	3	2	5	
8. Anxiety	37	20	24	.08
9. Mood swings	37	46	22	.05
10. Cramps	33	42	26	
11. Painful or tender breasts	46	30	22	.02
12. Nausea, vomiting	11	16	22	
13. Crying	14	22	2	.02
14. Backache	40	68	46	.01
15. Swelling (breasts, abdomen)	38	48	27	
16. Hot flashes	17	16	15	
17. Irritability	36	42	12	.01

Appendix H (continued)

TABLE XXXIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Premenstrual Phase				
18. Tension	15	18	15	
19. Fatigue	27	40	34	
20. Feeling sad or blue	16	12	10	
21. General aches and pains	24	28	51	.01
22. Restlessness	24	28	17	
23. Insomnia	12	6	17	
24. Poor school or work performance	15	18	15	
25. Affectionate	7	10	5	
26. Feelings of suffocation	9	10	15	
27. Forgetfulness	11	14	5	
28. Take naps	9	8	10	
29. Stay in bed	9	10	17	
30. Orderliness	15	16	7	
31. Chest pains	5	8	7	
32. Confusion	9	14	12	
33. Poor judgment	10	12	5	
34. Stay at home	9	16	2	

Appendix H (continued)

TABLE XXXIII (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES
FOR BAHRAINI WOMEN IN STUDY BY MENSTRUAL PHASE AND PARITY^a

Symptom	Number of Children			p
	None (<u>n</u> = 81)	1-4 (<u>n</u> = 50)	5 up (<u>n</u> = 41)	
Premenstrual Phase				
35. Excitement	9	10	15	
36. Ringing in the ears	7	0	5	
37. Difficulty concentrating	9	10	5	
38. Avoid social activities	6	12	7	
39. Feelings of well-being	9	16	5	
40. Heart pounding	9	6	17	
41. Distractable	6	10	12	
42. Decreased efficiency	9	14	12	
43. Bursts of energy, activity	6	14	5	
44. Numbness, tingling	6	8	2	
45. Minor accidents	5	4	5	
46. Blind spots, fuzzy vision	9	10	10	
47. Poor motor coordination	5	10	10	
48. Increased appetite	5	12	5	
49. Reduced appetite	17	10	22	

^a(N = 172)

Appendix I

TABLE XXXIV

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Menstrual Phase			
1. Muscle stiffness	16	14	
2. Weight gain	7	10	
3. Dizziness, faintness	20	16	
4. Loneliness	10	15	
5. Headache	25	24	
6. Skin blemish or disorder	4	8	
7. Cold sweats	7	14	
8. Anxiety	29	32	
9. Mood swings	40	38	
10. Cramps	54	58	
11. Painful or tender breasts	20	26	
12. Nausea, vomiting	19	18	
13. Crying	17	16	
14. Backache	53	52	
15. Swelling (breasts, abdomen)	28	28	
16. Hot flashes	27	12	.03
17. Irritability	34	36	

Appendix I (continued)

TABLE XXXIV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Menstrual Phase			
18. Tension	14	26	.05
19. Fatigue	57	54	
20. Feeling sad or blue	13	14	
21. General aches and pains	48	34	
22. Restlessness	20	26	
23. Insomnia	18	26	
24. Poor school or work performance	37	28	
25. Affectionate	15	14	
26. Feelings of suffocation	15	12	
27. Forgetfulness	11	6	
28. Take naps	29	16	
29. Stay in bed	47	46	
30. Orderliness	17	12	
31. Chest pains	8	4	
32. Confusion	14	14	
33. Poor judgment	12	18	
34. Stay at home	29	22	

Appendix I (continued)

TABLE XXXIV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Menstrual Phase			
35. Excitement	24	10	.03
36. Ringing in the ears	5	4	
37. Difficulty concentrating	18	16	
38. Avoid social activities	27	26	
39. Feelings of well-being	21	12	
40. Heart pounding	16	8	
41. Distractable	16	12	
42. Decreased efficiency	28	22	
43. Bursts of energy, activity	16	10	
44. Numbness, tingling	11	18	
45. Minor accidents	7	10	
46. Blind spots, fuzzy vision	12	12	
47. Poor motor coordination	14	16	
48. Increased appetite	7	10	
49. Reduced appetite	39	44	

Appendix I (continued)

TABLE XXXIV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Premenstrual Phase			
1. Muscle stiffness	14	12	
2. Weight gain	12	20	
3. Dizziness, faintness	13	8	
4. Loneliness	12	13	
5. Headache	24	28	
6. Skin blemish or disorder	3	6	
7. Cold sweats	3	2	
8. Anxiety	27	34	
9. Mood swings	27	58	.00
10. Cramps	34	34	
11. Painful or tender breasts	32	44	
12. Nausea, vomiting	17	10	
13. Crying	9	24	.01
14. Backache	48	52	
15. Swelling (breasts, abdomen)	32	54	.01
16. Hot flashes	20	8	.05
17. Irritability	23	54	.00

Appendix I (continued)

TABLE XXXIV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Premenstrual Phase			
18. Tension	13	22	
19. Fatigue	33	32	
20. Feeling sad or blue	12	18	
21. General aches and pains	35	22	
22. Restlessness	20	32	
23. Insomnia	11	14	
24. Poor school or work performance	16	16	
25. Affectionate	9	4	
26. Feelings of suffocation	11	10	
27. Forgetfulness	9	14	
28. Take naps	11	4	
29. Stay in bed	12	8	
30. Orderliness	16	6	
31. Chest pains	8	2	
32. Confusion	13	6	
33. Poor judgment	9	10	
34. Stay at home	11	6	

Appendix I (continued)

TABLE XXXIV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND PLACE OF OCCUPATION^a

Symptom	Place of Occupation		p
	In Home (<u>n</u> = 122)	Outside Home (<u>n</u> = 50)	
Premenstrual Phase			
35. Excitement	12	6	.01
36. Ringing in the ears	5	4	
37. Difficulty concentrating	5	16	
38. Avoid social activities	8	8	
39. Feelings of well-being	11	8	
40. Heart pounding	12	4	
41. Distractable	8	10	
42. Decreased efficiency	11	12	
43. Bursts of energy, activity	9	6	
44. Numbness, tingling	6	6	
45. Minor accidents	4	6	
46. Blind spots, fuzzy vision	9	10	
47. Poor motor coordination	7	8	
48. Increased appetite	8	12	
49. Reduced appetite	16	18	

^a(N = 172)

Appendix J

TABLE XXXV

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Menstrual Phase				
1. Muscle stiffness	14	22	11	
2. Weight gain	5	16	8	
3. Dizziness, faintness	17	22	18	
4. Loneliness	14	13	13	
5. Headache	16	41	25	.02
6. Skin blemish or disorder	3	6	7	
7. Cold sweats	5	9	13	
8. Anxiety	19	31	38	.04
9. Mood swings	23	50	49	.00
10. Cramps	30	72	70	.00
11. Painful or tender breasts	13	38	22	.01
12. Nausea, vomiting	14	28	18	
13. Crying	9	19	22	
14. Backache	47	59	55	
15. Swelling (breasts, abdomen)	20	41	29	
16. Hot flashes	20	31	21	
17. Irritability	17	53	42	.00

Appendix J (continued)

TABLE XXXV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Menstrual Phase				
18. Tension	11	22	21	
19. Fatigue	42	75	61	.01
20. Feeling sad or blue	14	16	12	
21. General aches and pains	45	56	37	
22. Restlessness	14	16	30	.04
23. Insomnia	19	22	21	
24. Poor school or work performance	30	47	33	
25. Affectionate	8	22	17	
26. Feelings of suffocation	13	19	13	
27. Forgetfulness	6	16	9	
28. Take naps	16	34	29	.07
29. Stay in bed	33	50	57	.01
30. Orderliness	9	19	20	
31. Chest pains	6	19	3	
32. Confusion	6	22	17	
33. Poor judgment	5	19	18	
34. Stay at home	17	34	32	

Appendix J (continued)

TABLE XXXV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Menstrual Phase				
35. Excitement	22	32	44	
36. Ringing in the ears	3	13	3	
37. Difficulty concentrating	11	34	16	.01
38. Avoid social activities	23	25	30	
39. Feelings of well-being	20	25	13	
40. Heart pounding	9	19	15	
41. Distractable	9	25	16	
42. Decreased efficiency	17	47	25	.01
43. Bursts of energy, activity	13	19	15	
44. Numbness, tingling	5	28	13	
45. Minor accidents	5	13	8	
46. Blind spots, fuzzy vision	7	35	40	
47. Poor motor coordination	9	22	18	
48. Increased appetite	2	16	11	
49. Reduced appetite	23	63	45	.00

Appendix J (continued)

TABLE XXXV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Premenstrual Phase				
1. Muscle stiffness	14	19	11	
2. Weight gain	11	19	16	
3. Dizziness, faintness	11	22	8	
4. Loneliness	9	16	15	
5. Headache	20	31	26	
6. Skin blemish or disorder	3	6	3	
7. Cold sweats	5	3	1	
8. Anxiety	16	16	46	.00
9. Mood swings	17	34	53	.00
10. Cramps	28	41	37	
11. Painful or tender breasts	20	38	47	.00
12. Nausea, vomiting	20	13	12	
13. Crying	5	19	18	
14. Backache	47	59	47	
15. Swelling (breasts, abdomen)	22	38	53	.00
16. Hot flashes	17	25	12	
17. Irritability	13	22	53	.00

Appendix J (continued)

TABLE XXXV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Premenstrual Phase				
18. Tension	9	22	18	
19. Fatigue	33	38	30	
20. Feeling sad or blue	8	16	17	
21. General aches and pains	36	41	24	
22. Restlessness	17	22	29	
23. Insomnia	13	13	11	
24. Poor school or work performance	17	19	13	
25. Affectionate	9	9	5	
26. Feelings of suffocation	9	16	9	
27. Forgetfulness	6	16	12	
28. Take naps	11	6	8	
29. Stay in bed	14	9	9	
30. Orderliness	13	13	15	
31. Chest pains	8	13	3	
32. Confusion	9	9	13	
33. Poor judgment	3	16	12	
34. Stay at home	6	3	15	

Appendix J (continued)

TABLE XXXV (continued)

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE PREVALENCE RATES FOR BAHRAINI
WOMEN IN STUDY BY MENSTRUAL PHASE AND YEARS OF EDUCATION^a

Symptom	Years of Education			p
	0-5 (<u>n</u> = 81)	6-11 (<u>n</u> = 50)	12 & up (<u>n</u> = 41)	
Premenstrual Phase				
35. Excitement	16	16	4	
36. Ringing in the ears	3	9	4	
37. Difficulty concentrating	5	13	9	
38. Avoid social activities	6	13	8	
39. Feelings of well-being	9	16	8	
40. Heart pounding	8	19	8	
41. Distractable	4	19	8	
42. Decreased efficiency	8	16	12	
43. Bursts of energy, activity	5	16	8	
44. Numbness, tingling	3	9	7	
45. Minor accidents	3	3	7	
46. Blind spots, fuzzy vision	8	13	9	
47. Poor motor coordination	9	6	7	
48. Increased appetite	3	6	11	
49. Reduced appetite	16	9	20	

^a(N = 172)

Appendix K

TABLE XXXVI

ITEM-TOTAL STATISTICS FOR MENSTRUAL PHASE OF MOOS
 MENSTRUAL DISTRESS QUESTIONNAIRE RESPONSES
 OF BAHRAINI WOMEN STUDIED

Variable	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
MUSCLE1	52.2326	304.9164	.3751	.4492	.9233
DIZZI1	52.1744	300.6010	.4931	.5359	.9221
HEADACH1	52.0233	297.1106	.5067	.4849	.9219
COLD1	52.2733	301.5565	.4774	.5500	.9223
ANXITY1	52.0058	296.8479	.5547	.6309	.9214
MOOD1	51.7093	294.8273	.4647	.5760	.9226
CRAMP1	51.2442	288.1389	.5274	.4728	.9221
BREAST1	52.0756	305.3568	.2764	.4377	.9244
NAUSEA1	52.1860	302.4798	.4539	.5324	.9226
CRYING1	52.1628	299.2482	.4893	.4919	.9221
BACK1	51.3547	288.3238	.5550	.5174	.9215
SWELL1	52.0756	306.0235	.3085	.4313	.9239
HOT1	52.1163	302.3607	.4086	.4595	.9230
IRRIT1	51.8256	297.1273	.4650	.4847	.9224
TENS1	52.2035	301.2040	.5401	.6532	.9219
FATG1	51.3895	287.3035	.6294	.5787	.9202
SAD1	52.2442	300.1272	.5552	.6061	.9217
ACHE1	51.6744	291.7998	.5591	.4950	.9212

Appendix K (continued)

TABLE XXXVI (continued)

ITEM-TOTAL STATISTICS FOR MENSTRUAL PHASE OF MOOS
 MENSTRUAL DISTRESS QUESTIONNAIRE RESPONSES
 OF BAHRAINI WOMEN STUDIED

Variable	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
REST1	52.1047	296.4685	.5920	.6909	.9210
INSOM1	52.0058	294.2748	.5220	.4923	.9217
POOR1	51.7384	288.6738	.5935	.6083	.9208
SUFFO1	52.2500	305.1594	.4009	.3788	.9231
INBED1	51.6047	296.3106	.4243	.5290	.9232
JUDG1	52.2674	305.8111	.4089	.5013	.9231
HOME1	51.8721	293.2701	.5087	.6182	.9220
CONCEN1	52.1802	298.9673	.5668	.5840	.9215
AVOID1	51.8256	288.7062	.5873	.6093	.9209
HEART1	52.2500	304.6681	.3841	.5278	.9232
DIST1	52.2093	300.3185	.5209	.6331	.9219
DECREAS1	51.8895	287.2801	.6927	.7550	.9194
NUM1	52.2674	304.7117	.3814	.5101	.9232
ACCID1	52.3547	308.0899	.3435	.5872	.9236
BLIND1	52.2326	300.0743	.5357	.5047	.9218
COOR1	52.1628	298.2774	.5224	.5518	.9278
LAPPET1	51.6802	293.9849	.4876	.4902	.9223
CONF1	52.2267	303.1939	.4443	.5688	.9227

Appendix L

TABLE XXXVII

ITEM-TOTAL STATISTICS FOR PREMENSTRUAL PHASE OF MOOS
MENSTRUAL DISTRESS QUESTIONNAIRE RESPONSES
OF BAHRAINI WOMEN STUDIED

Variable	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
DIZZI2	40.1453	148.9904	.3573	.3777	.8871
LONE2	40.0814	145.8413	.4412	.4705	.8855
HEADACH2	39.7674	144.3667	.3142	.3342	.8893
COLD2	40.2733	151.1588	.3349	.3475	.8879
ANXITY2	39.7442	141.1973	.4841	.4807	.8845
MOOD2	39.5756	137.0059	.5804	.5556	.8820
CRAMP2	39.6453	141.2945	.4419	.3826	.8857
BREAST2	39.5988	137.5048	.5642	.5266	.8824
NAUSEA2	40.0465	147.7990	.3159	.3950	.8877
CRYING2	40.0465	145.7873	.3957	.4888	.8863
BACK2	39.4186	140.6775	.4449	.3576	.8858
SWELL2	39.5407	139.4194	.4726	.4892	.8852
HOT2	40.0407	146.0861	.4290	.4926	.8857
IRRIT2	39.6453	138.2185	.5461	.6223	.8829
RENS2	40.0640	145.6626	.5034	.4978	.8846
FATG2	39.6395	138.2904	.5410	.5424	.8831
SAD2	40.1105	145.9702	.5508	.6196	.8842
ACHE2	39.7209	139.3135	.5653	.5979	.8824

Appendix L (continued)

TABLE XXXVII (continued)

ITEM-TOTAL STATISTICS FOR PREMENSTRUAL PHASE OF MOOS
 MENSTRUAL DISTRESS QUESTIONNAIRE RESPONSES
 OF BAHRAINI WOMEN STUDIED

Variable	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
REST2	39.8953	141.8486	.5520	.4916	.8829
INSOM2	40.0814	143.9582	.5197	.6172	.8839
POOR2	40.0291	143.8296	.5265	.5644	.8838
SUFFO2	40.1105	145.2684	.5075	.4998	.8844
FORGET2	40.1686	151.3106	.2095	.3306	.8890
NAP2	40.1628	148.7804	.3515	.5679	.8871
AVOID2	40.2093	149.2308	.4625	.5045	.8863
DIST2	40.1744	148.8115	.4105	.4494	.8865
DECREAS2	40.1279	146.6970	.4511	.5375	.8855
LAPPET2	40.0058	147.3976	.3016	.4347	.8882
CONF2	40.1570	149.1039	.3868	.4559	.8868
CHEST2	40.2151	150.7078	.2856	.3707	.8881

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First Bahraini nurse to be registered professional nurse
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