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The subjective appraisal of psychological well-being and self-reports of menstrual and nonmenstrual symptomatology in employed women

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THE SUBJECTIVE APPRAISAL OF PSYCHOLOGICAL WELL-BEING AND SELF-REPORTS OF MENSTRUAL AND NONMENSTRUAL SYMPTOMATOLOGY IN EMPLOYED WOMEN

by

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DISSERTATION

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Abstract

The Subjective Appraisal of Psychological Well-Being
and Self-Reports of Menstrual and Nonmenstrual Symptomatology
in Employed Women

This study examined whether employed women's subjective appraisals of their psychological well-being were related to self-reports of the presence of menstrual and nonmenstrual symptomatology. The concept, psychological well-being, was considered a broad, general measure of psychological status. Source of symptomatology (menstrual and nonmenstrual) was viewed as one of several component parts of the concept, symptomatology. Other components included number, severity, and type (somatic, affective, concentration, behavioral). The association between psychological well-being and symptomatology was derived from a conceptualization of wellness as a multidimensional concept that encompassed physical, social, and psychological well-being.

The conceptual framework was based on a social psychological approach which assumes that human behavior is constructed through symbols and their meanings which have been acquired through interaction with others. This view places psychological well-being within a social context while accounting for physical/physiological experiences.

The relationship between self-reports of menstrual and nonmenstrual symptomatology and psychological well-being was examined through one major hypothesis and nine subhypotheses. The major hypothesis was that demographics, perceived health status, and number, severity, and type of

symptomatology would account for more of the variance in psychological well-being than would source of symptomatology. This hypothesis acknowledged the existence of multiple and complex relationships among variables known to be associated with psychological well-being. The analyses of the hypothesized relationships among the variables aimed to determine whether the proportion of variance accounted for by each of the variables differed in terms of their unique contributions to variations in the psychological well-being of employed women.

The study design represented a cross-sectional correlational approach to survey data. Multiple correlation and regression techniques were used to analyze the relationships among study variables. Data were collected through a structured questionnaire which included the General Well-Being Schedule, which measured psychological well-being, and the Moos Menstrual Distress Questionnaire, which measured symptomatology. Additionally, sociodemographic and health questions were included in the questionnaire.

The entire sample consisted of 1,179 female employees of a large metropolitan university health science campus. They ranged in age from 19-69 years. A subset (n = 633) of this entire sample who fulfilled study criteria were selected, and consisted of generally healthy, actively menstruating women between the ages of 21 and 44.

Study results showed that, based on differences in mean scores, the pattern of psychological well-being between the entire sample, the select sample, and national normative data were not statistically significant. The psychological profile indicated that a majority of the subjects experienced a state of positive psychological well-being.

Secondly, an analysis of the pattern of symptomatology in the select sample indicated that a wide range of variability in terms of the number of symptoms reported and the mean severity level was experienced. Furthermore, a variety of different types of symptoms were reported with an average of 5.8 out of 8 different symptom types. The percentage of symptoms reported as primarily menstrual ranged from 1-100%, with a mean of 30.9% identified as menstrual.

Lastly, the relationship between the presence of menstrual and nonmenstrual symptomatology and psychological well-being in the select study sample yielded several major findings. The study variables of demographics (age, ethnicity, income), perceived health status, and symptomatology (number, severity level, type, and source) were highly correlated ($R = .86$) when analyzed as a set. In addition, it was found that study variables individually accounted for a significant unique proportion of variance in psychological well-being ($p < .001$). Thus, in support of the study hypothesis, demographics, health factors, number of symptoms, severity, and type accounted for more of the variance in psychological well-being than source (menstrual and nonmenstrual), which accounted for less than 3% of the variance.

In addition, results yielded information about the direction of the relationship among symptomatology components and psychological well-being. In the case of number and severity there was a negative relationship, that is, the higher the number of symptoms and severity level, the lower the psychological well-being. For the type of symptoms identified as negative affect there was a negative relationship, while symptoms identified as arousal had a positive relationship. An examination of source (menstrual and nonmenstrual) indicated that symptoms reported as

primarily menstrual produced a positive relationship to psychological well-being. Therefore, women who experienced primarily menstrual symptoms had a higher psychological well-being than women who experienced primarily nonmenstrual symptoms.

In conclusion, it has been shown that although women might experience specific menstrual symptoms that are distressful, this experience does not negatively effect the overall assessment of their psychological state. It is expected that study findings will provide new insight into the role of menstruation in health and illness. Additionally, the results may be viewed as a means of clarifying misconceptions about the effect of the menstrual cycle symptomatology on woman's mental health.

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Date

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> Man ascends by discovering the fullness of his own gifts . . . what he creates on the way are monuments to the stages in his understanding of nature and of self.
>
> Bronowski, "Ascent of Man"

This dissertation is such a monument, and to those who have helped me discover the fullness of my own gifts I am most grateful. Throughout my doctoral education my spirit of inquiry was allowed to flourish and my intellectual capabilities were challenged and refined. Now I eagerly anticipate my new adventure into the world of science.

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CHAPTER ONE

INTRODUCTION

This study examined women's subjective appraisals of their psychological well-being and the possible associations between these subjective appraisals and their self-reports of menstrual and nonmenstrual symptomatology. Although the exact nature of this relationship is unclear, historically the mental health status of some women has been linked to the menstrual cycle. Variations in psychological and physiological functioning are considered a major consequence of this biological process. In addition, common assumptions based on stereotypical attitudes about the effect of the menstrual cycle on women's psychological status currently exist. These social and cultural notions about the menstrual cycle, which emphasize that women are psychologically and physically disadvantaged in relation to men as a result of this cyclicly occurring process, create a complex psychological and social context within which the biological process of menstruation exists.

There have been many estimates of the prevalence of menstrually related symptomatology in women and of its associated psychological and physiological changes as well as discomfort experienced in conjunction with these symptoms. Some of these symptoms and symptom complexes have been classified into specific disorders of menstruation. According to the WHO International Classification of Diseases (1977), these disorders encompass three major categories. The first major category is "Pain and other symptoms associated with female genital areas" and

includes dysmenorrhea (non-psychogenic), premenstrual tension syndromes, pelvic congestion syndrome, and Mittelschmerz (p.351). The next grouping is entitled "Disorders of menstruation and other abnormal bleeding from the female genital tract" with subgroupings, absence of menstruation, scanty or infrequent menstruation, excessive or frequent menstruation, puberty bleeding, and irregular menstrual cycle (p. 351). The last category is "Menopausal and post-menopause disorders" which identifies related menopausal symptom states (p. 352). These three categories, in addition to psychogenic dysmenorrhea which is grouped in the mental disorders classification system, constitute the major categories used to describe menstrually related symptomatology that women experience. Health professionals utilize this classification system in the assessment of problems related to the menstrual cycle and the reproductive system.

The first category, "Pain and other symptoms associated with female genital areas", is of special interest to this researcher and is the category on which this research was focused. In particular, the subcategory of dysmenorrhea and premenstrual tension syndromes are two prevalent health problems not fully understood by health professionals. Consequently, women who experience painful and distressful menstrual symptoms, whether these are somatic, affective, or behavioral for which there is no definitive physiological explanation, are faced with an ambiguous health situation with few direct avenues of relief.

Additionally, women with generalized menstrual complaints are confronted with unwarranted inferences from health professionals and the lay public regarding the psychogenic components of the symptoms. Thus it seems likely that this psychogenic component (Gruba & Rohrbaugh,

1975) and the deeply rooted assumptions about the effects of menstruation, together with an imprecise understanding about the etiology of menstrual problems, create a complex psychosocial context within which the biologically determined function of menstruation takes place.

For employed women with menstrual complaints, this complex psychosocial situation has special meaning since a common assumption is that women experience work decrements in relation to their menstrual cycle. Thus the acknowledgement of the presence of menstrual problems could lead to unwarranted conclusions about the individual woman's ability to carry out her work activities (Ruble & Brooks-Gunn, 1979). This conclusion stems from the notion that a woman is disadvantaged, in relation to a man, because of her menstrual cycle. The assumption is that women, in general, are unable to hold positions of leadership (Berman, 1970, 1972), and that they are intellectually disadvantaged (Tiger, 1970). These notions do little to create a supportive environment for women who experience menstrually related health problems and who might be in need of medical or nursing intervention. Consequently, women with menstrual problems not only experience pain and discomfort, they may also be subject to value judgments about their individual capabilities.

In a 1977 survey by Scott, a current assessment of menstrually related health problems and subsequent disability was reported. This analysis was based on 1973 survey data from the Health Interview Survey in which categories for the prevalence of "female troubles" were identified. The category, "Other Specific Female Genital Disorders", included the categories of menstrual disorders, menopause, sterility, and other disorders of the female genitals (pp. 626-629). Based on the prevalence rate per 1,000 females in a civilian non-institutionalized population,

the survey indicated that 8.7 percent of the women reported some limitations of activity and 32.3 percent reported one or more bed disability days within the past year. Furthermore, 92.1 percent had seen a physician about the condition, with work loss days per condition per year reported as 2.8 days and restricted activity days as 19.1 days. Women surveyed who were between the ages of 17 and 44, and who were categorized as usually working and usually keeping house, reported similar levels of disorder prevalence.

Although it is difficult to draw exact and precise conclusions from the data, they do suggest that women report disability in relation to female disorders, a major portion being menstrual and menopausal in nature. However, a factor that must be considered is whether the situation was coincidental since women have been shown to stereotypically associate to the menstrual cycle symptomatology that they experience (Parlee, 1974). Thus, investigations which differentiate between what women stereotypically report in relation to the menstrual cycle and other factors which might be operating at the same time, such as the presence of symptomatology that is unrelated to the menstrual cycle, the influence of stress, and environmental factors, seem essential. Such investigations could clarify the prevalence of menstrually related symptomatology.

Although prevalence estimates of menstrual disorders and their associated discomfort should be viewed with caution due to the lack of a precise definition of the phenomenon, several percentages have been offered. Dalton (1977) stated that approximately 40-50 percent of the total female population experienced the cyclical hormonal swings of menstruation. Sutherland and Stewart (1965) indicated that of the 150

women in their study, only 17 percent were free from pain in relation to menstruation and 15 percent indicated work loss days. Moos (1968) indicated that, in his review of premenstrual tension, dysmenorrhea and premenstrual symptoms were estimated together. These prevalence figures have economic significance since women constitute a major portion of the labor force in the United States. Also, trends for women to move into positions of decision making and power are increasing (Howell, 1973; Lipman-Blumen & Tickameyer, 1975; Sommer, 1973). The psychological significance of these prevalence rates is that employed women with menstrual problems may be placed in the untenable position of having their menstrual symptoms used as a basis for judging their capabilities, particularly their cognitive and perceptual motor ability, and their emotional stability (Sommer, 1973). Consequently, these women may have difficulty coping with the subtle negative inferences related to menstruation which they encounter in the work setting.

Confusion about the nature and etiology of menstrually related health problems confounds the issue for the employed woman. Clarification of the problem is needed in order for women to refute stereotypic misconceptions about the menstrual cycle. The lack of precise clinical definitions fosters an atmosphere in which symptoms are seen as general complaints and not as symptoms which are related to a legitimate disease, thereby reinforcing the psychogenic nature of the experience.

Within the last several years, attempts to differentiate between kinds of menstrual disorders and to establish distinct categories have been undertaken. Most noted in this attempt is Dalton (1964, 1969, 1977), whose major contribution was in differentiating dysmenorrhea and the premenstrual syndrome. She described two distinct clinical entities

with different characteristics and etiology. Sutherland and Stewart (1965) indicated that there was confusion as to nomenclature and to the definition of the clinical features that constitute its essence. These authors emphasized the need for future research to clearly define the phenomena under study. This point was a well-taken consideration on methodological grounds alone. Additionally, Cath and Mayer, in their 1978 review of the literature of the premenstrual syndrome, indicated that many studies were not comparable because of the variety of definitions, variables, and tools used to collect data. As a consequence of these definitional and data collection problems, it has been difficult to assess the exact extent to which women are confronted specifically with menstrual problems. It is even more difficult to differentiate between whether the problem is dysmenorrhea or premenstrual syndrome.

However, the presence of a variety of somatic, affective, and behavioral symptoms was documented by Moos in 1968 and 1969. He classified these complaints into a typology of menstrual symptoms which included symptoms associated with the clinical entities of premenstrual tension syndrome and dysmenorrhea. This typology of symptoms consists of 47 symptoms categorized into eight clusters which he labeled as pain, negative affect, concentration, water retention, behavior change, autonomic reactions, control, and arousal. The last category comprises five symptoms which are considered as the positive effects of the menstrual cycle, such as affection, orderliness, excitement, well-being, and energy. It was also observed that women reported variations in the timing of the symptomatology, with some women experiencing either premenstrual problems or dysmenorrhea while others experienced both. This study by Moos (1968) suggested the possibility of different subtypes and

concluded that a reconceptualization, allowing for the differentiation of subtypes other than premenstrual syndrome and dysmenorrhea, is warranted. Thus, a wide range of symptomatology which women associated with the menstrual cycle was reported. However, it is unclear whether these reports reflect stereotypical responses to the menstrual cycle (Parlee, 1974), or could be accounted for by other factors such as stressful life events (Wilcoxin et al., 1976), or were a result of different hormonal responses (Dalton, 1977).

However, a woman's menstrual experience is comprised of more than the presence of symptomatology. Her experience starts prior to menarche as she begins to learn about her body and its function. The attitudes and values that are developed in relation to this event are of considerable importance to the young adolescent and her subsequent menstrual experience (Whisnant & Zegans, 1975a). Additionally, Paige (1973) indicated that flow length and amount, as well as cycle length, contributes to a woman's menstrual experience. Consequently, in this study the construct "Menstrual Experience" was used as a more encompassing term which included all aspects of experience related to the experience of menstruation, that is: attitudes towards menstruation; the social, psychological, and physiological implication of a cyclical biological process; the development of feminine identity and self-concept; sex role behavior; and the presence of symptomatology associated with the menstrual cycle.

Interest in women's menstrual experiences gained popularity in conjunction with the rise of the women's health movement (Marieskind, 1975; Ruzek, 1978). Research aimed at demystifying menstruation (Weideger, 1977), reevaluating previous research (Parlee, 1973), rein-

terpreting existing notions about premenstrual problems (Ruble, 1977), and gaining an understanding of health practices based on beliefs about menstruation (Snow & Johnson, 1977) has become more prevalent. These efforts attempted to find alternative explanations for the existence of menstrually related problems with an emphasis on the positive, as well as negative, aspects of menstruation. This new approach to the menstrual cycle, although laudatory, is not without problems. A major consequence of this more positive approach to menstruation is that women who do in fact suffer from health problems related to the menstrual cycle are faced with the dilemma of having their own group, other women, attempt to concentrate on the positive aspects while diminishing the negative ones. This trend, together with the continuing belief that menstrual problems are more psychogenic in nature (Lennane & Lennane, 1973), might influence the manner in which women with menstrual problems cope with the situation, physically or psychologically. Therefore, scientific investigations aimed at more precisely describing the nature of the physical, psychological, and social aspects of a woman's menstrual experience are warranted.

Thus, the impetus for this study stemmed from the desire to explore whether or not women's perceptions of their overall mental health status are related to the presence of menstrual cycle symptomatology. Since the identification of the source of the symptomatology as menstrual is viewed primarily as a disturbing and negative experience, the specific issue under exploration was whether knowledge of the source of a symptom had any particular effect on the psychological state of women.

Significance of the Study

The mental health of women is an important area for scientific investigation since the literature has indicated that women consistently report lower levels of mental health than men. This observation, together with the recent changes in the status of women and the trend for women to move into positions of authority and decision making, has increased the need to examine factors related to their mental health. General feelings of physical and mental well-being are important parts of every person's life; this is no less true for individuals with specific health problems. A study of the psychological well-being of women in relation to the menstrual cycle would add to the research efforts aimed at identifying valid indicators of mental health (Andrews & Withey, 1976; Bradburn & Caplovitz, 1965; Campbell, 1976; Dupuy, 1978b; Jahoda, 1958).

However, the empirical data that exist to date are only a beginning attempt to understand the complex bio-psycho-social phenomenon of menstruation. Data that document women's subjective appraisals of symptoms that they experience would be helpful in clarifying the relationship between the presence of symptomatology and feelings of well-being. Investigations which focus on the meaning that these symptoms have to women and the relationship that meaning has to the environment in which they function are important steps toward understanding the psychosocial experience with one life domain: health. Increased knowledge in this area would provide a basis for more clearly understanding the subjective indicators of well-being and, as a consequence, would assist health professionals in providing care that would produce positive outcomes for patients.

It has been documented that women's attitudes toward menstruation vary and include the notion that menstruation has little or no effect on a woman and that menstrual problems constitute neurotic behavior (Brooks et al., 1977). This denial of effect of menstruation on women, together with the fear that acknowledgment of menstrual problems may be used as a basis for discrimination against women, creates a sociopolitical context within which menstrually related research is conducted. Although there may be grounds for this fear of discrimination, research aimed at understanding this complex biological process is needed and should not be hampered by political and attitudinal circumstance. It is critical that sociopolitical issues are separated from such investigations in order that empirical data which are reality based can be generated. A positive approach that takes into consideration this sensitive sociopolitical issue would be for scientists to design research projects which aim to clarify what other factors are operant when menstrual problems occur and whether these other factors are more related to women's physical, psychological, and social well-being.

In addition, when the menstrual cycle is viewed as one of many biological rhythms within an individual human system, it is easier to see that, like any other process, it too might not function as efficiently or as optimally as is necessary. As with any bodily system, problems in functioning do arise. This is no different for the menstrual cycle. Thus, symptoms directly attributable to the menstrual cycle are possible and have been documented in the scientific literature. The kinds of symptoms, the nature of the symptoms, and the meanings attached to these problems require further investigation. Findings related to these questions are significant for the evolution of nursing science.

Nursing's primary intellectual focus is aimed at helping people to cope with difficulties in daily living associated with their health or illness problems (Board of Registered Nursing, 1980). This conceptualization of nursing emphasizes the circumstances in which the health problem exists as well as the problem itself. The primary practice focus of nursing is to develop scientifically based strategies which will help implement this goal. Thus, in addition to being knowledgeable about the menstrual cycle as a biological system, nurses need to have a knowledge base to assist them in dealing with the psychosocial problems related to menstruation and the relationship between menstrual cycle problems and other health problems. The following questions are legitimate practice ones for nurses to address: Does a woman who manifests severe menstrual edema prior to surgery have more postsurgical respiratory complications? Do women who begin to menstruate when on bedrest have specific physical and psychosocial needs for care? Does the presence of menstruation during hospitalization influence a woman's interpersonal interactions with staff and others? Do the beliefs that women hold about menstruation influence their health behavior? Answers to these questions, based on research, would guide nurses in their practice since knowledge of this kind would provide a basis for assessing the nursing care needs of a woman and for developing interventions consistent with those needs.

In light of the lack of definitive medical treatment of menstrual problems, other alternatives for care need to be provided. An appropriate goal for nursing is to assist women in finding healthful and satisfying measures to relieve their physical and psychological discomfort. However, before practice strategies can be developed, scientific

investigations which clarify the relationship between pertinent variables are needed. This study was such a scientific investigation since the goal was to generate knowledge about the relationships of a woman's psychological well-being in the presence of symptomatology, menstrual and nonmenstrual. This study addressed a clinically significant problem area because it aimed to differentiate between women's responses to symptoms with respect to the source of the symptom, that is, whether women attributed the symptom to the menstrual cycle or to some other nonmenstrual situation. For instance, if it could be demonstrated that the source of the symptom contributed more to changes in psychological well-being than the number of symptoms or the kind of symptoms, then, as nurses, we could use that knowledge to plan care.

A similar investigation could be conducted in other populations, such as diabetics and arthritics, in order to determine if the source of symptomatology is related to the manner in which these individuals cope with problems associated with disease or illness. Does one approach a plan of care differently when the person is psychologically distressed at the idea that the symptom being experienced stems from a particular situation? The answer to this question is important if nurses are to plan care that addresses the patient's/client's frame of reference with respect to the health problem. However, at present, empirical data that substantiate whether the source of a symptom carries more meaning in relation to the assessment of one's health than any other factor have yet to be systematically explored.

Thus the purpose of this study was to determine whether employed women's subjective appraisals of their psychological well-being were related to their self-reports of symptomatology and, further, to deter-

mine whether there were differences in psychological well-being when symptoms were reported as primarily menstrual or nonmenstrual in origin. The objective was to generate descriptive data about the pattern of psychological well-being in a population of university-employed women. These data were then compared with national norms to determine if the patterns were comparable. The documentation of patterns of psychological well-being would be helpful in assessing the psychological state of women and would contribute to present literature which aims to reevaluate the mental health of women.

Secondly, a major goal was to compile data which would describe the pattern of symptomatology that a sample of women experienced and, more specifically, to obtain data which illustrated the pattern of menstrually and nonmenstrually related symptomatology. Data about symptomatology patterns would be most helpful in understanding whether women experience symptomatology differently when they relate these symptoms to the menstrual cycle, as opposed to when they relate them to a nonmenstrual source.

Another goal of this research was to determine what demographic, health, and symptomatology factors best predicted the psychological state of women. Generating data that determined which factors were more predictive of one's psychological state would be useful in the assessment of health problems and concomitant psychosocial problems.

Organization of the Dissertation

This study was organized into eight chapters, the first of which is an introduction to the problem area of this study, its significance, and

a general overview of the purpose. The second chapter addresses the review of the literature leading to the formulation of the general research question. The conceptual framework, Chapter Three, describes the broad organizing scheme against which study results are explained. Chapter Four presents the specific research questions, operational definitions of study variables, and hypotheses. The methodology section, Chapter Five, describes the design, the sample, the tools for data collection, and the procedures and the method of data analysis. Chapter Six explains the results of the study while Chapter Seven, Discussion, explores the meaning of the results. The final chapter provides a summary of the research, limitations, implications of findings, and suggestions for further research.

CHAPTER TWO

REVIEW OF THE LITERATURE

A general review of the literature served as the basis for identifying gaps in knowledge about the menstrual cycle and women's physical and mental health. In addition, it aided in the formulation of the research questions for this study. This chapter addresses how scientific evidence has been accumulated in order to document the presence of menstrual symptomatology and to classify those symptoms which are experienced by some women. The theoretical explanation for the presence of menstrual symptomatology is discussed from physiologic, psychologic, and social perspectives. The role of attitudes toward menstruation on the response to experienced symptoms is described since this area was deemed important in understanding women's subjective responses to the presence of menstrual symptomatology. Finally, women's mental health status in relation to menstrual cycle symptomatology is addressed to provide a more focused review of the literature as it related to this study.

Historically, somatic, affective, and behavioral changes have been associated with the menstrual cycle. However, it was not until 1931 that these changes and disturbances were identified and called the premenstrual tension syndrome (Frank, 1931). Based on a case study approach, Frank hypothesized that there was a relationship between ovarian function and systemic manifestations due to other organic systems. He suggested that neurologists carefully study the autonomic

nervous system in premenstrual women in order to evaluate this relationship. Further, based on his clinical experience, he substantiated that a large group of women became handicapped by premenstrual disturbances.

McCance et al. (1937) indicated that there had been no sustained attempt to systematically record psychological and physiological changes which accompany the menstrual cycle. In order to obtain systematic documentation, their research documented on a day-to-day basis the actual variations subjects experienced in their physical and mental condition, regardless of time of cycle. The data were collected over a 4-6 month period from the records of 167 women volunteers. The subjects were self-selected and primarily well-educated Caucasian women. This was basically a correlational study using a structured format with specific instructions for recording daily assessments.

A major strength of this research was the attempt to collect data on all physical and mental conditions irrespective of the time in their cycle. This was one of the first major attempts to document over the entire cycle the pattern of responses women may have. One criticism of the research is the biased approach used to collect data. As part of the instructions, these authors stated, "try to dismiss from your mind any previous views as to changes which occur in connection with your periods . . . ," which could have introduced a preset to the subjects. This was particularly important given the orientation of the day about women and the menstrual cycle. This orientation was reflected in these authors' opening statements. These authors held to the notion that, because of the menstrual cycle and its accompanying mental and physical distress, women were inherently disabled as a sex.

In addition, they reported that the menstrual cycle established a

psychological element in a woman's total response. Thus, women's self-reports of their physical and mental state could have been strongly biased towards the belief that these states were related to their menstrual cycle. In addition, the data collected were highly interpretive, and the authors questioned the use of histories or questionnaires as reliable tools. However, in all, this was a landmark piece of research in that the purpose was to obtain data on a systematic basis. They concluded that many physical and mental symptoms in women were obviously rhythmical, while others showed little or no variability. They further concluded that more research was needed.

Benedek and Rubenstein (1939, Parts I & II) investigated the relationship between ovarian activity and psychodynamic processes and, in doing so, documented the psychological changes that women experience in relation to the phases of the menstrual cycle. Using a day-by-day analysis of vaginal smears and basal body temperatures to document physiological changes and the psychoanalytic method to analyze psychological data, these authors attempted to correlate the findings by comparing the physiological findings with the psychoanalytic material. Data were collected separately on each dimension and were then compared. A major weakness in this study was the use of dreams as the basis for inferring psychological changes. This was highly interpretable material which might have been influenced by the sociocultural norms relating to the role of women and to external events at that time. However, these data did suggest that physiological and psychological processes might be correlated and further suggested that instinctual drives might be related to specific hormone functions of the ovaries during all phases of the cycle.

Moos and Leiderman (1978) suggested that there might well be different symptom subtypes with different causes. They also indicated that endocrine factors might be more important in some symptoms while psychological or social-situational factors are more important to others. In their study, a cluster analysis of 579 women's Menstrual Distress Scale scores was conducted. This resulted in the identification of several symptom types. The focus of the study was to ascertain what changes women experience in the various phases of the menstrual cycle and to develop an empirical typology of menstrual cycle symptoms. These authors contended that different subtypes might have different etiology and therefore treatment would vary accordingly. The results showed that 49% of the sample (283) experienced symptoms in only one symptom area, including a group (13%) which experienced arousal (positive reactions). Thus, support for the idea that the menstrual cycle symptoms are not always negative was obtained. This research has significance in that it suggested that women experience different menstrual symptom subtypes and that not all women respond to menstrual changes in the same way.

In a cross-cultural study, Janiger et al. (1972) found similarities in the kinds of symptoms, specifically the premenstrual syndrome, reported in relation to the menstrual cycle, but they also found variability in the particular pattern of symptoms reported and the degree of severity experienced. This study aimed to document and compare the incidence and symptomatology of the premenstrual syndrome. The cultural groups surveyed were Greek patients, Japanese students, Turkish patients, Nigerian students, and an Apache Indian group, with several control groups from the United States. Although sample size and the distribu-

tion of population samples is viewed as a major limitation, the data supported that menstrual symptoms occur in a number of diverse cultural groups and that frequency and severity of symptoms showed variations.

On the basis of these studies, it can be concluded that there is evidence to support the idea that women experience somatic, affective, and behavioral changes which they associate with their menstrual cycle. However, the exact nature of the changes and the underlying basis for the changes are not clear. In addition, the specific symptoms or clusters of symptoms which constitute the clinical categories of menstrual distress, premenstrual syndrome, and dysmenorrhea are not precise. These definitional and conceptual problems constitute a major gap in knowledge related to menstrual symptomatology, and research which aims to clarify these problems is essential. As a result of this semantic problem and for the purpose of this study, the term "menstrually related symptomatology" is used instead of dysmenorrhea and premenstrual syndrome or tension.

Theoretical Explanation for Symptoms Associated with the Menstrual Cycle

Several explanations that attempt to account for the presence of menstrual symptomatology and the variety and diversity of the symptoms experienced have been offered. Much of the literature which addresses menstrual symptomatology concentrates on the premenstrual syndrome. This literature can be divided into three categories: physiogenic, psychogenic, and sociogenic explanations of the premenstrual syndrome (Janiger et al., 1972).

Physiogenic View

The physiogenic explanation for the formation of menstrual cycle symptoms, both physical and psychological, is viewed as a reflection of the underlying aberrant physiological state. According to Janiger's review, this orientation, supported by Bickers (1959), Dalton (1977), and Tonks (1968), implicates hormonal excess or imbalance of progesterone, estrogen, aldosterone, and glucocorticoids, and abnormal water retention and distribution. Dalton (1977) supported the hypothesis that the progesterone feedback pathway is the basic etiological problem in the premenstrual syndrome which includes physical and psychological symptoms. She contended that the faulty feedback pathway was produced by insufficient stimulus or by interference due to hyperprolactinemia.

Steiner and Carroll, in their 1977 review of the psychopathology of premenstrual dysphoria (negative affect), identified five biological theories to account for these symptoms: 1) hormonal changes during the normal menstrual cycle; 2) estrogen-progesterone imbalance; 3) pyridoxine (Vitamin B_6) deficiency; 4) renin-angiotensin-aldosterone system; 5) monoamine oxidase activity. The reviewer, however, concluded that there was no clear convincing evidence for a psychobiological explanation of premenstrual dysphoria (negative affect). Further, it appeared that depression, elation, and irritability might be distinct premenstrual syndromes.

It seems reasonable that the highly complex system that controls the reproductive cycle in women has as much potential for dysfunction as any other biological system. Therefore, it would be advantageous to encourage physiological research which would attempt to explain and clarify the complex nature of the reproductive system in relation to

symptom formation. In addition, it would be premature to reject a physiological explanation as the basis of some of the subjective physiological changes that women experience.

Psychogenic View

The psychogenic view identifies psychological factors as having primary importance in the development of the premenstrual syndrome. According to Janiger et al. (1972), the two most significant factors are: 1) the psychological conflicts which involve acceptance of the feminine role, a conflict that is accentuated by the physiological processes such as pregnancy, sexual repression, castration, and child birth fears, a view supported by psychoanalytic theorists such as Deutsch (1944), and 2) personality factors such as neuroticism (Coppen, 1965; Coppen & Kessel, 1963) and psychological maladjustment (Hain et al., 1970).

Benedeck and Rubenstein (1939), notable exceptions to the above psychoanalytic interpretation, took a different road. They reported that, based on comparisons of vaginal smears of study subjects in conjunction with psychoanalytic content reported by the patient, content varied as a function of changes in ovarian hormones; for example, heterosexual drive content was related to estrogen increases in vaginal smears. This study has importance in that the design allowed for the simultaneous use of two methods as the basis for comparing physiological and psychological processes. It also suggested a potential relationship between ovarian activity and instinctual drives. A major criticism of this research is not with the basic method, but rather with the measure of psychological processes through use of psychoanalytic content.

Coppen and Kessel (1963) investigated the prevalence of dysmenorrhea and premenstrual symptoms in a general population and their relationship to personality. Using a sample of 500 women from different parts of England, names of subjects were obtained from general practitioners. Women were between the ages of 18 and 45. They concluded that certain premenstrual symptoms (irritability, depression, tension) were significantly correlated with neuroticism and that swelling and headaches at the menstrual period were associated with neuroticism. However, no correlation was shown with dysmenorrhea. These authors were very critical of research that did not use control groups or general population data for comparison purposes and added rigor to the research on the menstrual cycle. Coppen (1963), using data from the Coppen and Kessel study as a control, examined the prevalence of menstrual symptoms in three groups of psychiatric patients, those with neurotic, schizophrenic, and affective disorders. This study is significant in that it was one of the first studies conducted that used a control group from which comparison could be made. Coppen concluded that the neurotic woman showed a higher prevalence of symptomatology, specifically pain, anxiety, irritability, depression, and headache.

Gregory (1957), in his review of the literature, concluded that changes in a woman's general attitude and in her emotional life at different phases of the menstrual cycle might be initially determined by her upbringing and early relationship with her mother. Anxiety related to psychosexual conflicts and assumption of the feminine role might determine subsequent attitudes toward menstruation and might result in the recurrence of menstrual dysfunction and regression at various phases of the cycle. Further, he concluded that the "increased liability of

neurotics to suffer from premenstrual tension is attributable to an undue sensitivity to the underlying physiological change" (p. 71).

Hain et al. (1970) investigated whether irregularity of the menstrual cycle related to premenstrual and menstrual psychological and physical symptoms and to personality characteristics. A sample of 71 nursing students, ages 17 to 28, were administered the MMPI and a menstrual history questionnaire. These authors concluded that irregularity of the menstrual cycle is associated with the occurrence of specific and general premenstrual and menstrual symptoms and with personality maladjustment. It was pointed out that causality could not be determined. Further, in relationship to irregularity and personality, those with irregular cycles were described as "immature, impulsive with numerous neurotic symptoms, including somatic ones, and tended to have more difficulties with interpersonal relationships." A major criticism of this research is the assumption that there is a particular cycle length that constitutes 'regular'. According to Vollman's research (1977), variability in the length of the cycle is the norm rather than the exception; thus, grouping subjects on this basis might be an arbitrary dividing line.

However, there were three studies (Cath & Mayer, 1978; DeMarchi, 1976; Kopell et al., 1969) that clearly demonstrated the complex nature of the subject and strongly suggested the interplay of physiological and psychological factors in the development of psychological symptoms. Kopell et al. (1969) indicated that behavior and neurological phenomena occur in relationship to the menstrul cycle and that female sex hormones might be related to these changes. They suggested that the general state of arousal of the nervous system varies with the menstrual cycle.

DeMarchi (1976) did not find support for Kopell's findings that reactivity is decreased. DeMarchi stated that there was considerable evidence that hormonal variations during the menstrual cycle are directly related to the general functioning of the central nervous system (CNS). He further indicated that the CNS activity and these hormonal variations represent naturally occurring variations in arousal, by which is meant increased critical activity and increased excitation in the nervous system. Cath and Mayer (1978) suggested that psychological symptoms that are experienced during the premenstruum are related to an increased and heightened reactivity and responsivity. They further indicated that such premenstrual alteration in ego functioning could be a result of endocrinological, sociocultural, or psychodynamic factors or from a combination of sources.

Sociogenic View

The sociogenic view, which was supported by Paige (1973), implicates social factors as the primary basis for mood changes associated with menstruation. Paige contended that it is necessary to consider the social and cultural origins of mood swings, as well as biological origins, and she hypothesized that the premenstrual blues are linked to the actual occurrence of bleeding and not to hormonal levels. Her results support this social hypothesis and indicate that women with reduced flow do not show as much anxiety at menstruation as women whose flow is heavy. She further contended that women use menstruation to explain bodily discomfort and psychological stress that could have their origin in other events. Parlee (1976) expanded this theme in her discussions of the psychology of menstruation and suggested that the

cognitive labelling approach (Schacter & Singer, 1962) in the study of emotions is a worthwhile research approach for the study of menstrual cycle symptom formation. This approach addresses the notion that cultural beliefs might affect the way an individual experiences bodily changes. Parlee (1974) suggested that, if hormonal changes produce alterations in levels of arousal, it is possible that these states could be interpreted based on available cognitive labels. In the case of menstruation, these labels are primarily negative ones.

Koeske and Koeske (1975) hypothesized that, in addition to social and biological factors, there is a coherent set of beliefs about menstruation which forms an attributional pattern, linking negative mood swings to one's approach to menstruation. This particular approach appears to be one that is conceptually and methodologically worthwhile to pursue since it has the potential of explaining menstrual cycle symptom formation from a bio-psycho-social perspective.

Wilcoxin et al. (1976) demonstrated that the experience of stressful events accounts for more of the variance than does cycle phase for negative mood factors, but not for pain and water retention. These findings are supportive of the hypothesis that the particular individual's situation is an important factor in accounting for some menstrual cycle symptoms, especially mood changes.

Parlee (1974) indicated that increased reporting of the symptoms and the differences in occurrence within the cycle phases is a reflection of social expectations or stereotypes of the normal menstrual experience. The research by Brooks et al. (1977) went a step further when these authors studied the extent to which women with menstrual symptomatology had expectations for their own experience. A finding of

particular importance to this study was that indirect evidence suggested that subjects perceived physical and psychological symptoms somewhat differently. These authors indicated that severity of psychological, not physical, menstrual distress was related to higher Moos Menstrual Distress ratings of premenstrual water retention and negative affect. These authors concluded that the two symptoms that were perceived to be most severe were, in fact, seen as being associated more with psychological than physical distress. These findings indicated that psychological distress represented a more general reaction to menstrual changes. In addition, study results indicated that college women in the sample expected to experience more severe symptoms in the premenstrual phase, and they expected the most severe symptoms to be water retention, negative affect, and pain. These authors suggested that this finding supports the idea that reports of premenstrual symptomatology might reflect stereotypic expectations.

Attitudes Toward Menstruation

Dunham (1970) made an important contribution to the subject of attitudes toward menstruation when she distinguished among attitudes toward menstruation at menarche, current attitudes toward menstruation, and transient moods during the menstrual period. A major finding in her research indicated that mild psychological discomfort is related to the transient feelings experienced during menstruation. In conjunction with this finding was the denial that menstruation is very special in either a positive or negative way and is related more to permanent attitudes. Several years later, in a study by Brooks et al. (1977), a similar

finding was reported. These investigators indicated that the experience of menstruation did not seem to be perceived as very debilitating or negative. The effects of menstruation were viewed as minor and accepted rather routinely. These authors further concluded that literature on the menstrual cycle had overemphasized the negative and debilitating aspects. This situation might have been a result of longstanding, deeply-rooted notions about the role of the reproductive system in a woman's life. An historical view of the medical and biological ideas of woman and her social role by Smith-Rosenberg and Rosenberg (1973) indicated that the prevailing notion in the nineteenth century was that women were products and prisoners of their reproductive system, which was the basis of their most common ailments. This notion, together with her social role of mother, served to define woman in terms of this biological system.

Recent literature documents that this medical-biological ideology continues to serve as the basis for current day assumptions about women (Kaiser & Kaiser, 1974; Ruzek, 1978) and has infiltrated medical education (Howell, 1974; Scully & Bart, 1973), is reflected in medical media (Mant & Darroch, 1975; Prather & Fidel, 1975), is partially reflected in nursing textbooks on obstetrics and gynecology (Benton, 1977), and is entrenched in popular literature (Flora, 1971). This persistence of medical imagery, in light of recent research (Abernathy, 1976; Broverman et al., 1972) on sex role differences which contradicts the stereotypic perceptions, illustrates how deeply rooted these beliefs are and the tenacity with which individuals hold on to these views. However, a study by Whisnant and Zegans (1975b) suggested there is a move in the opposite direction. They indicated that more emphasis has been placed

on the hygienic aspects, while de-emphasizing the affectual importance of menstruation. These authors examined and analyzed introductory material prepared for premenarchial girls aged 9 through 14. They suggested that vagueness of language created a mysterious atmosphere about menstruation and that heavy emphasis on technical and medical language produced technical vocabulary without any personal experience. In addition, the literature was devoid of discussion about the rhythmicity of this cycle and its potential effect on physiological and emotional functions. The message about menstruation was that it was a source of embarrassment and that it was such a natural event that it need not be acknowledged. These authors concluded that the "materials dictate what a girl should feel rather than helping her to honestly explore and validate her subjective responses" (p. 819).

Thus, the literature does document that the event of menstruation carries with it special psychological and social meaning for many women; however, the exact importance that it plays in the life of contemporary women remains only partially answered. In addition, it documents that women do experience symptoms which they associate with the menstrual cycle. However, there is no one single theoretical explanation that emerges to explain the presence, nature, and extent of the symptoms that women experience in relation to their menstrual cycle. Biogenic, psychogenic, and sociogenic hypotheses have been advanced; however, none, as an individual approach, appears to adequately explain the phenomenon. It would seem that a unifying framework that could encompass biological, psychological, and social aspects is needed in order to generate and test hypotheses that address the complexity of the phenomenon. This is especially true in light of recent research that suggests

a differentiation of symptom types. This view is supported by Sommer (1973) who concluded that "the complex nature of these relationships with their bases in psychological, social, and biological systems precludes immediate interpretations" (p. 533). Smith (1975) supported the view that multifactional theories of etiology would be most helpful in understanding the interactions between hormones/metabolites and psychological and physiological predisposing factors.

In addition, the extent to which attitudes towards menstruation influence the social, psychological, and behavioral aspects of a woman's life is unclear. It has been documented that menstrual myths and stereotypic beliefs about menstruation still exist; however, the effects of these myths on a woman's functional level is undetermined. It has been demonstrated that a woman's mental health is linked to her menstrual experience in general and specifically to the presence of menstrually related symptomatology. The presence of menstrual complaints has been seen as justification for questioning the emotional stability, performance ability, and the psychological status of women.

However, it has not been substantiated in the literature as to whether the presence of menstrually related symptomatology is so all-pervasive that it affects a woman's overall psychological well-being. It has been postulated in the literature that the experience of menstruation carries with it so much psychological meaning that, at least theoretically, menstrual problems influence a woman's whole being. This argument is countered by empirical research that many women accept menstruation as a matter of course and not as a central focus in their lives.

A major gap in knowledge centers on whether women themselves believe that their menstrual experience is an instrumental factor in determining their mental health. More research to update current attitudes is essential. Another major gap specifically addresses the issue of whether the presence of menstrual symptomatology is a critical variable in a woman's overall psychological well-being. Empirical investigations aimed at generating data about women's subjective appraisals of the impact of the presence of menstrual cycle symptomatology on women's overall mental health are needed.

A review of the literature which addressed morbidity, the mental health status of women, and the subjective appraisal of health has served to clarify current knowledge about the relationship of the presence of menstrual symptomatology to women's mental health.

Women's Mental Health

Male-female morbidity statistics have consistently indicated higher morbidity rates (Monteiro, 1976; Verbrugge, 1976) and lower mortality rates (Johnson, 1977; Waldron, 1976, Part I & II) for women. More specifically, Verbrugge (1976) indicated that females have higher rates of acute conditions as compared with males. This occurred even after reproduction-related events (deliveries and disorders of pregnancy and the puerperum) were excluded. She reported that females were six times more likely than males to have genitourinary disorders and twice as likely to have headaches. Musculo-skeletal disorders, such as bursitis, bunions, backaches, and upper gastrointestinal problems, exceeded males by 40 to 50%. Given the more complicated reproductive system of the

female, one might expect an increase in genitourinary disorders. It would be interesting to see, after controlling for symptoms which subjects related to the menstrual cycle, whether the differentials between males and females would differ.

Monteiro, in her 1976 study of illness rates and disability, concluded that restricted activity days and related illness could not have been explained wholly by gender-related gynecological or child-bearing illness. This author tested the hypothesis that childbearing was the source of the disproportionate experience of disability days between males and females. After eliminating women who reported disability days that were due to pregnancy, postpartum or menstrual problems, the differential still existed; i.e., 23% of the females, compared with 17% of the males in the same age category, experienced disability days.

A similar pattern was presented when psychiatric morbidity was examined. There is evidence to support the fact that women experience higher rates of mental illness. Gove and Tudor (1973) examined sex differentials in mental health and concluded that women were more likely to experience mental illness than men. These authors summarized data from 17 community surveys within the years 1956 to 1970. Their major purpose was to explore the relationship between adult sex roles and mental illness. The two major diagnostic categories used to classify mental illness were neurotic disorders and functional psychoses. Their study suggested that the social role of women in an industrial society might promote mental illness.

In a critical review of the literature on depression, Weissman and Klerman (1977) suggested that women had higher rates of depression than men and indicated that these differences were real and were not due to

reporting or health care behavior. Depression in this study was defined as a primary depression or affective disorder and not as a mood state or secondary depression associated with medical or psychiatric disorders. This study provides evidence that women predominate in the rates of depression within both treated and untreated cases.

An analysis by Dupuy of the National Health and Nutrition Survey Data (1978a) indicated that women consistently reported lower levels of psychological well-being than men. The sample was from a general population, and this pattern occurred across all age groups. The importance of this study is that it focused on a general population and that it assessed the broader concept of psychological well-being. This concept aimed to transcend particular diagnostic categories and to obtain an overall assessment of one's mental state. Dupuy reported mean scores for males (all ages) as 80.4, SD 17.5 (moderate-low positive well-being), and 77.7, SD 18.3 (marginal positive well-being) for females (all ages). Consequently, evidence in the literature does suggest that women experience higher rates of mental ill health than men. It is not clear, however, what accounts for this difference.

Several authors (Mechanic, 1972, 1976; Nathanson, 1975, 1977; Verbrugge, 1976) attempted to explain the differences in morbidity and mortality through various hypotheses which Nathanson (1975) categorized into three explanatory models: 1) women report more illness than men because it is culturally more acceptable for them to be ill; 2) the sick role is relatively compatible with women's other role responsibilities; and 3) women's assigned roles are more stressful. Nathanson stated clearly that the test of power of these hypotheses would come from their ability to explain differences among women in terms of ill-

ness and illness behavior. Gove and Hughes (1979) offered an alternative hypothesis that suggested that there are real differences in physical illness. They hypothesized that this is due to nurturant role demands coupled with women's poorer mental health which stems from their social role. It is clear that several theoretical explanations have been put forth to account for sex differentials in morbidity with no conclusive evidence as to which best explains the phenomenon. Thus, studies aimed at analyzing more specific variables which could explain differences among women seem warranted.

Each of these hypotheses on morbidity rates is related to the subject of menstruation. Since one aspect of menstruation is illness, the issue of willingness to adopt the sick role becomes important. Greenberg and Fisher indicated in their 1977 study that women with more liberal views delayed longer in seeking treatment. Phillips (1965) found that self-reliance was inversely related to sick role. Given the self-care trend in women's health, this issue might have significance for women's health care behavior. Parlee (1973) concluded that stereotypical report responses by women in relation to the menstrual cycle inflated the rates of menstrually related symptomatology. Each of these has the potential for answering why high prevalence rates of mental and physical illness have been reported in relation to the menstrual cycle. Consequently, it is important that research aimed at understanding the role of the menstrual cycle in relation to women's mental health addresses these theoretical concerns. A broader conceptual approach to the analysis of women's mental health would be to determine differences in illness and illness behavior among women who report nonmenstrual, as well as menstrually related, symptomatology. Monterio's research was a

positive step in this direction with respect to physical symptoms. A similar approach for mental health is still needed.

Self-Assessment of Health and Well-Being

With self-care came the need to be able to make self-assessments of one's health status. In her 1978 study of sex differences in the perception of illness, Briscoe found a discrepancy between husbands' and wives' perceptions of their spouses' satisfaction levels and experience of symptom levels. According to this author, the results indicated that wives were perceived by their husbands as considerably less healthy and more dissatisfied than husbands were rated by their wives on the same variables. This is an important factor, considering that most morbidity rates were obtained from women in household surveys in which they reported for other family members.

Garrity et al. (1978), in their attempt to understand the process by which health perception infuences health and illness behavior, indicated that several factors influenced the subjective appraisal of health. These authors found significant correlations between perceived health, psycho-physiological symptoms, perceived stressfulness of life, recent life change, and current health status. They concluded that perceptions of illness have an influence on such variables as morale and resumption of work after illness. Both these factors, perceived health and morale, are important to understand in relation to menstrual symptomatology since the literature documented that a subgroup of women do report severe chronic pain, as well as other symptoms, in relation to their menstrual cycle. Consequently, it is theoretically plausible that

there is an interactive effect among a woman's perception of health, her morale, and her menstrual experience.

There are three major implications of the previously cited research. First, despite problems in self-reports, research on the menstrual cycle should be aimed at understanding subjective appraisals of women's menstrual experience. Since this phenomenon is a meaningful and value-laden area, it is important that the problem be viewed from the standpoint of how women with menstrual symptoms see their situation. It is the task of the researcher to find the most valid and reliable ways to document the experiences, rather than disregard them as useless tools. Secondly, research on the menstrual cycle should be studied in relation to another phenomenon to establish whether what women are experiencing in relation to the menstrual cycle is any different from any other health problem experience. This approach aims to understand morbidity differences among women. Lastly, although research that addresses the question of directionality is still in the early stages of investigation, it is apparent that a relationship between the presence of symptomatology and feeling of well-being does exist. The specifics of the relationship have yet to be thoroughly and systematically investigated.

In summary, despite the lack of clear definition among various menstrual symptomatology clinical categories, women do report menstrually related symptomatology. As yet, there is no definitive answer to explain the formation of such symptoms, although physiogenic, psychogenic, and sociogenic frameworks have been suggested. In addition, increased prevalence of physical and mental morbidity rates for females has been demonstrated. Recent research that aimed to explain these differences between males and females focused on controlling for gyneco-

logical problems which included menstrual symptoms. This was an important step, given the theoretical explanations for the increased incidence; that is, women reported more sick role behavior and stressful assigned roles for women. Controlling for these factors in general and for menstrual symptomatology in particular could provide a clearer picture of the morbidity rate for women and the role that the menstrual cycle plays in it. The aim is to uncover the real health problems and their etiology in order that appropriate interventions can be made. There is an inherent risk that real differences do exist and therefore these data could be used to discriminate against women in terms of their capabilities. However, the discrimination issue must be handled through other mechanisms.

Based on the review of the literature, specific gaps in knowledge were uncovered. It is apparent that the etiologic basis for explaining the presence of symptomatology is unclear and that refinement of the classification systems used to describe menstrual complaints is necessary. Given this situation, a theoretical explanation that encompasses the multidimensional nature of a woman's menstrual experience is considered essential. In addition, a woman's menstrual experience was considered to be a biological, psychological, and social one which underscores the need to view menstrual problems in a broad sense, i.e., menstrual symptom complaints in general rather than as a specific disorder such as dysmenorrhea.

In terms of the subjective appraisal of health, it is clear that documentation of this kind in relation to women's menstrual experience is limited. Descriptive data about the patterns of women's symptom complaints are viewed as critical since the data would provide scien-

tific evidence of women's symptom experiences. The literature available at this time addresses symptoms in general and does not examine whether symptom components, such as the number of symptoms or the origin of the symptom as viewed by the individual, have any relationship to how physical, psychological, or social health is perceived. Furthermore, evidence that a woman's general psychological experience is altered in the presence of symptomatology, whether it is menstrually related or not, is minimal and inconclusive.

Thus, a conceptualization of health that would explain the relationship between women's subjective experiences of their overall psychological health when experiencing menstrual symptomatology was deemed the framework of choice. This conceptual framework was viewed as the primary means by which conceptual linkages were identified and the framework from which study findings were explained in a broader theoretical light.

CHAPTER THREE

CONCEPTUAL FRAMEWORK

The conceptual framework of this research addressed two major concepts, psychological well-being and symptomatology. The following section describes, defines, and discusses these concepts and explains their conceptual linkage within an interactionist framework.

Any discussion of the concept of psychological well-being should address the conceptual unclarity surrounding the phenomenon and should include a discussion of its relationship to the concepts, "quality of life" and "mental health". With respect to the concept "quality of life", George (1979) attempted to differentiate among the terms used to identify this concept and identified three which had been used interchangeably: life satisfaction, morale, and happiness. This author indicated that these terms were global and not domain-specific measures; that is, they referred to life as a whole rather than to specific referent areas, such as work and family life. Bradburn (1965) conceived of happiness as a sum or balance of independent positive and negative feelings emerging from a given quality of life. The underlying notion was that greater happiness indicated a better quality of life. Other authors (Dalkey et al., 1972) have indicated that the word "happiness" had been replaced by the broader term, "quality of life". Their analysis of the indicators of quality of life led to the conclusion that quality of life was a global concept in that "it is determined mainly by some very general features of the individual and his environment and

not by specifics" (p. 89). Katzner, in his 1979 critique of the analytic approaches to the study of quality of life, indicated that, despite major contributions to the subject by Campbell (1976) and Gurin et al. (1960), the work of Dalkey and his associates (1972) held the most promise for being a useful analytical tool for measuring quality of life. Katzner, in his 1979 review of Dalkey's 1972 work, supported the position that an "individual's quality of life may be defined as the realization of those attributes as they exist in his life at the time of inquiry" (p. 31).

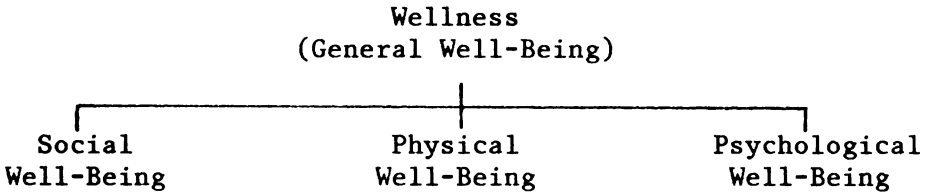
Abrams (1973) contended that the approach to measuring the dimensions of quality of life must include the use of subjective social indicators, not just objective ones, as reliable quantifiers of an individual's experience. Both Abrams and Dalkey et al. (1972) identified nine dimensions of the concept "quality of life", and each has identified health as one major dimension within that concept. Dalkey's dimensions include the following: health, meaningful activity, freedom, security, novelty, status, sociality, affluence, and aggression. A concise and succinct definition of quality of life that reflects this general perspective was given by Newbrough (1972) who stated that quality of life referred to the value attributed to life experience and circumstances. Thus, domains such as these were attempts to identify the parameters or determiners of the quality of life, and it was the domain of health that was the central focus of this proposed study.

There was similar conceptual unclarity with the concepts of health, mental health, and well-being as there was with quality of life (Kaplan et al., 1976). However, one conceptualization of general well-being that offered an all encompassing approach was presented by Wan and

Livieratos (1978). To them, a person's health status is measured by the extent to which a multidimensional state of wellness is achieved, as shown in Figure 1. This multidimensional state of wellness includes physical/physiological, mental, and social well-being.

Figure 1

Schematic Conceptualization of Wellness



Additionally, sense of well-being was measured by subjective responses to questions regarding self-reported health. The authors' definition of general well-being (wellness) was consistent with the World Health Organization's definition of health, i.e., "a state of complete physical, mental, and social well-being." Both definitions employed the term "well-being" in their definitions, which implied that the subjective feeling state of the individual was the basis for assessment. These authors concluded that there were no all-inclusive measures for assessing general well-being (wellness).

Attempts to measure the individual dimensions of wellness have increased in recent years (Ware et al., 1980), with the most advanced development being in the area of mental well-being. This occurred even though, as a concept, mental health has been plagued with conceptual and definitional problems. Farrel (1979) examined the concept of mental illness in conjunction with other concepts such as deviance, social

maladjustment, and morbidity. She concluded that the present state of the science was such that no clear definition of mental illness had emerged and that the "subject still seems to be in its clinically descriptive phase of development" (p. 33). Her exploration supports the notion that the concept of mental illness is vague and defective.

In addition, Berg et al. (1976) indicated that scales related to quality of life must encompass the domain of social and psychological functioning, not just physical limitation or disability. In this study, the authors focused on assessing the differential values of various conditions of life and their relative importance. Results showed that cognitive, emotional, and social functions were rated as important by the 150 health workers who responded to the questionnaire. Eaton (1951) stated that there was little agreement on the meaning of mental health, and this view of the situation continues to exist (Krauss, 1976). These authors support the notion that a multidimensional approach to the assessment of mental health is essential.

Dupuy (1972), in his definition of mental health and illness, reflected this view that multiple criteria are needed in the assessment of mental health. He stated, "mental health can be viewed as a relatively enduring positive state wherein the person is well adjusted, has a zest for living, has developed his capability, and is attaining self-realization" (p. 509). In addition, mental illness was defined as:

> . . . a severe disorder in adjustment, capability, or capacity affecting the individual's psychological functioning in coping with the problems and demands of life he encounters and in attaining or maintaining his potential for self-realization. In this view, psychological functioning involves positive and negative aspects of functioning (Dupuy, 1972, p. 509)

Implied in this definition is the need to engage in social situations that include others, a view consistent with a social-psychological approach to the study of psychological behavior.

Consequently, general psychological well-being refers to the subjective appraisal of one's psychological state, a broad construct that encompasses mental distress, mental health, and positive well-being. Specifically, one's personal psychological adjustment is measured along a dimension progressing from severe subjective distress through positive well-being to a state of euphoria. This approach of assessing one's psychological state is considered a more comprehensive measure than previous ones which focused primarily on psychosomatic dysfunction (Ware et al., 1979) and reflects a shift from past concepts of mental health. Thus, the more current trend is the inclusion of positive states of well-being as well as negative ones.

Multicriterion measures as indicators of general psychological well-being were illustrated by Dupuy (1972) in his General Well-Being Schedule (see Appendix C). This instrument includes six differential indicators of adjustment: 1) positive expressions of general well-being, 2) emotional stability and control, 3) depressed versus cheerful mood, 4) tension, stress, anxiety, or nervousness, 5) health worry or concern, and 6) energy level. Dupuy developed the General Well-Being Schedule for the purpose of providing a measure of an individual's self-representation of subjective well-being, discomfort, or adjustment. Dupuy's instrument was in contrast to earlier measures, such as Gurin's Mental Health Status Index, which concentrated on physical components rather than psychological ones.

Based on the above discussion, the concept of mental health, as defined earlier, has been difficult to assess directly, and the criteria used to evaluate mental health or illness have been diverse (Veroff et al., 1962). However, one approach to the measurement of mental health/illness has been through the subjective appraisal of the level of subjective distress being experienced. What is problematic about this approach is the lack of empirical data to support whether this approach is a comprehensive enough measure to adequately assess mental health or whether it taps only one aspect of the concept of mental health. Dupuy attempted to address this problem when he developed the General Well-Being Schedule. The major value of this instrument is that it was designed to be multicriterion in nature and appears to cover many facets of mental health. When one utilizes Dupuy's broadened construct of general psychological well-being, then, mental health becomes one aspect of that construct and is bordered on one side with mental illness and on the other side by positive well-being. However, despite Dupuy's contribution, one is still left with the question of whether subjective distress, regardless of its multicriterion basis, is a comprehensive enough measure to be considered an overall measure of mental health, or whether it is more an overall measure of one's affective state in relation to the many criteria known to affect mental health.

In a review of the literature by Davis (1965), it was concluded that there is "no research for or against the assumption that mental illness is the extreme form of the phenomenon called generalized subjective distress" (p. 36). Davis suggested that longitudinal studies which examine the relationship between generalized subjective distress and mental illness should be conducted. Edwards (1979), in his work with

community mental health patients, found that "patient groups at intake do report having significantly lower psychological well-being than the community samples" (p. 125). In addition, this study found that both patient groups showed significant gains in psychological well-being over the course of treatment. Theoretically, however, it is difficult to know whether the gains in psychological well-being, as measured by the General Well-Being scores, reflected simply relief from subjective distress or relief from subjective distress as an indicator of a shift from mental illness to mental health.

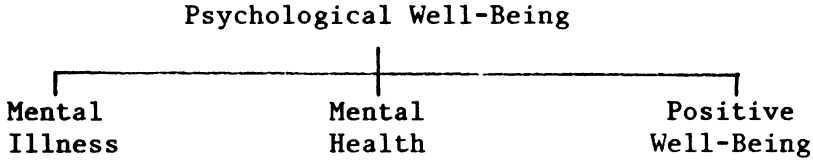
It is clear that much work needs to be done to theoretically clarify the relationship of subjective distress to the concept of mental health and mental illness and to further clarify conceptually the general phenomenon of mental health and its relationship to mental illness. Davis (1965) pointed out that it was not known whether one could equate extremely bad mental health with mental illness. Based on the impreciseness of the meaning of mental health and illness and for the purpose of this research, these terms were not used. However, theoretically, this research supported the notion that mental health and mental illness are not separate and distinct phenomena but rather constitute a large construct that includes both concepts. In this view, subjective distress was seen as one way in which to measure mental health.

General psychological well-being, as measured by the General Well-Being Schedule, is a valuable multicriterion measure of the generalized subjective distress state of the individual, regardless of whether the individual is categorized as mentally ill or mentally healthy. The point here is that individuals experience subjective distress. What is

not known is which other factors influence whether subjective distress becomes a psychosis or neurosis. Is it the length of time that one experiences generalized subjective distress? Is it a developmental deficiency due to past experiences? Is it social factors which interfer with the development of meaningful relationships with others? These are just a few of the questions that require investigation, but for the purpose of this research the focus was on general psychological well-being, that is, the net impact of many psychological forces which affect an individual's subjective, emotional, or feeling state and which are seen as measurable on a bipolar dimension ranging from positive through neutral to negative. As represented in Figure 2, this concept was viewed as a measure of severe distress, mental health, and positive well-being in the general (healthy) population. Thus, general psychological well-being was viewed as a measure or indicator of mental illness, mental health, and positive well-being and not necessarily, at least given the present level of knowledge, synonymous with any of these individual concepts.

Figure 2

Schematic Representation of
Psychological Well-Being



In summary, it was the conceptualization of general psychological well-being as a multicriterion indicator of mental health (in its broad-

est sense) and as one dimension of a multidimensional state of wellness that guided this investigation of the relationship of the menstrual symptomatology to the psychological well-being of employed women. Within this framework, physical health was viewed conceptually as one aspect of physical well-being. The intent of this research was to determine correlates of psychological well-being; thus, a physiological or physical variable was conceptually consistent.

Physical health has been conceptualized in terms of functional status (Stewart et al., 1978), number of health conditions (Nagi, 1976), and number of symptoms (Kaplan et al., 1976). Based on the research of Nagi and Kaplan et al., number of conditions and number of symptoms showed a strong positive relationship to functional status. Associations between functional status and mental health were obtained by Nagi (1976), who found that limitations in functioning tended to correlate with poorer mental health. Nagi's study was an epidemiological analysis of disability among adults in a general population. The sample comprised persons 18 years or older, and a total of 6,493 schedules were completed, representing 80.3% of the sample. Through regression analysis, 45% of the variance in emotional performance was accounted for by health condition, health status, and by demographics, with 41% explained by health condition and health status. By themselves, demographics accounted for only 8% of the variance. Thus, number of symptoms had been used as a measure of physical health in relationship to functional status. This provided justification for the use of a symptomatology variable as a potential predictor of psychological well-being.

For the purpose of this research, symptomatology was conceptualized as a multidimensional state in which an individual experienced physical,

psychological, concentration, or behavioral changes. Symptomatology was further defined as being composed of various components, that is, the number of symptoms reported, severity rating, type, and source of the symptomatology. Measures of symptomatology were obtained through self-reports using a checklist of 47 items which constituted the Moos Menstrual Distress Questionnaire (see Appendix D).

Conceptual Approaches to Psychological Well-Being

Several authors throughout the last twenty years attempted to define well-being (Andrews et al., 1976; Bradburn, 1965, 1969; Cantril, 1965). Their focus was to identify factors that would best assess the psychological well-being of an individual. However, given the previous discussion regarding the conceptual unclarity surrounding the phenomenon, it appeared that these authors attempted to measure the more global concept of general well-being rather than the more specific one of psychological well-being. Dupuy (1974) conceptually differentiated between the various states of well-being and posited the existence of other dimensions of the construct of general well-being, such as economic and social well-being. His work attempted to construct six dimensions which constituted the concept of psychological well-being. These dimensions interacted for the purpose of creating an inner state that could be measured through subjective appraisal. Theoretically, Dupuy's (1978b) concept was coordinated with the general field theoretical concepts of Kurt Lewin and conceived of psychological well-being "as an emergent state of tension in the inner personal region" (p. 4). In reviewing the literature on psychological well-being, conceptual

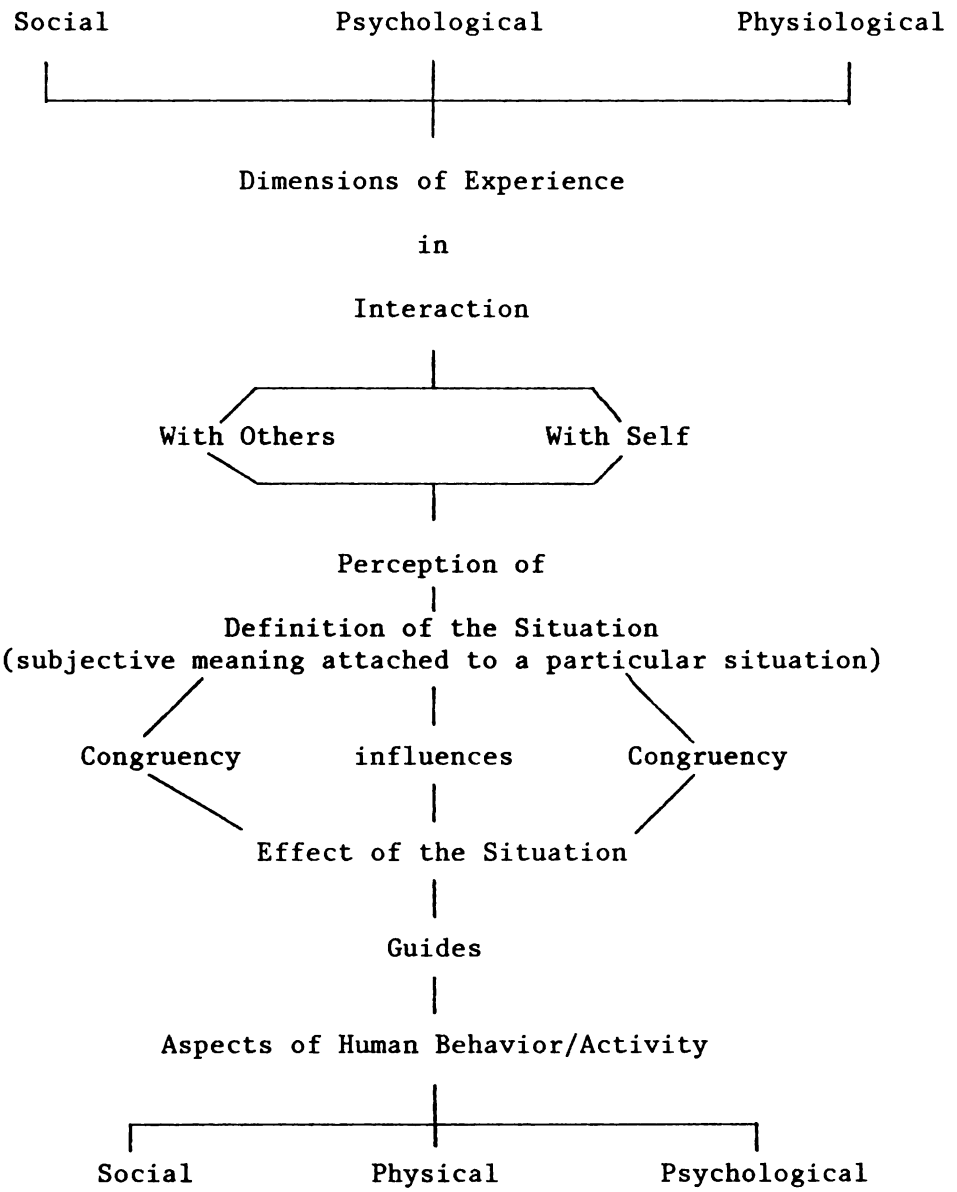
approaches utilizing an interactionist framework were not found. This was an interesing finding given that Jahoda (1958) alluded to this approach in her review of positive mental health concepts. She indicated that a crucial aspect of man's environment consisted of those persons with whom man intimately interacted and that these individuals influenced that individual through symbolic representation (p. 106). She also pointed out that mental health concepts must address this perspective. Thus, the interactionist framework was selected as the theoretical approach to menstruation and psychological well-being since it had the potential for explaining these relationships with a bio-psycho-social context.

An Interactionist Perspective

A broader conceptual approach to the study of women's psychological well-being, particularly in relationship to menstrually related health problems, appears to be warranted. One such approach, which would be consistent with the conceptualization of wellness as a multidimensional state encompassing physical, psychological, and social well-being, is social behaviorism, specifically the interactionist's tradition (Mead, 1934). As shown in Figure 3, this theoretical approach to the study of human behavior focuses on the activity or behavior of the individual as it appears within the social process (Manis & Meltzer, 1972). Experience from an interactionist perspective is viewed as having physiological, psychological, and social dimensions which come into play through interaction with oneself or with others. From this interaction the meaning of the situation is determined which, in turn, directs the

Figure 3

Theoretical Scheme:
Interactionist Perspective of Human Behavior/Activity



social, physical, or psychological behavior of the individual. This is viewed as an interactive, dynamic process with each aspect influenced by, as well as influencing, another aspect of the theoretical system.

Since health as well as menstruation is viewed as a biological, psychological, and social experience, this interactionist framework provides a potential theoretical explanation for psychological behavior in relation to the menstrual cycle. Figures 4 and 5 exemplify how this researcher utilized an interactionist perspective to develop a conceptualization of health behavior and, more specifically, menstrual experience and menstrual health behavior. In this view the menstrual experience of women is conceptualized as a multidimensional experience that takes place within the context of social interaction. Therefore, health behavior related to the menstrual cycle is viewed as having social, physical, and psychological aspects.

It has been demonstrated that many attitudes and beliefs about menstruation and its related problems exist within many cultures (Snow, 1977) and, as a consequence, affect that experience. From an interactionist point of view this experience, which has a social dimension, occurs in relationship to others, either at a symbolic level or a behavioral level. Furthermore, it is assumed that an individual is capable of carrying on conversations with himself and with others. This approach to experience has impact and meaning with respect to menstruation. As a result of this biological process of menstruation, women at a very early age learn to read and to respond to their bodies and to deal with the social situation which surrounds it. Thus, the biological menstrual experience becomes a social experience which serves to modify the individual's social behavior. In this process, the beliefs

Figure 4

Theoretical Scheme:
Interactionist Perspective of Health Behavior

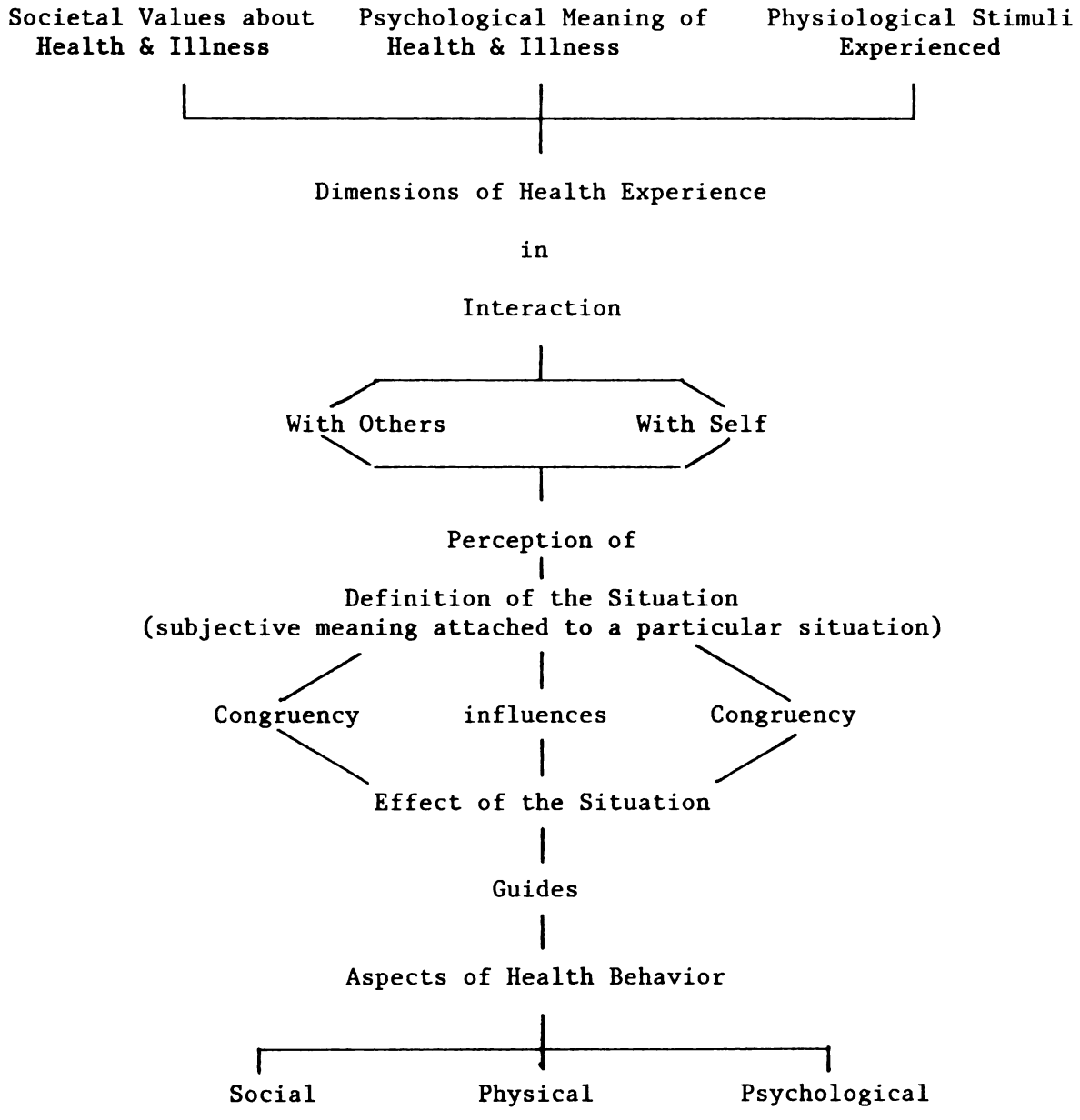
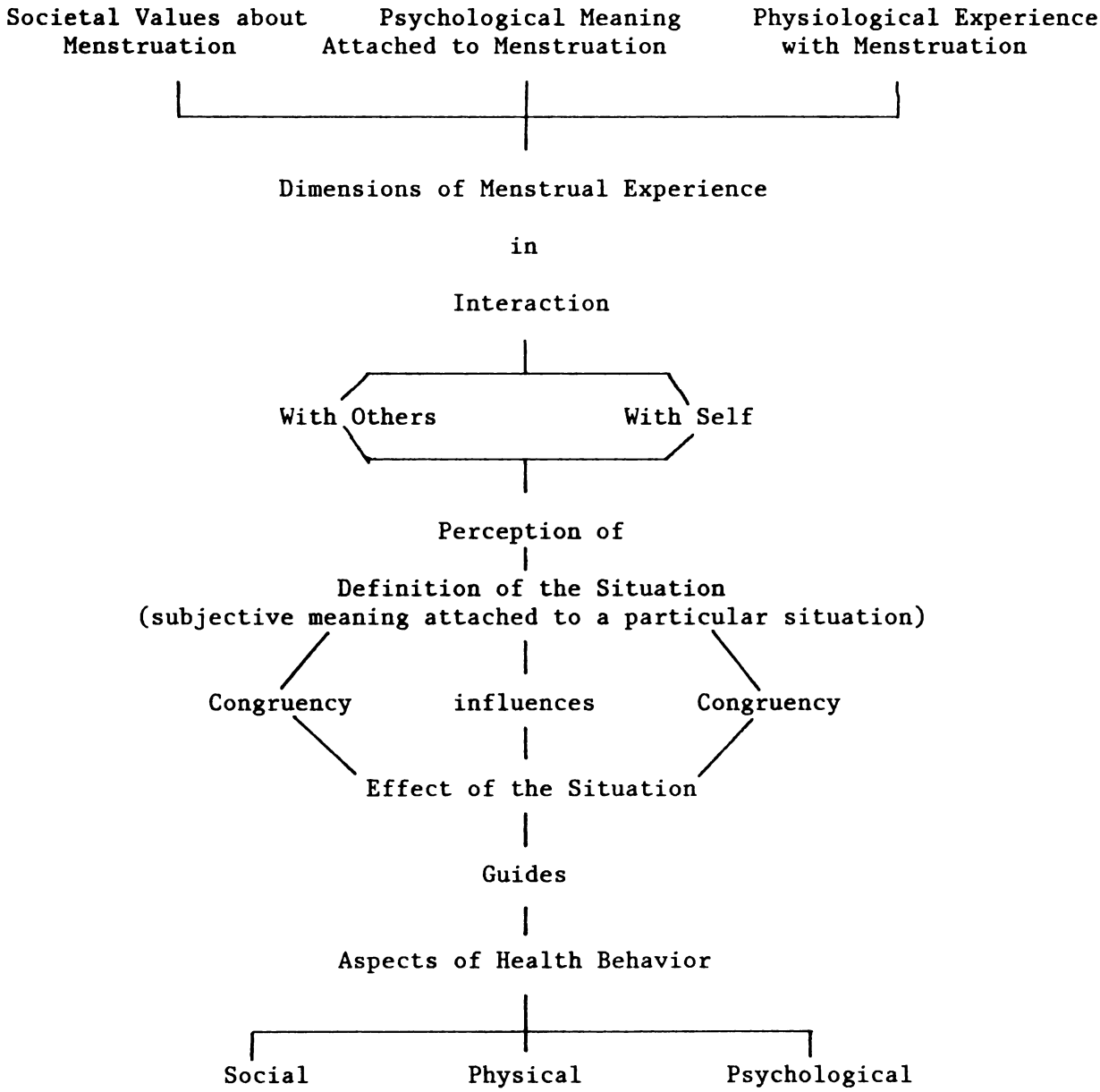


Figure 5

Theoretical Scheme:
Interactionist Perspective of Health Behavior in Terms of
Specific Health Problems Related to the Menstrual Cycle



and attitudes that the society has about menstruation and about the expectations of the person's behavior become part of the individual's personal experience which directs and controls behavior. Consequently, the manner in which women behave, physically, socially, and mentally, in reaction to menstrually related problems stems from interactions and associations with other people which developes over time.

An individual has the potential to internalize the definitions transmitted by linguistic symbols, to learn to assume the perspective of another, and thereby to acquire the ability to think. This ability to think, i.e., the possession of a mind, is social in origin and arises out of the process of communication (Denzin, 1978). In the case of menstruation, what is communicated and internalized is quite important given the widespread and diverse societal attitudes and taboos associated with that biological process. These attitudes play a major role in socializing women to attribute physical, psychological, and social behavior to their menstrual cycle. The menstrual cycle has been viewed as a legitimate way in which to explain or to excuse aberrant, emotional, and irritable behavior of women. Women's psychological well-being is considered to be altered at this time, and women with menstrual symptomatology are believed to be more susceptible to these emotional variations. These beliefs have served to help women in the work world through the establishment of protective policies. However, these same policies have hindered them when the opportunity for advancement into a decision making position arose. For many women, these long-standing notions have been accepted as true and they believe it is a part of every woman's experience.

Recently, however, new information about menstruation and challenges to old assumptions have been publicized. The communication of these new ideas to women has provided a new frame of reference with which the view menstruation and has helped women to interact with others and with themselves in new and different ways. As new information is perceived, the opportunity to see oneself in a new and different manner becomes possible. From an interactionist approach, perception is viewed as an activity that involves selective attention to certain aspects of a situation, rather than a mere matter of something which comes into the nervous system and leaves an impression. Consequently, the situation might be perceived in a variety of ways which differ among women. In the case of menstruation, the beliefs and attitudes that society has about this biological process and the expectations of sex role behavior becomes part of the individual's personal experience and, as such, directs and controls behavior. Since the individual is not a passive but rather an active person, interaction occurs within and among individuals, thus creating a process whereby one begins to view oneself in a new and different manner. Therefore, a change in attitude or a shift in attention to a different aspect of the situation could potentially alter the individual's behavior.

Assumptions for Study

Basic assumptions of this research were that societal values which portray menstruation as a negative debilitating experience in which women necessarily experience changes in their general psychological state continue to exist. In addition, it is theoretically possible that

women who believe in this notion could experience more depression, higher anxiety and tension, lower energy levels, and less behavioral control by virtue of societal expectations of sex role behavior. It was also assumed that some women have not internalized these expectations and have viewed the situation differently, based on their own definition of the situation. Further, it was assumed that menstrual mythology could lead to generalizations that encourage the idea that all women view their menstrual experience similarly. Whether women actually consider menstrual symptoms as more significant than other kinds of symptoms in terms of their emotional state or whether the significance attached to menstruation is sufficient enough to actually affect a woman's overall psychological well-being was considered to be empirically unanswerable at the time of this study.

Thus, the focus for this research was to explore whether women view menstrual problems differently than nonmenstrual problems and whether their perceptions create a difference in their psychological well-being. This was accomplished through examining the relationship between women's self-reports of symptomatology, menstrual and nonmenstrual, and their subjective appraisal of psychological well-being.

CHAPTER FOUR

PROBLEM STATEMENT AND HYPOTHESES

The conceptual framework for this study served as a guide to the development of the purpose of the study, the study objectives, the research questions, and hypotheses to be tested. The conceptual framework provided the structure for the phenomena in the study, that is, the relationship of self-reports of menstrual or nonmenstrual symptomatology to women's subjective appraisals of their psychological well-being. The purpose of the study, the research questions, hypotheses, and definitions are presented in this chapter.

The purpose of this study was to determine whether employed women's subjective appraisals of psychological well-being were related to their self-reports of symptomatology. Given that, conceptually, psychological well-being is tied to physical well-being, this relationship was considered plausible. Symptomatology was viewed as one aspect of physical well-being; therefore, the conceptual relationship was extended to encompass that variable. Furthermore, it was the purpose of this study to investigate whether there were differences in psychological well-being among women who report primarily menstrually related symptomatology and those who report primarily nonmenstrual symptomatology. This purpose dealt with the examination of menstruation as one source to which women attribute their symptoms and its relationship to psychological well-being. The identification of the source of a symptom provided the vehicle to incorporate, indirectly, the meaning attached to

the experienced symptom. Based on the review of the literature, it was conceptually unclear as to the degree to which the personal meaning of a situation had a bearing on the three dimensions of wellness--social, physical, and psychological well-being. Thus, the examination of source as a variable was viewed as a way in which to clarify its role in terms of the concept of wellness and in terms of its relationship to the one dimension of wellness--psychological well-being.

Thirdly, the purpose was to examine psychological well-being among women in order to ascertain whether the pattern within a generally healthy population of women varied significantly in terms of the broad construct of psychological well-being, i.e., mental illness, mental health, and positive well-being. This examination was considered to be a viable approach to clarifying the status of mental health morbidity among employed women. Additionally, the purpose was to determine whether women reported a variety of symptoms and varying severity levels in relation to the menstrual cycle. Documentation of women's patterns of reporting menstrual symptomatology was considered to be one means of describing the variability among women in terms of their response to the menstrual cycle.

And lastly, other factors, such as demographic and health factors, along with several components of symptomatology such as number, severity, and type of symptoms, were deemed as important as the designation of the source of a symptom. The purpose was to clarify the relative strength of each of these components to the psychological well-being of employed women.

Research Questions

The major research question explored in this study was as follows: What is the relationship between the self-reports of menstrual and nonmenstrual symptomatology and the subjective appraisal of psychological well-being of employed women?

The specific research questions were:

1. What is the distribution of psychological well-being among employed women in the entire study sample?

2. How does subjective appraisal of psychological well-being of the employed women in this sample (entire and select) compare with the normative data reported by other researchers?

3. Are there differences in self-reports of symptomatology among women in the select sample in terms of the number of symptoms, symptom severity, and type of symptom (somatic, affective, concentration, and behavioral)?

4. Are there differences in the number, severity, and type of symptoms identified by employed women in this select sample who reported primarily menstrual symptomatology and the number, severity, and type of symptom of those who reported primarily nonmenstrual symptomatology?

5. Is there a relationship between self-reports of symptomatology and women's subjective appraisals of psychological well-being?

   a. Is there a relationship between the number of symptoms reported and the subjective appraisal of psychological well-being?

   b. Is there a relationship between the severity rating of symptoms reported and the subjective appraisal of psychological well-being?

c. Is there a relationship between the number of symptom clusters reported and the subjective appraisal of psychological well-being?

d. Is there a relationship between the type and severity of symptom clusters reported and the subjective appraisal of psychological well-being?

e. Is there a relationship between source of symptomatology (menstrual and nonmenstrual) and the subjective appraisal of psychological well-being?

6. What are the relationships and interrelations among self-reports of the number of symptoms, severity rating, type, primary source of symptomatology, demographics, and health factors of the subjects and the subjective appraisal of psychological well-being?

a. Is there a relationship between the demographic (income, age, ethnicity) and health characteristics of subjects and psychological well-being?

b. Controlling for demographic and health factors, is there a relationship between the total number of symptoms reported and psychological well-being?

c. Controlling for demographic and health factors and number of symptoms, is there a relationship between the severity rating of symptoms and psychological well-being?

d. Controlling for demographic and health factors, number of symptoms, and severity, is there a relationship between the type (somatic, affective, concentration, and behavior change) and severity of symptoms reported and psychological well-being?

e. Controlling for all the above, is there a relationship between source of symptomatology (menstrual and nonmenstrual) and psychological well-being?

f. Is there a relationship between the type of symptoms (psychological and physical) reported and psychological well-being?

These research questions suggest that some relationship exists between the presence of symptoms and one's psychological well-being and that interrelationship among these variables also exists. The literature (Kaplan, 1976; Nagi, 1976) supports the observation that these two phenomena vary with one another; however, work in the area is still at a descriptive level. It is not known whether symptomatology in general or by components has more or less effect on a person's psychological state. One exception is in relation to menstrual symptomatology in which the source of the symptom, the menstrual cycle, is believed to have a particularly large effect on a woman's psychological state. Thus, it was deemed important that an investigation that examined the relationship of the different components of symptomatology be undertaken. Furthermore, given the limited knowledge base about the relationships, a study which would describe how much a particular symptomatology component contributed to changes in psychological well-being was considered an important first step.

Consequently, the hypotheses were stated in terms of the proportions of variance that each component contributed to the psychological well-being of employed women in this study.

Statement of Hypothesis

In order to examine the relationship between self-reports of menstrual and nonmenstrual symptomatology to employed women's psychological well-being, one major hypothesis and nine subhypotheses were developed. The analysis of the hypothesized relationships among the variables aimed to determine whether the proportion of variance in psychological well-being accounted for by demographic and health factors, number of symptoms, severity, and type would exceed the proportion of variance in psychological well-being accounted for by the source of symptomatology (menstrual or nonmenstrual).

Major Hypothesis

Demographic and health factors, the number of symptoms, the severity rating of symptoms, and the type of symptoms (somatic, affective, concentration, and behavioral) will account for more of the variance in psychological well-being than will source of symptomatology (menstrual or nonmenstrual).

Subhypotheses

1. A set of demographic (income, ethnicity, age) and health (current health status) factors will account for a significant proportion of the variance in psychological well-being.

2. When demographic and health factors are controlled, the number of all symptoms reported will account for a significant proportion of the variance in psychological well-being.

3. Controlling for the above, severity will account for a significant proportion of the variance in psychological well-being.

4. Controlling for the above, source of symptomatology (menstrual and nonmenstrual) will account for a significant proportion of the variance in psychological well-being.

5. The pattern of the above relationships will be similar for menstrual and nonmenstrual groups.

Furthermore,

6. When demographic and health factors and number of symptoms are controlled, type of symptomatology and its severity will account for a significant proportion of the variance in psychological well-being.

7. Controlling for the above, source of symptomatology (menstrual and nonmenstrual) will account for a significant proportion of the variance in psychological well-being.

8. The pattern of the above relationships will be similar for menstrual and nonmenstrual groups.

Furthermore,

9. Of physical and psychological symptoms, psychological symptoms will account for more of the variance in psychological well-being than will physical symptoms.

These subhypotheses examined each symptomatology component in relationship to its effect on psychological well-being. It was hypothesized that specific components (demographic and health factors, number, severity, and type of symptoms) would account for more variance in psychological well-being than others (source). The purpose was to examine the individual and combined effects of these factors on psychological well-being.

Operational Definitions

Health Factor

Self-reports of current health status as measured on the research questionnaire, using a five-point scale ranging from excellent (1) to poor (5) health.

Demographic Factors

Income. Self-reports of household income (joint and shared), as measured on the research questionnaire using a range of incomes from less than $5,000 to $80,000 or above.

Ethnicity. Self-reports of one's own perception of one's racial/ethnic background, as measured by the research question using a total of 15 structured responses representing 14 different ethnic/racial categories and one category of "other." Responses were later collapsed to Caucasian and non-Caucasian.

Age. Self-reports of one's chronological age, as measured by the research questionnaire using an open-ended question.

Psychological Well-Being

The net impact of the many psychological forces effecting an individual's subjective, emotional, or feeling states and which reflect the affective quality of these states. The net impact was seen as measurable along a bipolar dimension from negative through neutral to a positive sense of well-being. Psychological well-being was viewed as a broad construct encompassing the concepts of distress, mental health, and positive well-being and was measured by the "General Well Being

Schedule" (GWB), a research instrument contained in the research questionnaire. The total score of items from the GWB was the total score obtained from summing the reponses on the GWB. Scores ranged from 0, representing severe distress, to 110, representing positive well-being.

Menstrual Symptomatology

The self-reports of somatic, affective, concentration, and behavioral symptomatology that women reported in relation to the menstrual cycle as measured by the Moos Menstrual Distress Questionnaire.

Nonmenstrual Symptomatology

The self-reports of somatic, affective, concentration, and behavioral symptomatology that women reported which were not attributed to the menstrual cycle and which were measured by the symptom checklist contained with the Moos Menstrual Distress Questionnaire.

Components of Symptomatology

Number of symptoms. The total number of symptoms reported on the Moos Menstrual Distress Questionnaire, which was a major research instrument within the total questionnaire.

Severity rating. The mean symptom severity of all symptoms reported, as measured by the Moos Menstrual Distress Questionnaire using a six-point scale, with "1" designating no symptoms to "6" as acute.

Type. A generic term used to describe categories of symptoms which referred to one of the following:

1. Eight symptom groupings of factor-analyzed clusters, i.e., pain, concentration, behavior change, autonomic reactions, water retention, negative affect, arousal, control.

2. Four broad descriptive categories of somatic, affective, concentration, and behavior symptoms constructed by reorganizing seven of the symptom clusters described in #1 (excluding control symptoms).

3. Two descriptive categories which reorganized the seven symptom clusters described in #1 (excluding control symptoms) into psychological and physical symptoms.

Physical symptoms. A symptom category comprised of the symptom clusters of pain, water retention, and autonomic reactions.

Psychological symptoms. A symptom category comprised of the symptom clusters of negative affect, concentration, arousal, and behavior change.

Cluster. Eight symptom groupings (pain, concentration, behavior change, autonomic reactions, water retention, negative affect, arousal, control) representing empirically intercorrelated clusters of symptoms obtained from the 47 symptoms identified in the Moos Menstrual Distress Questionnaire.

Number of items in each cluster. The total number of items reported in each cluster.

Total number of symptom clusters. The total number of symptom clusters reported.

Cluster severity. The mean severity score of symptoms reported as 1 through 6 in each cluster.

Source menstrual.

1. Menstrual--The number of symptoms defined by the subject as menstrually related.

2. Nonmenstrual--The number of symptoms defined by the subject as nonmenstrually related.
3. Mixed (both)--The number of symptoms defined by the subject as equally menstrually and nonmenstrually related.
4. Percent menstrual--The percentage of the total number of symptoms reported as menstrually related.

Thus, the purpose of this research was to examine whether a woman's overall psychological well-being was associated with the presence of menstrual symptomatology. The goal was to determine the extent to which these phenomena co-existed or co-related with one another, the emphasis being placed on their co-relational, and not casual, relationship.

Based on the conceptual framework, the research questions, and the operational definitions, the method of data collection and data analysis was decided.

CHAPTER FIVE

METHODS OF DATA COLLECTION AND DATA ANALYSIS

The purpose of this chapter is to describe the methods and rationale used to collect and analyze the data in this study. This chapter encompasses a presentation of the study design, sample, characteristics of the sample, instruments employed in the research, and methods of data collection and analysis. Each of these areas individually and collectively constitutes a logical sequencing of the content and the process of data collection and analysis.

Design

This study of employed women's subjective appraisals of psychological well-being and self-reports of symptomatology was conducted utilizing a survey approach. The overall research strategy employed was a cross-sectional, correlational design using descriptive and inferential statistical methods. The collection of data was accomplished through the use of a structured questionnaire.

The seven operational definitions described previously formed the basis from which data were collected. Each definition served as the basic structure from which questions on the research questionnaire were developed and for the selection of the appropriate research instruments. In this case, the demographic characteristics (age, income, ethnicity) and perceived health status (health factor) were incorporated into Parts

I and II of the research questionnaire (Appendix B). Psychological well-being, as measured by the General Well Being Schedule, became Part III, while symptomatology, as measured by the Moos Menstrual Distress Questionnaire, constituted Part IV. The last section of the questionnaire contained open-ended questions about attitudes towards menstruation, management strategies with respect to symptoms, and number of roles presently held.

This design was selected for a number of reasons. First, given the present state of scientific work related to psychological well-being in general and women specifically, it was determined that the collection of empirical data at a descriptive level would add to the present body of knowledge. Current research on psychological well-being indicated that there were multiple variables associated with the phenomenon. The survey approach allowed for the collection of data on multiple variables and for the opportunity to utilize a large sample of employed women. Both factors provided the basis for statistically describing patterns of psychological well-being among the women surveyed.

Secondly, according to Fox (1976), there are severe gaps in knowledge about the direction and magnitude of the relationship among phenomena, especially with respect to what specific characteristics are related to the phenomena under study. He pointed out that this is particularly true in nursing. At present, there is limited knowledge about what health related factors are related to the psychological well-being of women. Therefore, a design which aimed to elicit which health related factors are associated with psychological well-being and determine the magnitude of such relationships was appropriate.

Thirdly, a correlational design and the use of multiple correlation and regression techniques (Cohen & Cohen, 1975) of analysis were utilized because of the ability of this data analytic approach to handle multiple and complex relationships and interrelationships among the variables under study. As stated previously, many factors have been associated with a woman's psychological well-being; however, many studies were designed to examine simple relationships between two variables without accounting for other intervening variables. The focus of this study was to examine the multiple and complex relationships among variables known to be associated with psychological well-being and to determine the amount of variance accounted for by each variable.

Although the rationale for the selection of the design was deemed appropriate, several limitations were noted. Namely, it was a cross-sectional design which used a structured questionnaire from which data were gathered on a self-selected sample. The first limitation of a cross-sectional approach is that such a design has temporal limitations (Babbie, 1973). Data are collected at one point in time from a sample selected in order to describe some larger population at that time. The key phrase is "at that time", which underscores the time frame for the study. Thus, relationships must be discussed in terms of the specific time frame of the study, knowing that subsequent data during a different time frame could generate different data and relationships. In this study it cannot be determined whether the relationships established between the variables in this study, which were collected during a time frame of "during the past month", will persist over time.

The second limitation is in the use of a structured questionnaire to collect data. In the construction of any questions, its form (open-

ended or closed), wording (clearly worded so as to make no mistake about intent and bias), and relevance are factors that must be taken into account (Babbie, 1973). Even though every attempt was made to address these issues in the construction of the study questionnaire, it was difficult to ascertain and measure the degree to which these criteria were in fact fulfilled. The researcher must then assume that the respondent answered the question in an honest and thoughtful manner. It must further be assumed that the respondent understood the intent of the question and responded accordingly. An additional problem stemmed from the lack of opportunity to verify the responses that were given and thus were assumed to be true and accurate accounts. Face-to-face interviews, which allow for verification and clarification during the interview process, could have been used in order to reduce the problem. However, since this investigation was interested in looking at patterns of psychological well-being and symptomatology among employed women, a large sample was needed and a structured questionnaire was the method of choice for collecting data.

The third limitation of this design was the self-selected nature of the sample. In survey research the choice of the subjects to participate is voluntary, and confidentiality and anonymity are maintained. However, the voluntary nature of the participation produces a self-selected sample which introduces bias, that is, a systematic difference between the population or true value and the corresponding value derived from samples taken from that population (Bahn, 1972, p. 2). To counter this limitation, several sociodemographic questions were included in the research questionnaire in order to obtain sufficient data to describe the respondents in as precise terms as possible. This allowed for a

more complete sample description which in turn provided a profile of the respondents which was used to temper study results.

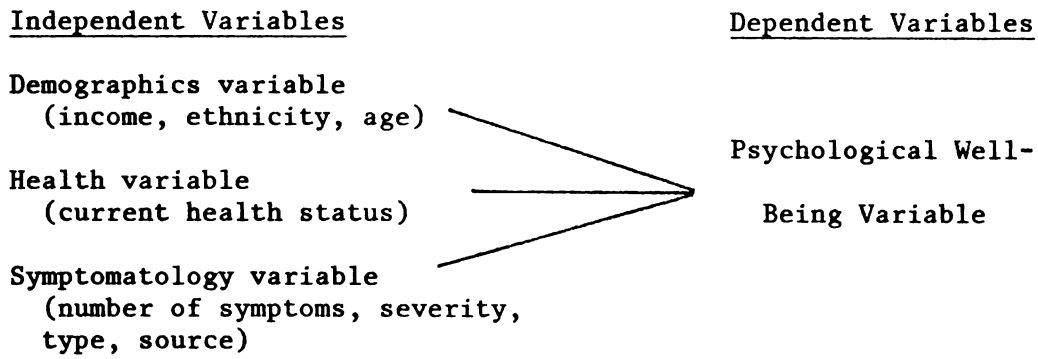
The first source of bias in this study was the difference between respondents and non-respondents in terms of health status, symptomatology complaints, and psychological well-being. One does not know whether non-respondents had more or less symptomatology or were a healthier or sicker population than the respondents. This lack of knowledge about non-respondents makes a difference in terms of generalizability to the larger population. Therefore, it is important to discuss study results in terms of those who responded to the questionnaire.

However, another way of assessing the nature of the sample is through a comparison of sample norms of those who responded to other known population norms. In this study, sample data on psychological well-being were compared with normative data on psychological well-being which were obtained from a national survey. This provided some clarification about the comparability of the study sample to a larger general population. In addition, the demographic characteristics of the study sample in relation to the demographic characteristics of the national norms were examined in order to assess the comparability of the subjects with respect to age, race, and marital status. This comparison provided the opportunity to see how representative the sample was on specific variables. Thus, it is important that biases are acknowledged and reported, so that generalization from the study sample to other populations does not exceed the limitations of the study and that limitations in interpretation of sample results are known.

Within the study design and based on the conceptual framework and the purpose of the study, variables for this study were refined. In general, this study aimed to identify which health factors, i.e., current health status, symptomatology, and sociodemographic factors, were more related to differences in psychological well being. It has been indicated previously that all variables were considered independent, that is, it was not possible to determine causality among the relationship. However, the examination of co-relationships among variables through the use of correlation coefficients means assessing the degree to which variation or change in one variable occurs in conjunction with variation in another variable (Nie et al., 1975). In this study, the aim was to clarify the degree to which changes in sociodemographics, symptomatology, and perceived health status were related to changes in psychological well-being. In this sense, psychological well-being was viewed as the outcome measure or dependent variable, while the other factors became a set of factors known to have an effect on the outcome. Within a multiple correlation regression approach the designation of variables as "independent" and "dependent" does not infer causality as in an experimental sense, but rather addresses how one variable expressed as the dependent variable can be examined in relation to other factors of interest which are expressed as independent variables (Cohen & Cohen, 1975). Consequently, in this sense psychological well-being was considered as the dependent variable with the other variables viewed as independent variables.

Figure 6

Schematic of Study Design



Setting

The setting selected for this study is a large university campus that is part of a state system. It is a large metropolitan campus that focuses primarily on the health sciences. The facilities include hospitals, clinics, research, and teaching facilities for schools of dentistry, medicine, nursing, pharmacy, and a graduate division. This setting was selected on the basis that it is a major employer of women: 58% of the employees on campus are women. The range of occupations in which women hold positions are diverse and represent a significant portion of the kinds of jobs in which women are employed. In addition, both academic (faculty) and staff (office workers, nurses, housekeeping, etc.) positions are represented.

Sample

Criteria for Sample Selection

The study population surveyed were all part-time and full-time female employees of the university as of April 15, 1979. The total population surveyed, 4,653, represented the total number of female employees. This sampling frame was constructed through the campus locator system, a computerized system designed to locate all campus employees. From the population surveyed, the study sample consisted of all those female employees who completed and returned the research questionnaire. Those who responded consisted of 1,179 subjects (25% of 4,653) and were designated as "all subjects" or "entire sample."

From the 25% who responded (n = 1,179), a select sample (n = 633) was determined by the researcher. It was on the select sample (n = 633) that the major hypothesis-testing analyses were conducted. The criteria for the selection of the select sample were as follows:

1. Actively menstruating females between ages of 21 and 44.

2. Women who reported that they were not presently nor had been pregnant within the past six months starting with the date of receipt of the research questionnaire.

3. Women who reported that they were not presently nor had been lactating within the past six months starting with the date of receipt of the research questionnaire.

4. Women who reported that they had no known diagnosed gynecological disorders.

5. Women who reported that they did not presently have or had not had a major illness or accident, or had not been hospitalized,

within the past three months starting with the date of receipt of the research questionnaire.

6. Women who reported that they had not had any ovaries removed.

These criteria provided the investigator with a select sample that was composed of primarily healthy women and, thus, symptomatology experienced was assumed to be more general in nature rather than disease specific.

Figure 7

Derivation of Study Sample*

Total Population
All female employees at UCSF
between April 15 and October 15, 1979
n = 4,653

Self-Selected Sample
from total population (those who
returned questionnaire = 25%)
n = 1,179

Select Sample
(those who met criteria =
54% of 1,179)
n = 633

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* Although the total number of the entire sample is 1,179 and the select sample is 633, these figures will fluctuate, given that some analyses excluded subjects based on missing data.

Employed women became the focus of this research for several reasons. First, the literature documented that discriminatory remarks have been made about the role of the menstrual cycle in a woman's psychological life. Therefore, identifying the relationship of source

to an employed woman's psychological well-being was considered an important contribution to clarifying scientifically the nature of that relationship. In addition, it was important to limit the sample on some variables in order that the regression analysis could be performed without an excessive number of variables in the equation. Lastly, this study was interested in a generally healthy population. It was assumed that women who were employed full-time or regular part-time were in a relatively healthy state.

Procedure for Sample Selection

In order to contact all female employees at the university, the investigator contacted the director for the campus locator system and developed the sampling frame based on the number of full-time and part-time female employees. A master list of all female employees was generated by the campus computer system, as well as mailing labels that corresponded exactly to the computer list. Since the computer system had not been updated with the campuswide system, a second list of female employees was generated to update the original. This list contained an additional 594 names. Thus, the total number of subjects on the computer list was 5,162 and became the total number of research questionnaires that were distributed. However, campus locator staff estimated that there was approximately a 10% error rate, that is, 10% of the individuals on the list no longer worked at the university. Given that the updated computer list was not to be available until late November, the decision was made to mail the research questionnaire in two stages. The first mailing was sent to those employees on the original list on November 5, 1979, with a return date deadline of November 30, 1979. The

update of this original list was prepared in late November and research questionnaires were mailed to these additional employees with a return date deadline of December 31, 1979. Thus, the total number of female respondents (n = 1179) from both mailings constituted the entire sample for the study.

In order to establish more precisely the total number of female employees actually on the university payroll between April 15, 1979 and October 15, 1979, the computer list total (5,162) was compared with data from the 1980 university affirmative action records. As a result of this comparison the total number of subjects employed during the above mentioned time frame was determined to be 4,653. This figure discrepancy was consistent with the campus locator staff estimate of a 10% error rate in their computer list. Thus the response rate of subjects in this study, based on the 4,563 figure, was 25% or 1,179 subjects. The "select sample" was obtained by applying the sample criteria on the entire sample. The total number of subjects in the select sample was 633 or 54% of the entire sample.

Characteristics of the Sample

The characteristics of the entire sample were obtained through self-reported responses on Part II of the research questionnaire (Appendix B). These characteristics included variables such as age, ethnicity, religious preference, marital status, parity, education, income, occupational status, and number of hours worked. Analysis of the demographic data of the entire study sample produced the following description of the 1,179 subjects who responded and is displayed in Tables 1 through 10. The subjects ranged in age from 19 to 69 years of

age with a mean age range of 25.34 and a standard deviation of 9.88. Of the racial and ethnic categories represented, 81% of the subjects were Caucasian and the remaining 19% were Black, Asian, Latina, or American Indian. Religious preference responses indicated that 26% were Protestant, 21.3% Catholic, 17.5% Agnostic, 7% Jewish, and 28.2 represented by the collapsed category of "other."

In terms of marital status, 40.4% were married, 39.2% were never married, and 15.3% divorced, with only 5% representing separated and widowed categories. Reports of the number of children in residence showed 71.5% of the subjects had no children in residence and 28.2% of the subjects had 1-4 children living at home. Educationally, 6.4% had no college education, 18.9% had some college, with the majority of the sample comprised of those who had earned B.S. degress and above in the following percentages: college degree, 25.6%; some post-baccalaureate, 17.5%; M.S. completed, 17.5%; doctorate completed, 11.5%. The sample was primarily comprised of full-time employees (81.9%). Household income showed that 53.5% fell within the $10,000-$24,999 range, 32.5% fell within the $25,000-49,999 range, 9.6% were above $50,000, and 5% earned less than $10,000.

Occupationally*, professionals and nonprofessionals were distributed differently. Within the entire sample, the nonacademic employee (staff) group (n = 911) was comprised of 512 (56.2%) professionals, 394 (43.3%) nonprofessionals (office clerical/technicians), and 5 (0.5%) subjects within the category of other. When all professionals within the entire sample (staff and academic) were combined, this group consisted

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* Occupational groupings were based on Federal Occupational Categories.

of 696 subjects while nonprofessionals equalled 394. Therefore, out of 1,090 subjects within the entire sample, 63.8% were professionals (academic and staff) while 36.2% were nonprofessionals (office clerical/ technicians).

Table 1

Frequency Distribution of Age
Among Subjects in Entire Sample
(n = 1,167)

	Number of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
19-29	384	32.9
30-39	478	41.0
40-49	158	13.5
50-59	123	10.5
60-69	24	2.1
TOTALS	1,167	100.0

Range	Median	Standard Deviation
19-69	35.3	9.9

Table 2

Frequency Distribution of Race Among the Entire Study Sample and Frequency Distribution of Total University Female Population

	Entire Study (n = 1,172)		University Population (n = 4,653)	
Race	# of Subjects	% of Subjects	# of Subjects	% of Subjects
Caucasian	949	81.0	2,978	64.0
Non-Caucasian	223	19.0	1,675	36.0
TOTALS	1,172	100.0	4,653	100.0

Table 3

Frequency Distribution of Religious Affiliation Among Subjects in Entire Study Sample

Religion (n = 1,135)	# of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
Protestant	295	26.0
Catholic	242	21.3
Agnostic	199	17.5
Jewish	79	7.0
Other	320	28.2
TOTALS	1,135	100.0

Table 4

Frequency Distribution of Marital Status
Among Subjects in Entire Study Sample

Marital Status (n = 1,173)	Number of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
Married	474	40.4
Never married	460	39.3
Divorced	180	15.3
Separated/widowed	59	5.0
TOTALS	1,173	100.0

Table 5

Frequency Distribution of Number of Children
In Residence in the Entire Study Sample

Number of Children in Residence (n = 1164)	Number of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
0	832	71.5
1	177	15.2
2	111	9.5
3	27	2.3
4	13	1.1
5	3	0.3
6	1	0.1
TOTALS	1,164	100.0

Table 6

Frequency Distribution of Educational Level
Among Subjects in the Entire Study Sample

Education (n = 1,172)	# of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
No College	79	6.7
Some college	221	18.9
Earned BS	300	25.6
Post BS	228	19.5
MS	209	17.8
Doctorate	135	11.5
TOTALS	1,172	100.0

Table 7

Frequency Distribution of Hours Currently Working
Among Subjects in Entire Study Sample

Hours Currently Working (n = 1,137)	# of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
Full-time	961	85.0
Part-time	176	15.0
TOTALS	1,137	100.0

Table 8
Frequency Distribution of Income Among
Subjects in the Entire Study Sample

Income (n = 1,161)	# of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
Below 10,000	59	5.08
10,000-19,999	429	36.96
20,000-29,999	289	24.89
30,000-39,999	170	14.64
40,000-49,999	103	8.87
50,000 or more	111	9.56
TOTALS	1,161	100.0

Table 9

Frequency Distribution of Employment Status
Among Entire Study Sample and Frequency
Distribution of Total University Female Population

	Entire Study (n = 1,143)		University Population (n = 4,653)	
Employment Status	# of Subjects	% of Subjects	# of Subjects	% of Subjects
Academic	184	16.1	642	14.0
Staff	959	83.9	4,011	86.0
TOTALS	1,143	100.0	4,653	100.0

Table 10

Frequency Distribution of Nonacademic Occupational Status Among Subjects in Entire Study Sample and the Total University Female Nonacademic Population

	Entire Study (n = 911)		University Population (n = 4,011)	
Nonacademic Staff	# of Subjects	% of Subjects	# of Subjects	% of Subjects
Professional	512	56.2	1,722	43.0
Nonprofessional	394	43.3	1,984	49.4
Other	5	0.5	305	7.6
TOTALS	911	100.0	4,011	100.0

Table 11

Frequency Distribution of Professional (Academic and Staff) and Nonprofessional Female Employees in Entire Study Sample Compared with University Female Population

	Entire Study (n = 1,090)		University Population* (n = 4,348)	
Occupational Status	# of Subjects	% of Subjects	# of Subjects	% of Subjects
Professional Staff and Academic	696	63.8	2,364	54.4
Nonprofessional Technicians and Office clerical	394	36.2	1,984	45.6
TOTALS	1,090	100.0	4,348	100.0

* Excludes those subjects within the categories of craft worker, operative, laborer, and service worker.

Table 12

Frequency Distribution of Current Health Status
Among Subjects in Entire Study Sample

Current Health Status (n = 1169)	# of Subjects in Entire Study Sample	% of Subjects in Entire Study Sample
Excellent	437	37.4
Very Good	467	39.9
Good	214	18.3
Fair	49	4.2
Poor	2	0.2
TOTALS	1,169	100.0

In summary, based on the entire sample (n = 1,179), the typical subject was a primarily healthy, Caucasian, well-educated woman in her 30s. Occupations were mainly white collar, that is, professional workers or office clerical, with the financial situation reflecting middle to upper-middle income range. Most of the sample were Christian or agnostic, and subjects were most likely married or never married and with no children in residence.

Consequently, the 25% (1,179) of the total population, 4,653, who responded to the research question reflected a very selective sample. In the case of occupational groups, the major portion of the sample were professional women or secretaries, with all other categories comprising a very small portion of the sample. One could hypothesize that, of the 25% who responded, a very high proportion of that 25% came from a homogenous group of women who constituted a particular kind of woman who

worked at the university. This provided the researcher with the opportunity to generalize about other women in other universities who share these characteristics, as well as to permit some predictions about similar samples of women. This could be done, however, only by delimiting the generalizations to women similar to those described in this study. This issue of disparity and congruence between populations and sampling frames is supported by Babbie (1973) who viewed it as a major point to be considered. He stated that "properly drawn samples will provide information appropriate for describing the population of elements comprising the sampling frame--nothing more" (p. 89).

Instruments

Each subject completed a paper and pencil structured questionnaire (Appendix B), which each received via the campus mail. This research questionnaire was composed of five parts as follows: Part I--Health History--which included general and reproductive health questions; Part II--Personal Characteristics--which dealt with sociodemographic factors; Part III--Mental Outlook--which included the General Well-Being Schedule (GWB) (Dupuy, 1974, 1978b), a standardized instrument which assessed psychological well-being; Part IV--the Moos Menstrual Distress Questionnaire (MDQ)--a standardized instrument which measured the presence and severity of menstrual symptomatology; and the last part which contained open-ended questions aimed at eliciting information about personal management strategies for symptoms that subjects reported, attitudes about menstruation, and the number of social roles currently held. Contained in this section is a description of the research instruments

(GWB and MDQ), their validity and reliability, as well as a discussion of the instruments.

The General Well-Being Schedule: Measure for Dependent Variable

Psychological Well-Being (See Appendix C for Schedule)

The General Well-Being Schedule (GWB) was constructed by Dupuy (1974, 1978b) for the purpose of measuring the concept of psychological well-being through self-representations of subjective well-being or distress. The GWB contains 22 items in total designed to measure general psychological well-being, the dependent variable in this study. The GWB encompasses six content areas and contains a specified number of items for each one. The areas and number of items are as follows:

1. Intrinsic life satisfaction, four items
2. Health, worry, concern, or conditions, three items
3. Depressed mood, three items
4. Behavioral, mental emotional control, or self control, three items
5. Energy level or vitality, four items
6. Tension-anxiety-stress, five items.

The GWB allows six possible options for each item. A total score is obtained by adding the scores from each item. A score of zero represents the greatest level of distress. The total range of scores is zero to 110 which is interpreted as follows: positive well-being, 73-110; moderate distress, 61-72; severe distress, 0-60. Each item requires that the response is to be answered with a time frame of one month.

Normative data on the GWB were obtained in the National Health and Nutrition Examination Survey, which was conducted between April 1971 and October 1975 (Miller, 1973; USDHEW, 1978), utilizing 100 different locations in the United States. The normative data reported by Dupuy (1978a) represented a sample of adults (n = 6,913) between the ages of 25-74.

The question of whether an instrument measures what the investigator intended it to measure is a critical one. The three basic types of validity as defined by the American Psychological Association (1974) were used by this researcher to discuss the validity of the General Well-Being Schedule (GWB). These types of validity are content, criterion, and construct.

The content validity of the GWB depends on an assessment of whether the items contained in the instrument represent the concept of psychological well-being. The items in the GWB encompass six subscales which are considered multidimensional and focus primarily on psychological symptoms. It appears that the six subscales produce information about construct psychological well-being. Dupuy (1978b) reported that "domain specification of the construct is still to be evolved" (p. 6) and that the structure and content of the items are considered to be a comprehensive operational measurement of GWB.

In addition, Dupuy (1978b) did a factor analysis on the GWB data obtained in the Health and Nutrition Examination Survey study. This analysis revealed a strong general factor for the GWB items. The author reported that a varimax rotation resulted in three factors with eigen values greater than 1.0. In addition, he reported the following information regarding factor loading: 1) first factor loaded on negatively

worded items that reflected anxiety, tension, and depression content, 2) the second factor loaded on items that were neutrally worded which reflected health and energy content, and 3) the third factor loaded on items representing positive well-being. Dupuy concluded that the content of the GWB was representative of negative, neutral, and positive affective states which is what the GWB was purported to do. Although further development of the domains relevant to the construct was acknowledged, the data suggest that the GWB adequately encompassed the relevant domains.

Criterion validity is achieved when it corresponds to some other observation that accurately measures the phenomenon (Kaplan et al., 1976). A subcategory of criterion validity is concurrent validity. Concurrent validity of the GWB was considered by Fazio (1977) in a study of a sample of 195 college students who were subjects in an investigation into ways of assessing depression among college students. The sample consisted of students who responded by reporting for testing after an interest inquiry letter was sent. The Minnesota Multiphasic Personality Inventory (MMPI), the Psychiatric Symptom Scale (PSS), the Personal Interview, and the General Well-Being Scehdule (GWB) were administered to all subjects. The students were then divided into two groups: Group I was administered the Zung Self-Rating Depression Scale (SDS) and the College Health Questionnaire (CHQ), while Group II received the Personal Feelings Inventory (PFI). The GWB was able to differentiate the more depressed students from the less depressed ones and did so better than other measures. The major weakness of the instrument, as viewed by Fazio, was that the "subscales have too few items to provide content homogeneity and reliable subscales for indi-

vidual assessment on these aspects of well-being or distress" (p. 12). Its capability to measure distress was clearly supported; however, its value in measuring well-being could not be assessed.

Ware (1979) reviewed evidence of a number of studies attempting to establish validity estimates for the GWB total score. These studies were compiled so that the GWB could be compared in terms of validity with other measures with which it should correlate. He reported, for example, that the total GWB correlates 0.7 with a depression inventory and 0.8 with the Luben Adjective Checklist, thus supporting the idea that the GWB possesses concurrent validity.

Construct validity addresses the issues of specifying the dimensions of a construct and how the dimensions relate uniquely and jointly. Convergent validity, a subcategory of construct validity, aims to determine the relationship with other variables in terms of the direction and magnitude specified by theory. Ware (1979), in a comprehensive review of validity of the GWB, reported that the association between three overall mental health measures, i.e., the Screening Score, the Affect Balance Scale, and the GWB, was more highly related to those measures that define mental health from a pscyhological standpoint than to those that include physiological phenomena.

The reliability of the GWB was established through different studies utilizing different populations. In the Health and Nutrition Examination Survey (HANES), the reported internal consistency among GWB items was 0.93, suggesting that the index was tapping a general factor. Test-retest reliability reported by Dupuy (1978b, p. 7) showed reliability coefficients of about 0.80 after a three-month interval (n = 108), indicating general stability over time. Fazio (1977) used the tool to

study reported reliability estimates among 41 depressed college students at a three-month retesting. He reported a test-retest correlation of 0.85 for the total scale. Based on the Health Insurance Study (HIS), Dayton Sample data, Brook et al. (1979) reported internal consistency stability of the HIS-GWB at 0.94. Four groups differing in educational attainment were used, and estimates indicated similar reliability estimates across all groups.

The GWB has been used in a number of research projects. In these projects the GWB was used with different populations and for different purposes, such as a general population of healthy adults, through the Health and Nutrition Examination Survey (HANES) in 1971 and in a psychiatric population as part of a community mental health assessment tool (Edwards, 1979). Each are discussed in order to describe the utility of this research tool.

The HANES was a probability sample of the civilian, non-institutionalized population of the United States. It covered the age group of 1-74. This survey was conducted between April 1971 and October 1973 (Miller, 1973). There were 30,000 persons constituting the sample, representing 65 sample areas. A subset of 6,000 adults, ages 25-74, received a more detailed examination. This subset was given the GWB, and responses were documented. The total sample subset included 6,913 persons, with 3,170 males and 3,743 females. The population estimates on this sample were 106,631 million with 50,533 million males and 56,098 million females. The population estimate percentages were 47.4 for male and 52.4 for females. This was a major national survey conducted by the National Center for Health Statistics and Norms and served as the basis for the normative data with respect to the psychological well-being of

the general population. These figures are an important source of information for comparing the study sample with national norms.

Additionally, the GWB has been used clinically (Edwards, 1979). It was administered to patients upon admission to various mental health programs and then weekly until treatment was terminated, for the purpose of assessing the success of treatment on community mental health patients. There were approximately 600 subjects who participated in the initial phase. A three-month follow-up was conducted to obtain a post-treatment measurement of the patients' GWB level.

In this same study, the data collected on mental health status allowed for the comparison of community norm to patient norms in the evaluation of an adult day-treatment and an adult outpatient program. Edwards et al. reported that mean scores for patient groups were significantly lower than the normative samples ($p < .05$) and documented that the GWB was able to differentiate between subjects considered impaired and those from the community. This was a clinically significant study due to the focus on community mental health patients rather than on a generally healthy population. In comparison to census data, the demographic characteristics of the community group showed an over-representation of females with slightly higher education and who were more from the Caucasian group than expected.

The utilization of the General Well-Being Schedule in the present study is congruent with its previous use. In the HANES study (Miller, 1973), a survey approach was used to describe the psychological well-being of that general population. It is this survey approach to the collection of data on psychological well-being of women in a general population that is similar to the present study.

A major purpose of the HANES, like the present study, was to assess the psychological well-being in order to provide indications of subjective well-being or discomfort. In addition, data about somatic complaints which were obtained from the medical history forms were correlated with the health concern subscale of the GWB in order to ascertain which somatic complaints had concomitant psychologic relationships. This is similar to the approach used in the present study which broadened the investigation to include number, type (somatic, affective, concentration, behavioral), severity, and source in relationship to psychological well-being. The HANES study was different in some respects: 1) the examination was conducted in mobile examination clinics and not by mail; 2) interviews were used; 3) examination time took 3½ hours and included other facets, such as physical examination, mood ratings, and dietary intake; 4) the GWB was part of the psychological section of the HANES which contained a total of 33 items; 5) males and females were included; and 6) it was a national probability sample. However, the value of the HANES study to this research relates to the opportunity to compare the pattern of psychological well-being in the study sample with national normative data on psychological well-being.

Moos Menstrual Distress Questionnaire: Independent Variable - Symptomatology (See Appendix D)

The Moos Menstrual Distress Questionnaire (MDQ) was used in this study to assess the extent and nature of the menstrual symptomatology that women experience. The items contained in the instrument were obtained through open-ended questionnaires and interviews from a sample

of 839 women who were the spouses of graduate students of a large university and through a comparative review of the literature on menstrually related symptomatology (Moos, 1969, 1977). Forty-seven symptoms are listed in the schedule with a severity scale ranging from "1", no reaction, to "6", acute. The symptoms assessed by the MDQ yield ordinal level data. The symptoms are categorized into eight clusters or types of symptoms. The clusters include: pain, concentration, behavior change, autonomic reactions, water retention, negative affect, arousal, and control. As shown in Table 13, the number of items in each cluster vary: 1) pain, six items; 2) concentration, eight items; 3) behavior change, six items; 4) autonomic reactions, 6 items; 5) water retention, four items; 6) negative affect, eight items; 7) arousal, six items; and 8) control, eight items. In addition, Moos indicated that these symptoms were reported to occur in any or in all of the three cycle phases--menstrual, premenstrual, and intermenstrual.

Moos (1977) reported that the 47 symptoms were intercorrelated and factor analyzed for the total sample of 839 women (principal components solution with varimax rotation of the factor matrix). He reported further that the eight symptom groups that resulted reflected "factors which were basically replicated in all four factor analyses" (p. 3). The clusters represented eight scales which were an empirically intercorrelated cluster of symptoms. Each cluster was reported to appear in each menstrual cycle phase.

With respect to the reliability of the MDQ, the internal consistencies of clusters reported by Moos (1977) were considered by that author to be within an acceptable range. The reported internal consistencies in the MDQ Forms A (n = 839) and T (n = 50) respectively, for

Table 13

Symptom Cluster Items

Cluster	Symptoms
Pain	Muscle stiffness, headache, cramps, headache, fatigue, general ache and pains
Concentration	Insomnia, forgetfulness, confusion, lowered judgment, difficulty concentrating, distractible, accidents, lowered motor coordination
Behavior change	Lowered school/work performance, take naps, stay in bed, stay at home, avoid social activities, decreased efficiency
Autonomic reactions	Dizziness, faintness, cold sweats, nausea, vomiting, hot flashes
Water retention	Weight gain, skin disorders, painful breasts, swelling
Negative affect	Crying, loneliness, anxiety, restlessness, irritability, mood swings, depression, tension
Arousal	Affectionate, orderliness, excitement, feelings of well being, bursts of energy, activity
Control	Feelings of suffocation, chest pain, ringing in the ears, heart pounding, numbness, tingling, blind spots, fuzzy vision

the eight symptom clusters were as follows: pain (0.74, 0.83), concentration (0.82, 0.85), behavior change (0.73, 0.67), negative affect (0.89, 0.89), and arousal (0.72, 0.59), autonomic reactions (0.66, 0.94), water retention (0.67, 0.56), and control (0.53, 0.63). In addition, Markum (1976) calculated split half correlations separately for an experimental (n = 74) and a control group (n = 47). The split

half reliabilities for Forms A and T varied from 0.74 to 0.98 and were statistically significant.

The MDQ has two forms, A and T. Form A is used to allow a woman to describe her menstrual cycle symptoms in three phases of her most recent menstrual cycle. Form T was designed to allow a woman to describe the menstrual cycle symptoms she experiences on the day of the questionnaire administration. The present study utilized a modified version of Form T. The form was modified in that study subjects were asked to identify their symptoms within the time frame of 'during the past month'. Additionally, subjects were asked to determine whether a symptom that had been experienced was due primarily to the menstrual cycle or to something else. Thus, two goals were accomplished: 1) a measure of menstrual symptoms experienced, and 2) a measure of nonmenstrual symptoms experienced. This provided the researcher data from which menstrual symptoms could be viewed in conjunction with the presence of nonmenstrual symptoms.

The basis for content validity on instruments is that the instrument measures what it seeks to measure because of the rational or empirical sources of the actual content (Fox, 1976). The MDQ Forms A and T meet this criterion since the tools were constructed based on the results of a comprehensive review of previous research on menstrual cycle symptomatology and on the results of an open-ended questionnaire/ interview of women which elicited information about menstrual cycle symptoms. Thus, content validity of the tool is supported since items were drawn from a university which experienced the content which comprised the tool.

Scoring of the MDQ

Scores on the MDQ are in the form of a six-point scale ranging from 1 to 6. One (1) indicates that the subjects have not had the symptom, while 2 through 6 represent varying degrees of severity from "bothers one a little" to "acute." Tabulating the scores for all items in a given cluster yields a cluster score which provides a measure of the symptom severity present in that cluster. Because the number of items vary within each cluster, so does the range of possible scores within each cluster. The scores vary as follows: pain, 6-36; concentration 8-48; behavior change 5-30; autonomic reaction, 4-24; water retention, 4-24; negative affect, 8-40; arousal, 5-30; control, 8-48. Although this instrument is called the Menstrual Distress Questionnaire, it is not designed to assess "distress" but rather to assess symptomatology. Thus, a total score obtained from adding the cluster scores does not provide a measure of distress but rather a measure of symptomatology and the severity level. Therefore, one cannot conclude that women with high total scores are more distressed than women with lower total scores.

In order to obtain a score for the total number of symptoms checked by each subject, the number of symptoms checked as 2-6 (1 = no reaction) are scored. A severity score is obtained by summing the scores checked as 2-6. The number of clusters checked is represented by the number of clusters present which is obtained by separating the individual items into the appropriate categories. A cluster severity score is obtained by summing the items checked as 1-6 for each cluster. This results in eight cluster scores and is a measure of the severity of that cluster. Thus, there are scores for the number of symptoms, the overall symptom

severity, the number of clusters represented, and the cluster severity score.

Other Variables

Other variables in addition to psychological well-being and symptomatology were used in this study. These variables can be categorized into two groups, health history and personal characteristics. Each variable and its related item on the research questionnaire provided differing levels of measurement. The health history included 15 questions grouped into three areas: general health, reproductive health, and birth control. All questions except one yielded nominal data. The sole exception was the health status question which yielded ordinal scale data. The next section of the research questionnaire, which contained 16 questions, dealt with personal characteristics, i.e., sociodemographic variables, and again, as in the previous section, yielded nominal data. Whenever possible, continuous variables were scored to maintain continuation. Continuation data were not reduced to interval categories unless absolutely necessary.

The last section of the questionnaire consisted of open-ended questions designed to elicit data about attitudes toward menstruation, management strategies, and the kinds of roles that employed women identify as part of their experience. Specific study variables were not obtained from this section, rather these open-ended questions provided additional data about the subjects in a descriptive sense.

The MDQ has been the major tool used by researchers interested in the menstrual cycle. The review of the literature demonstrates the widespread use of this tool. Of particular importance, however, is a

study by Paige (1973) which examined religion and other factors related to menstrual complaints--a study that has direct relevance to the present research. The author surveyed 352 unmarried university women and used the MDQ as the tool to document the presence of menstrual complaints. In addition to documenting the menstrual complaints, Paige was interested in whether women used menstruation to explain bodily discomfort and psychological stress that, in fact, had its origin in other events. Consequently, she administered two other indexes: 1) Psychological Stress and 2) General Illness Behavior. The psychological stress index was used to determine whether women who reported psychological stress not connected with menstruation were also more likely to have menstral symptoms.

The general illness behavior index was used to examine whether women who were aware of bodily changes and who interpreted them as signs of illness not connected with menstruation were likely to have menstrual distress. The results showed that women with physical discomfort and psychological stress during menstruation tended to report such symptoms in other situations as well. Those who scored high on the MDQ, i.e., reported many symptoms, were significantly more likely to report high psychological stress, more aches and pains, and illnesses. The major finding in Paige's study prompted several ideas regarding the design of the present study. Based on available information, a major criticism of the Paige study is that it appears that a simple relationship was established between the number of symptoms experienced and psychological stress and aches and pains. There may in fact be a significant relationship between the two variables; however, other factors do not appear to have been controlled.

The present study aimed to add to Paige's research by controlling for variables known to affect psychological well-being, i.e., income, ethnicity, age, perceived health status, and determine the amount of variance accounted for by these variables. The next step was to reduce symptomatology into its component parts, i.e., number, severity, type, and source, to determine the amount of variance accounted for by these variables. A multivariate approach has the advantage of handling a variety of variables all at the same time instead of examining only the univariate relationships.

Thus, the MDQ has been used extensively by researchers interested in studying menstrual cycle symptomatology. In general, most studies have not been designed similarly to the present study. Studies differed in three ways, that is, most had small samples, samples varied as to characteristics, and method of data analysis was not usually multivariate.

The use of the MDQ to collect data has been modified by many researchers, as was the case in this research study. In general, researchers have modified the MDQ to complement the needs of their study. Faveau (1974) administered the questionnaire to both men and women and modified items to make them applicable to men. The MDQ was relabeled the Body Awareness Questionnaire by Wilcoxin, Schrader, and Sherif (1976), a change aimed at minimizing stereotypical responses to the menstrual cycle. This strategy was similar to the present study in that women were asked to identify first the symptom's presence and then to determine its primary origin, menstrual or nonmenstrual. Consequently it was designed to, first, give the symptom experienced set and then, secondly, elicit the interpretation or label, menstrual or nonmenstrual.

Parlee (1974) asked subjects to rate their "knowledge" or experience of the symptom and mood changes associated with the menstrual cycle and paralleled the present study in the sense that women were asked to report their experience of the symptom. This approach documented what a woman believed she was experiencing in relation to menstrual and nonmenstrual symptomatology and not whether the symptom's origin was in fact derived from menstrual or nonmenstrual changes. Another adaptation of the MDQ included the use of MDQ items in a semi-structured questionnaire by Diamond et al. (1976) in which 22 items were adapted.

In summary, it has not been unusual to alter the instruction on the MDQ to better meet the purposes of a particular study. In this case, only minor changes were made in the original instructions, and these were procedural rather than substantive. Markum's (1976) study, which examined whether MDQ instructions influenced a woman's response to the items, showed that altered instructions did not significantly affect MDQ scale scores in any of the three menstrual cycle phases. Markum used two groups of women with an n of 47 in each group. The MDQ with regular instructions was given to one group and neutral instructions were given to the other experimental group. The aim was to see if knowledge of the purposes of the questionnaire would affect symptom ratings. It was concluded that women tended to answer in the same way in either group. These findings suggest that alterations in instructions which differentiate between menstrual and nonmenstrual will not create differences in responses to MDQ items. In fact, it might be that giving the subject a choice about the basis of the origin would reduce stereotypic responses about menstrual cycle symptomatology.

Pilot Study

The entire research questionnaire was pretested by having 20 women in the community complete the questionnaire; questions were slightly altered based on this pretest. The purpose of the pretest was three-fold. First, it was important to determine if the overall format of the questionnaire was readable and to determine the range of time within which the questionnaire could be completed. Respondents completed the questionnaire in approximately 3/4 to 1 hour. Several questions were reworded based on respondents' comments. Secondly, consistency of response was desired, and questions that elicited inconsistent reponses were altered. And lastly, since the questionnaire was composed of primarily close-ended questions, response categories were expanded as necessary in order to allow for sufficient response choices. In some cases, the category of "other" was used to provide the opportunity for an additional response option and thus to prevent inappropriate responses or blanks.

Method of Data Collection

The data necessary for conducting this study were collected in the following manner:

1. Appropriate persons within the university were contacted to ascertain whether it was possible to use university employees as subjects in a study and to determine if a sampling frame was available through the present university system. Having received an affirmative response, the research protocol was submitted to the university's Committee on Human Research.

2. A human subject's protocol was developed according to the guidelines of the university's Committee on Human Research. The major concerns addressed were: privacy rights, confidentiality, and anonymity. The consent form (Appendix A) was written accordingly and constituted the cover letter for the questionnaire. Instructions regarding returning the consent form were also included in the mailed survey and thus served as the basis for eliminating all those who did not wish to participate. The cover letter (consent form) was returned separately from the research questionnaire, thereby assuring anonymity.

3. Following the approval of the Committee on Human Research, the research questionnaire was pretested to ensure that the questions were clear in intent and interpretable. A group of 20 women in the community were asked if they would participate in a pretesting of the research questions. Each was instructed to fill out the questionnaire and to return it to the researcher; confidentiality and anonymity were assured.

4. After a review of the pre-tested questionnaires, several questions required rewording and the questionnaire was revised. Additionally, two faculty members at the university well-versed in questionnaire construction were consulted.

5. The questionnaire was then reviewed by a computer consultant who assisted the researcher in developing a useful and workable coding system.

6. During this time, contacts with the campus locator staff to construct the most accurate and up-to-date listing of all female employees was being carried out. The decision was made to use April 15, 1979 as the beginning date since that was the last computer reconciliation of files for the university employees. The October 15th cutoff

date was used so that the survey could be conducted by November 1, 1979. Thus, the female employees who were employed between April 15 and October 15 and who were listed on the first computer run became the group for the first mailing (November 1-30, 1979).

A second mailing was necessary due to the fact that the original list had not been reconciled to include changes that occurred after April 15, 1979. This meant that a supplementary list of employees would be constructed after November 15, 1979. The decision was made to have two mailings, the first to include the original list, which was sent in November, and the second to include the supplementary list, which was sent in December. The second list did not include names of employees from the original list. Responses from both mailings constituted the total (entire) sample (n = 1,179) from which a select sample was obtained based on study criteria (n = 633).

What was not possible to ascertain in the first list was the extent to which this list contained persons who no longer worked at the university. Therefore, the total population figure for the first mailing could have been somewhat inflated, although campus locator system personnel estimated this to be about 10%.

7. Each university female employee who was listed on the campus locator computer printout was sent via campus mail one questionnaire (Appendices A and B) containing the following:

   a. A cover letter explaining the nature of the study and requesting participation (see Appendix A).

   b. Instructions including pertinent information about completing the questionnaire, deadlines, informed consent, and an indication that a follow-up letter to ensure receipt of the questionnaire might be sent.

8. It was planned that if a sufficient response rate had not been obtained, subjects were to be sent a reminder notice seven weeks after the date of the first mailing.

9. A provision was made so as to allow individuals who did not wish to be involved in the study to inform the researcher. This was accomplished by asking all who received the questionnaire to return the cover letter on which they should indicate whether or not they wished to be included in the study. Individuals who indicated they did not wish to be in the study were eliminated from the master list. All other individuals would have been sent the reminder notice if necessary.

10. Each questionnaire was printed to allow the subject to refold the questionnaire with the return address label on the outside, thus making it suitable for remailing via campus mail. Each research questionnaire was labeled through the campus locator system labeling service.

11. After labeling, all questionnaires were bundled by the usual campus mail system, i.e., by official mail stop according to the appropriate departments on campus and distributed through the campus mail service. Every attempt was made to ensure that questionnaires reached their destination. This was accomplished by contacts with mail room personnel who were instructed about the purpose and importance of the questionnaire and about the general guidelines for delivery and returning the questionnaires. The instructions were as follows:

   a. Whenever and wherever possible, make sure that the bundles are delivered to the mail stop and put in the hands of the person responsible for receipt of mail.

b. Return all questionnaires to the mail room that are not deliverable.

c. Contact me if any problems or difficulties arise.

12. Throughout the time period in which questionnaires were being delivered and returned, frequent checks with the mail room personnel were made to ensure a smooth process. An additional step taken to ensure that each employee had an equal chance of receiving a questionnaire was to contact the responsible personnel at each mail stop by telephone and to ask if questionnaires had been received and distributed. All questionnaires returned because they were not deliverable were subtracted from the total number on the original campus list, which provided a more accurate assessment of the total number of employees at the university.

13. Questionnaires were returned by the subjects to a central address. At that point questionnaires were collected and processed by the researcher according to eligibility criteria. All questionnaires returned and not completed were eliminated from the study. However, those that were returned partially completed were coded.

14. After all questionnaires were returned within the stated deadlines, questionnaires were coded on standard code sheets and data keypunched by a professional keypunch service.

15. With assistance from a computer consultant, a file of study data was constructed within the university Computer Center system. The Statistical Package for the Social Sciences (SPSS) (Nie et al., 1975) was the specific computer program used to organize and analyze study data.

Method of Data Analysis

The approach to the analysis of data was conducted in two phases: 1) the generation of descriptive data and the determination of relationships through frequency distributions, cross tabulations, and cross breaks, and 2) hypothesis testing using a regression model. Three models were employed to test the study hypotheses. Model I examined the relationships between the demographic characteristics, the number of symptoms, symptom severity, and origin of symptomatology and psychological well-being. Model II examined the relationship of type of symptomatology (clusters) to psychological well-being. Model III examined the relationship of physical and psychological symptoms to psychological well-being.

The overall data analytic strategy selected to examine the data was multiple correlation and regression (MCR). This approach allowed for the testing of study hypotheses aimed at clarifying the degree of association between and among several independent variables, i.e., demographic, health, and symptomatology variables, as well as the relationships of these independent variables to the dependent variable of psychological well-being. Since MCR is a powerful general and flexible data analytic system that has both a descriptive and inferrential function, it yields measures of the whole relationships of a research factor to the dependent variable, as well as partial or unique relationships, in addition to provisions for statistical hypothesis testing and power analysis (Cohen & Cohen, 1975).

There were specific features of this system as described by Cohen and Cohen (1975) which were of interest to this researcher in analyzing

study data. The first feature was the ability of the system to work with multiple factors at the same time through the use of a multiple factor paradigm, rather than through a single factor paradigm. In this study, a major goal was to examine particular relationships within a multivariate context. The multiplicity of influences of the independent variables on the dependent variable of psychological well-being was analyzed at one point in time [Y=f(C,D,E,etc.,)] and acted as a single factor in multiple researches [Y=f(C); Y=f(D); Y=f(E)]. Thus, it was possible to produce results that could explain the multiple effects of demographic, health, and symptomatology variables on psychological well-being.

Secondly, multiple correlation and regression provides for the assessment of unique variance as well as measures of partial correlation and regression coefficients. Based on the review of the relevant literature, the major variables under study were known to correlate with one another. Therefore, this researcher was primarily interested in the unique variance, if any, accounted for by source of symptom. In addition, it was of interest that the single and combined effects of source and other study variables to psychological well-being be examined.

The third feature of particular importance was the ability of MCR to utilize data in a variety of forms, ranging from nominal to ratio scales. This feature provided the required flexibility since the variable under study varied in terms of measurement scale, i.e., nominal for specific demographics, ordinal for symptomatology, and interval for GWB scores.

The last feature of importance to this study was the ability of the analytic system to measure conditional relationships of any order of

complexity. Since the form and/or degree of the relationship of any one of the independent variables was almost certain to vary as a function of one or more of the other variables, the variables were considered conditional. The ability of this system to measure this kind of relationship was essential for examining study variables.

In terms of choosing a particular strategy within the MCR model, a hierarchical approach was used. The hierarchical approach involved entering study variables into the regression equation in an order predetermined by the researcher rather than entering all variables at once (simultaneously) or allowing the computer to choose order of entry (stepwise). This investigator chose this approach for two reasons: 1) because some variables were considered causally prior to others (e.g., race before symptoms), and 2) because of the expected intercorrelations between independent variables. These intercorrelations, referred to as the problem of multicolinearity, made a hierarchical approach necessary if one was to examine the unique contribution of a particular variable to the equation.

Thus, multiple correlation regression was the overall data analytic strategy for determining the relationships among symptomatology (number, type, severity, and source), sociodemographic (income, age, ethnicity) and health factors, and psychological well-being. Multiple correlation (R) was used to measure the association between the dependent variable (GWB) and an optimal linear combination of two or more of the independent variables. The R^2 was used to indicate the proportion of variance accounted for in psychological well-being by the combination of variables. Other correlation coefficients, for example the semi-partial (sr^2), indicated the amount of unique variance in psychological well-

being accounted for by one specific variable. The F test was used to test the significance of the multiple correlation as well as the significance of the individual semi-partial correlation coefficient. Table 14 outlines the data analysis plan.

Table 14

Plan for Data Analysis

Research Question	Hypotheses	Analysis
1	No hypothesis--descriptive data--one variable	Frequency distributions
2	No hypothesis--descriptive data--one variable	Frequency distributions
3	No hypothesis--descriptive data--one variable	Frequency distributions
4	No hypothesis--descriptive data--simple relationships two variables	Cross tabulations cross breaks
5 a-e	No hypothesis--descriptive data--simple relationships two variables	Cross tabulations cross breaks
6 a-f	1 major hypothesis--multivariate--complex relationships 9 subhypotheses	Multiple Correlation Regression

In summary, there were a total of ten study variables, nine dependent and one independent. These variables were:

1. the demographic factors which included age, income, and ethnicity

2. a health factor which was represented by self-reports of current health status
3. the psychological well-being variable which was represented by the 22-item GWB Schedule
4. the symptomatology variable divided into component parts, i.e., number of symptoms, severity of symptoms, number of symptom clusters, symptom cluster severity, and source of symptomatology, menstrual or nonmenstrual.

Each of these variables were reduced in order to obtain quantifiable scores. The demographic factors of age and income were kept as continuous data, while ethnicity categories were collapsed into two categories, Caucasian and non-Caucasian. The health factor remained a continuous variable. Psychological well-being scores were obtained by summing the individual item scores and were reduced to one number. Symptomatology components were reduced as follows: the number of symptoms remained a continuous variable and yielded one score; the severity level was obtained through use of the mean of symptom severity reported for all symptoms; the number of symptom clusters was reduced to a single score by summing the number of symptom clusters for which subjects acknowledged symptoms; the symptom cluster severity score yielded eight scores, that is the mean score for each cluster; and source score was represented by the percentage of menstrual, nonmenstrual, or mixed symptoms checked and/or by the number of symptoms checked as menstrual, nonmenstrual, or mixed.

These numerical representations of the variables were used for obtaining frequency distributions, cross tabulations, cross breaks, and multiple correlation regression. The results of these analyses served as the basis for describing the study data. The results of these analyses are discussed in the following chapter.

CHAPTER SIX

RESULTS

The research questions, hypotheses, and the corresponding results of this study are presented in this chapter. The order in which the research questions and corresponding hypotheses are arranged was dictated by the direction of the data analytic plan, multiple correlation and regression (MRC), chosen to test the study hypothesis. Therefore, simple relationships are examined before the more complex relationships. This chapter is organized into three sections within which the appropriate research questions are grouped.

The first section addresses research questions 1 and 2, which generated descriptive data about the psychological well-being pattern of the entire sample (n = 1,179)* and the select sample (n = 633)* and described differences and similarities between the study sample and the national norms on psychological well-being.

The second section deals with research questions 3, 4, and 5. Questions 3 and 4 produced descriptive data about the pattern of symptomatology in terms of the number, severity, and type that women in the select sample reported. Through research questions, descriptive data about the pattern of these symptom components were compared between primarily menstrual and primarily nonmenstrual groups.

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* Although the total number of the entire sample is 1179 and the select sample is 633, these figures will fluctuate given that some analyses excluded subjects based on missing data.

Question 5 aimed to show the first order, non-multivariate relationships between the above stated symptomatology components and psychological well-being.

Question 6, in the third section, generated descriptive data about the relationship among specific study variables, i.e., symptomatology, sociodemographic and health status variables, and their ability to predict differences in psychological well-being. The data analytic system of multiple correlation and regression (MCR) was the statistical technique of choice.

Section I. Psychological Well-Being Pattern: Research Questions 1 and 2

Research question 1 asked, "What is the distribution of psychological well-being among employed women in the entire sample?", while research question 2 was, "How does subjective appraisal of psychological well-being among employed women in the sample (entire and select) compare with the normative data reported by other researchers?" These questions are answered by: 1) describing the pattern of psychological well-being for the entire sample, 2) for the select sample, and 3) comparing national norms to both samples.

Frequency distributions on the total score of the General Well-Being Schedule (GWB) are presented in Table 15. This table compares the percentage of subjects in each GWB category and compares these percentages among 1) the entire research sample (n = 1,110), 2) the select research sample (n = 601), 3) an entire national sample (n = 3,743), and 4) a select national sample (n = 1,579).

Table 15

Comparison of Percentages of Study Subjects in Each GWB Category (Entire and Select) with Percentage of Subjects in Each GWB Category from the Normative Samples of the HANES Study (Entire and Select)

General Well-Being Categories	GWB Score	Percent of Subjects in Each GWB Category			
		Study Entire n = 1110	HANES Entire n = 3743	Study Select n = 601	HANES Select n = 1579
Severe Distress	0-17	0	.4	0	.2
	18-36	1.4	2.5	1.2	3.0
	37-48	2.4	4.7	2.6	5.0
	49-54	2.6	4.6	2.5	4.4
	55-60	6.6	4.9	7.2	5.0
Moderate Distress	61-64	5.4	4.9	6.1	4.9
	65-68	6.5	5.1	6.5	5.4
	69-72	6.8	7.6	7.7	7.7
Positive Well-Being	73-77	11.9	9.8	18.8	10.5
	78-82	12.4	10.3	12.8	10.0
	83-95	33.2	28.8	32.1	29.5
	96-104	9.5	13.4	8.5	12.9
	105-110	1.3	3.2	1.0	1.4
		100%	100%	100%	100%

Within the entire research sample (n = 1,110), scores on the GWB ranged from 21-110, with a mean score of 78.12 and a standard deviation of 15.08. The median score was 79.9. As shown in Figure 8, the distribution of the GWB scores was a highly skewed one, with the majority of subjects scoring in the "positive well-being" range.

Within the research select sample (n = 601), the distribution of GWB scores ranged from 25-110, with a mean of 77.53 and a standard deviation of 14.95. The median GWB score was 78.91. As shown in Figure 8, the distribution of GWB scores among the select research sample was almost identical to the distribution for the total research sample and was not significantly different. Again the distribution of GWB scores in the select sample was a highly skewed one, with the majority of subjects scoring in the "positive well-being" range. Thus, about one-third (33.8% of the sample) scored in the moderate to severe distress range.

Utilizing data from the HANES study (Dupuy, 1978a), a comparison of the distribution of GWB scores in the research sample with that of the normative sample was made. As shown in Figure 8, the distribution of GWB scores for the national norms from the HANES study is similar to both the entire and select research samples' GWB score distribution. Within the entire national sample, the mean of GWB scores was 77.7 with a standard deviation of 18.3. For the select national sample, the mean of GWB scores was 76.80 with a standard deviation of 17.90. As can be seen in Table 16, the mean scores for each sample are similar. This was expected, given that both the study sample and the HANES sample were considered general populations.

FIGURE 8. DISTRIBUTION OF GENERAL WELL-BEING SCORES: COMPARISON OF ENTIRE RESEARCH, SELECT RESEARCH, ENTIRE NATIONAL (HANES) AND SELECT NATIONAL (HANES) SAMPLES

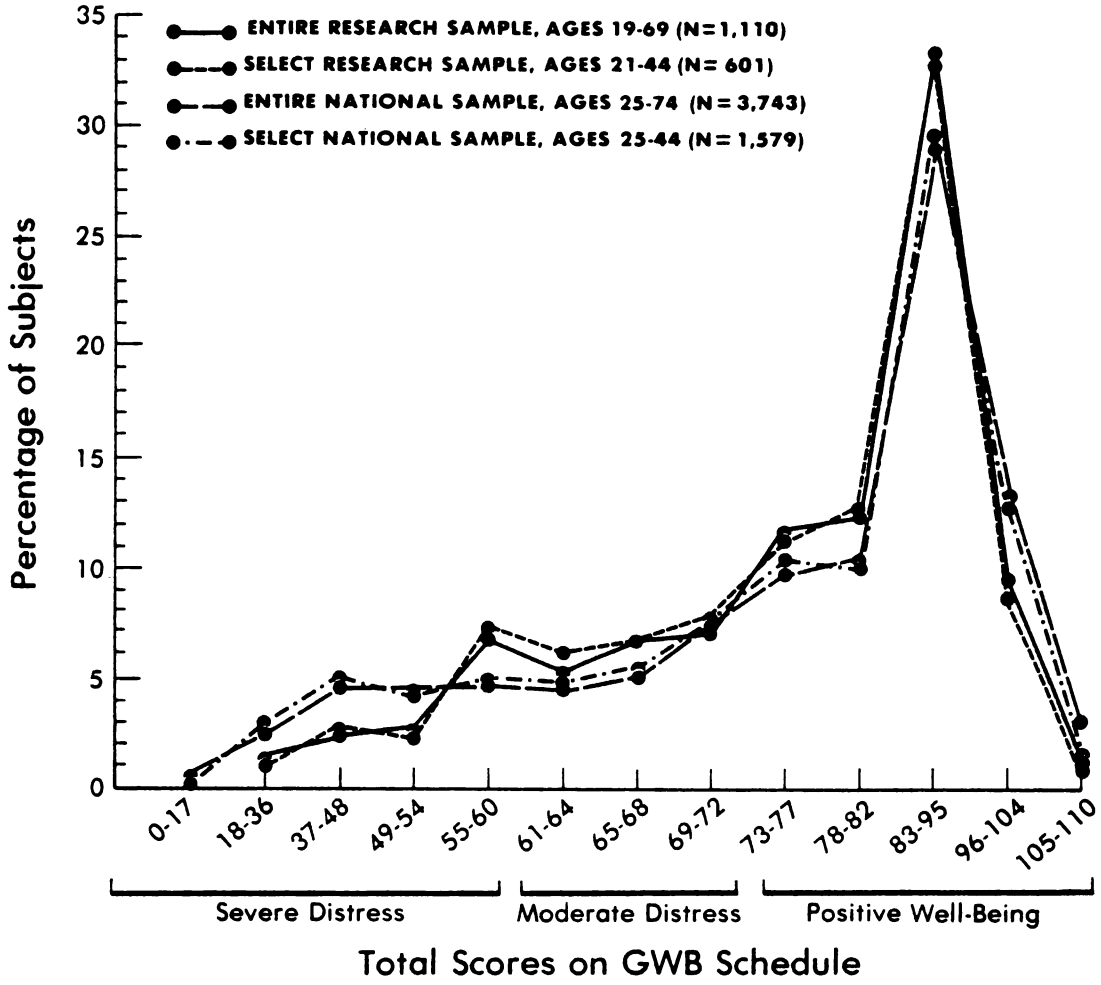


Table 16

Comparison of Mean GWB Scores Between Study Sample (Entire and Select) and HANES Sample (Entire and Select)

	Entire Study (n=1,110)	Entire HANES (n=3,743)	Select Study (n=601)	Select HANES (n=1,579)
Mean GWB Score	78.12	77.70	77.50	76.80
Standard Deviation	15.08	18.30	14.95	17.90

Section II. Symptomatology Pattern: Research Questions 3, 4, and 5

Research question 3 asked, "Are there differences in self-reports of symptomatology among women in the select sample in terms of the number, severity, and type?" Question 4 asked, "Are there differences in the number, severity, and type of symptoms identified by employed women who report primarily menstrual rather than primarily nonmenstrual symptoms?" In relation to questions 3 and 4, descriptive data utilizing frequency distributions of the number of symptoms, mean symptom severity, mean number of clusters, mean cluster severity, and the number and percentage of menstrual symptoms were obtained. In addition, the relationship of mean cluster severity and origin was examined through the statistical technique of chi square. Research question 5 asked, "Is there a relationship between self-reports of symptomatology and women's subjective appraisal of psychological well-being?" For question 5, chi

square was used to determine the degree of association between psychological well-being (as measured by the sum score of the GWB) and the number of symptoms, mean symptom severity, mean cluster severity scores, and origin (menstrual, nonmenstrual, mixed).

This chapter is organized so that descriptive data about symptomatology (research questions 3 and 4) and the relationship of the particular components of symptomatology to psychological well-being (research question 5) can be viewed together. Therefore, the following headings are used to present the results: the number of symptoms and its relationship to general well-being scores, the mean symptom severity and its relationship to general well-being scores, symptom clusters (number and mean severity) and their relationship to general well-being scores, and origin of symptomatology (menstrual and nonmenstrual) and its relationship to general well-being scores.

Number of Symptoms and Its Relationship to General Well-Being Scores

The mean number of symptoms reported among the selected subjects (n = 633) was 19.79 (sd = 9.35) with a range of 0-45. The median number of symptoms checked was 19.41. Figure 9 illustrates the distribution of the number of symptoms among the subjects in the selected sample.

The relationship of the number of symptoms to GWB scores was significant (X^2 = 136.0, df = 12, $p < .001$). Table 17 illustrates this relationship. Persons who reported few symptoms were significantly more likely to have high GWB scores than were those who reported many symptoms.

FIGURE 9. DISTRIBUTION OF NUMBER OF SYMPTOMS REPORTED IN SELECT SAMPLE (N = 633)

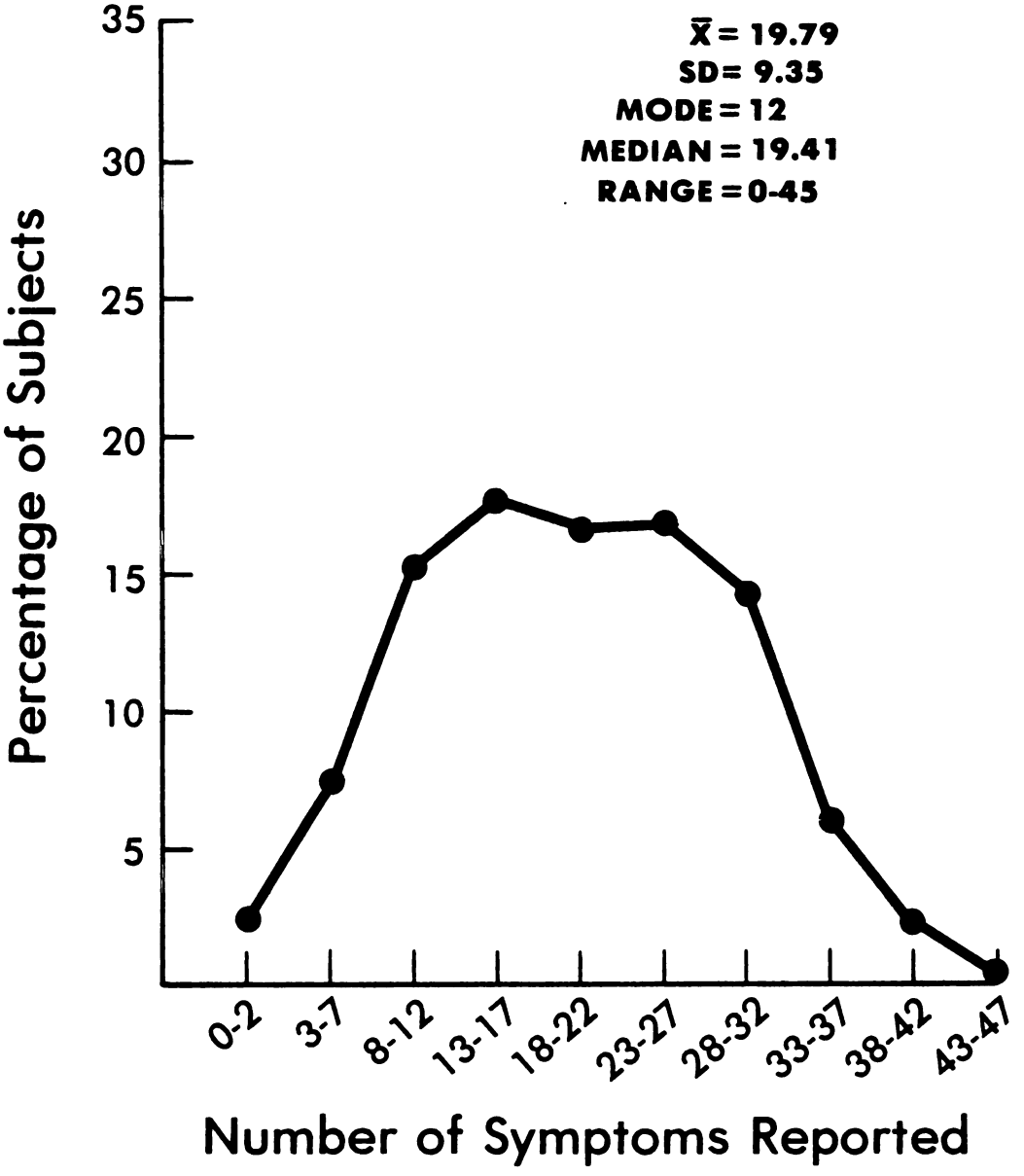


Table 17

Frequency Distribution of Select Sample (n = 601) by Reported Numbers of Symptoms and GWB Scores
(numbers in cells represent number of subjects)

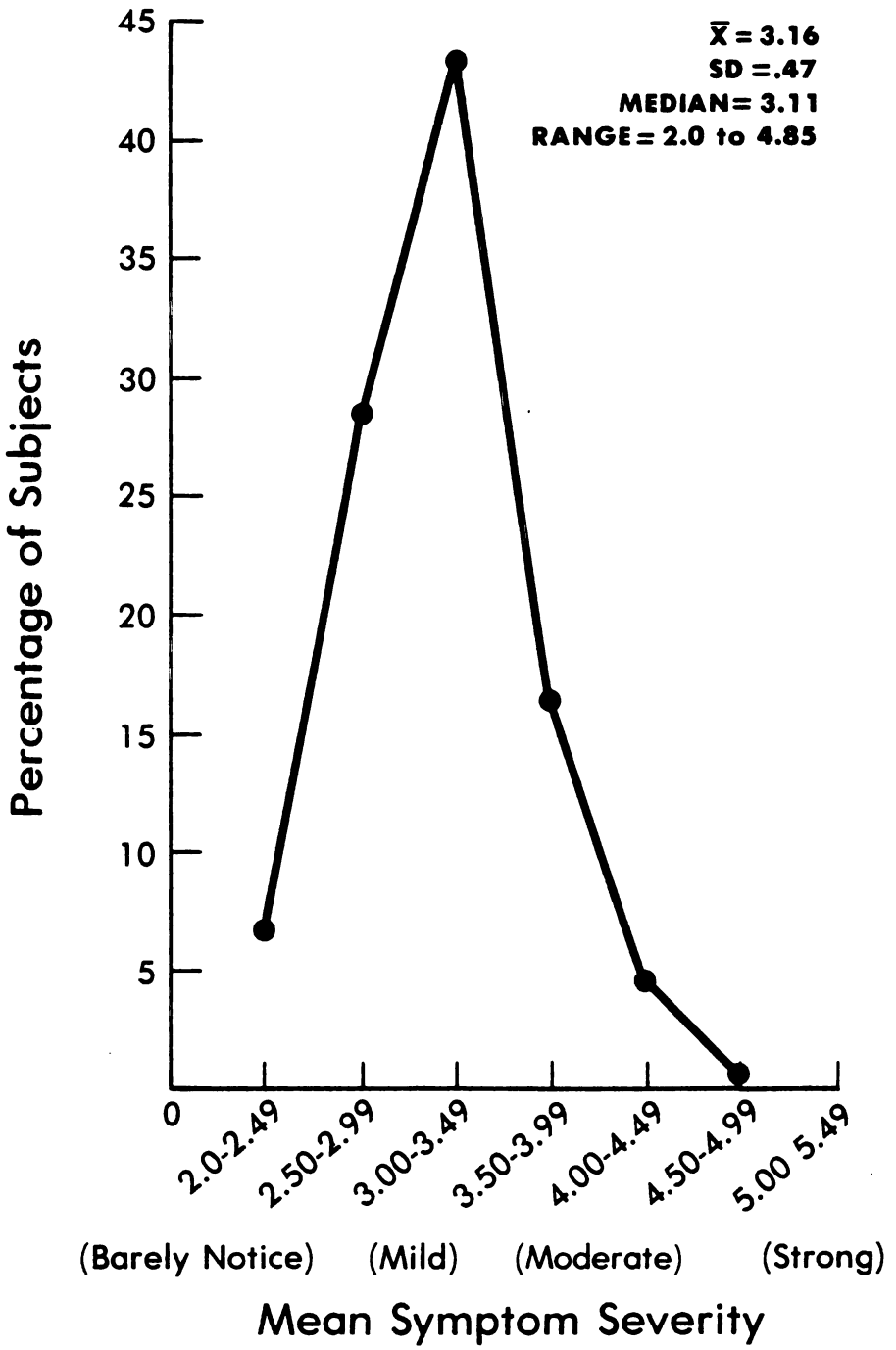
	General Well-Being Scores			
Reported Number of Symptoms	Severe Distress	Moderate Distress	Positive Well-Being	Total
0-7 (> 1½ SD below)	1	2	55	58
7-15 (½ to 1½ SD below)	1	14	135	150
15-24 (within ½SD of x)	21	41	128	190
24-33 (½ to 1½ SD above)	43	51	68	162
33-35 (> 1½ SD above)	15	14	12	41
Total	81	122	398	n = 601

$X^2 = 136.0$; df = 12; $p < .001$

Mean Severity of Reported Symptoms and General Well-Being Scores

Overall severity of symptoms among the select sample (n = 644) ranged from 2 to 4.85. A severity score of 2, according to the Moos Mental Distress Questionnaire scale, represented subjects who reported all symptoms at a "minimal" level. The mean score was 3.16, with a standard deviation of 0.471. Thus, on the average, subjects who reported symptomatology (irrespective of how many symptoms they reported) perceived those symptoms to be slightly above the severity level of "mild." The median was 3.11. Figure 10 illustrates the distribution of mean symptom severity for the sample.

FIGURE 10. DISTRIBUTION OF MEAN SYMPTOM SEVERITY AMONG SYMPTOMS REPORTED IN SELECT SAMPLE (N = 623) (EXCLUDES SYMPTOMS CHECKED AS 1, NO REACTION)



As shown in Table 18 the relationship of the mean symptom severity to GWB scores was significant ($X^2 = 60.97$; df = 9; $p < .001$). Basically, the relationship was that people who had positive well-being had symptoms that fell in the 3.50 or less severity range.

Table 18

Frequency Distribution of Select Sample (n = 601) by Mean Symptom Severity and GWB Categories (number in cells represent number of subjects and includes subjects who recorded [1] "no reaction")

	Mean Symptom Severity*				
GWB Categories	Little or no reaction 1-2	Mild 3	Moderate 4	Strong/ acute 5-6	Totals
Severe distress	1	45	34	1	81
Moderate distress	1	91	27	3	122
Positive well-being	42	302	53	1	398
Totals	44	438	114	5	601

$X^2 = 60.97$; df = 9; $p < .001$

* Mean symptom severity was a composite score which represented the average severity of symptoms reported by a subject. Thus, a mean symptom severity level of "strong/acute" represented a subject whose average severity level of reported symptoms was in the 5-6 range.

Symptom Clusters and General Well-Being Scores

Out of eight possible clusters, the mean number of clusters on which subjects reported symptomatology was 5.8, with a standard deviation of 1.62 (n = 435). Thus, the average number of symptom clusters acknowledged by subjects was between 5 and 6.

As shown in Table 19, among the select sample the number of symptoms reported in each cluster varied within the cluster. The greater frequency of reported symptoms is located in the pain, negative affect, and arousal clusters. In addition, the mean severity score for each cluster in the select sample varies, with pain, arousal, negative affect, and water retention reflecting the higher mean scores. These variations in number of symptoms reported in each cluster and mean cluster severity scores suggest that women in this sample had a broad range of responses with respect to the number of symptoms they reported and the severity level associated with those symptoms.

As presented in Tables 20 to 26, the relationship of mean cluster severity to GWB scores was significant in seven out of eight clusters: pain ($X^2 = 102.75$, $df = 18$, $p < .001$); concentration ($X^2 = 126.23$, $df = 15$, $p < .001$); behavior change ($X^2 = 137.87$, $df = 15$, $p < .001$); autonomic reactions ($X^2 = 59.94$, $df = 18$, $p < .001$); negative affect ($X^2 = 322.06$, $df = 18$, $p < .001$); arousal ($X^2 = 30.87$, $df = 18$, $p < .05$); control ($X^2 = 75.92$, $df = 12$, $p < .001$). Cluster 5, water retention, was the only nonsignificant relationship ($X^2 = 23.38$, $df = 18$, NS). In the case of arousal, the relationship was positive. That is, subjects who reported high levels of arousal were more likely to have high GWB scores than were subjects with low arousal levels. All other relationships were negative, with subjects reporting high symptom severity showing low GWB scores. Tables 20-26 present the mean cluster severity in relationship to GWB levels for those clusters that were significant.

Table 19

Summary of Number of Symptoms Reported in Each Cluster and Mean Severity Score by Cluster

Cluster	Number of Symptoms Reported in Each Cluster			Mean Severity Scores in Each Cluster		
	Range	Mode	Median	Range	Mean	Standard Deviation
1. Pain (n = 601)	1-6	5	3-4	1-5.5	2.32	.834
2. Concentration (n = 589)	1-8	1	2	1-4.5	1.52	.61
3. Behavior Change (n = 597)	1-5	1	2	1-5	1.69	.73
4. Autonomic Reactions (n = 607)	1-4	1	1	1-6	1.28	.56
5. Water Retention (n = 606)	1-4	2	2	1-5.75	2.16	.864
6. Negative Affect (n = 592)	1-8	8	5-6	1-5.63	2.4	1.01
7. Arousal (n = 583)	1-5	5	4	1-5.4	2.94	1.12
8. Control (n = 603)	1-7	1	1	1-3.83	1.22	.399

Table 20

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Pain (Cluster 1) and GWB Categories
(numbers in cells equals number of subjects in each category)

Pain (Cluster 1)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	1	2	19	22
2 = average severity 2 or less	18	27	190	235
3 = average severity 3 or less	32	47	126	205
4 = average severity 4 or less	19	33	39	91
5 = average severity 5 or less	10	4	4	18
6 = average severity greater than 5	1	0	0	1
Total	81	113	378	572

$X^2 = 102.75$; $df = 18$; $p < .001$

Table 21

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Concentration (Cluster 2) and GWB Categories
(numbers in cells equals number of subjects in each category)

Concentration (Cluster 2)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	1	14	128	143
2 = average severity 2 or less	39	67	229	335
3 = average severity 3 or less	24	22	18	64
4 = average severity 4 or less	8	7	5	20
5 = average severity 5 or less	1	1	0	2
Total	73	111	380	564

$X^2 = 126.23$; df = 15; $p < .001$

Table 22

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Behavior Change (cluster 3) and GWB Categories
(numbers in cells equals number of subjects in each category)

Behavior Change (Cluster 3)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	1	14	136	151
2 = average severity 2 or less	29	59	197	285
3 = average severity 3 or less	30	30	41	101
4 = average severity 4 or less	11	8	3	22
5 = average severity 5 or less	6	1	2	9
Total	77	112	379	568

$X^2 = 137.87$; $df = 15$; $p < .001$

Table 23

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Autonomic Reactions (cluster 4) and GWB Categories
(numbers in cells equals number of subjects in each category)

Autonomic Reactions (Cluster 4)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	38	64	272	374
2 = average severity 2 or less	28	42	92	162
3 = average severity 3 or less	11	4	19	34
4 = average severity 4 or less	0	4	0	4
5 = average severity 5 or less	2	2	0	4
6 = average severity greater than 5	0	0	1	1
Total	79	116	384	579

$X^2 = 59.94$; df = 18; $p < .001$

Table 24

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Negative Affect (cluster 6) and GWB Categories
(numbers in cells equals number of subjects in each category)

Negative Affect (Cluster 6)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	0	1	38	39
2 = average severity 2 or less	3	7	187	197
3 = average severity 3 or less	12	53	120	185
4 = average severity 4 or less	32	41	23	96
5 = average severity 5 or less	29	10	3	42
6 = average severity greater than 5	2	1	0	3
Total	78	113	321	562

$X^2 = 322.06$; df = 18; $p < .001$

Table 25

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Arousal (cluster 7) and GWB Categories
(numbers in cells equals number of subjects in each category)

Arousal (Cluster 7)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	5	6	48	59
2 = average severity 2 or less	13	13	57	83
3 = average severity 3 or less	21	33	71	125
4 = average severity 4 or less	25	44	130	199
5 = average severity 5 or less	10	15	64	89
6 = average severity greater than 5	0	0	2	2
Total	74	111	372	557

$X^2 = 30.87$; $df = 18$; $p < .05$

Table 26

Frequency Distribution and Chi Square
of Select Sample by Mean Cluster Severity
of Control (cluster 8) and GWB Categories
(numbers in cells equals number of subjects in each category)

Control (Cluster 8)	GWB Categories			
Mean Cluster Severity	Severe Distress	Moderate Distress	Positive Well-Being	Total
1 = never had symptom	32	52	273	357
2 = average severity 2 or less	32	55	100	187
3 = average severity 3 or less	11	9	7	27
4 = average severity 4 or less	2	0	0	2
Total	77	116	380	573

$X^2 = 75.92$; df = 12; $p < .001$

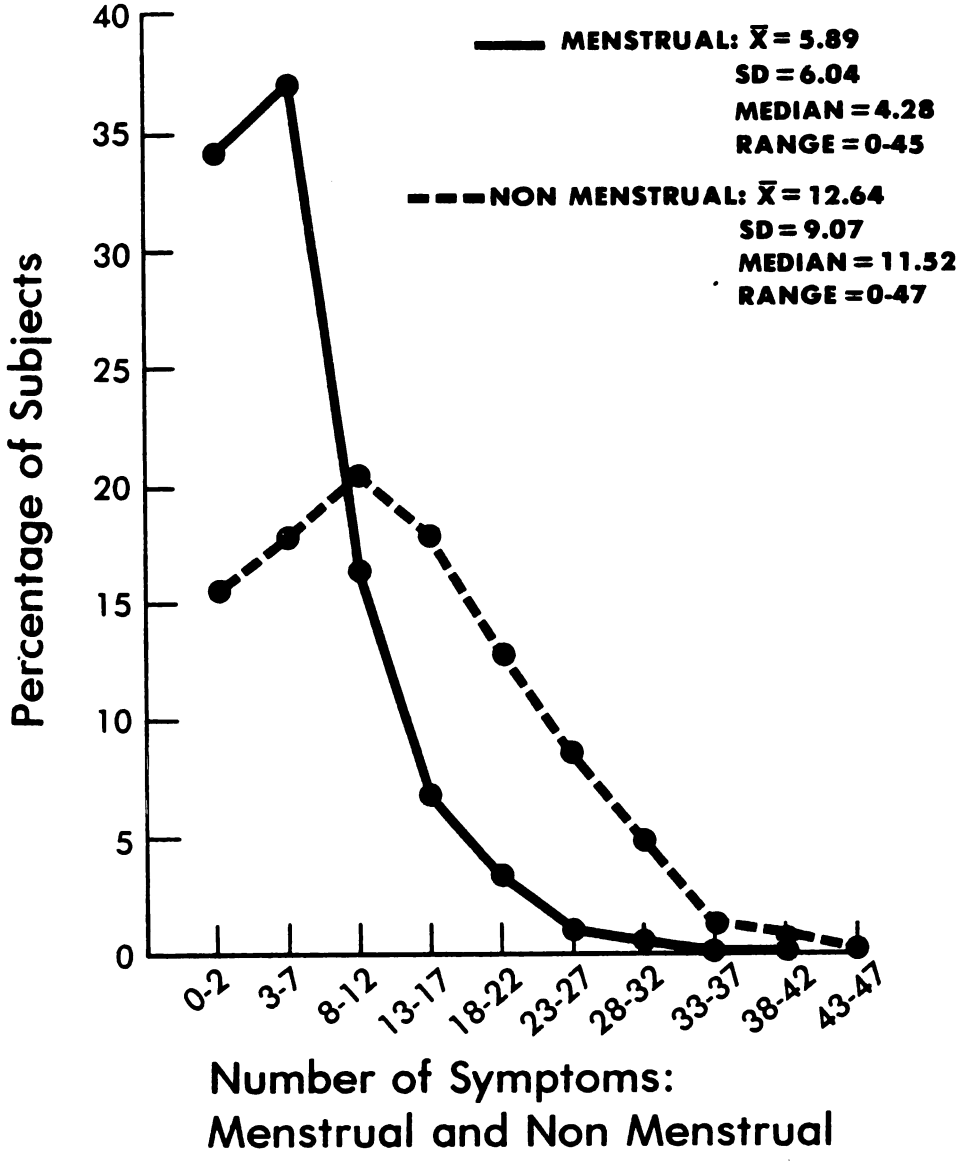
Origin (Source) of Symptomatology (Menstrual and Nonmenstrual) and Its Relationship to General Well-Being

Based on research question 4, the results are presented as follows: the number of symptoms checked as menstrual or nonmenstrual, the percent of symptomatology checked as menstrual and nonmenstrual, and the relationship of mean cluster severity and origin. The relationship of origin of symptomatology to GWB scores pertains to research question 5.

Number and percentages of symptoms checked as menstrual or nonmenstrual. The mean number of symptoms reported as menstrual among the selected subjects (n = 633) was 12.64 (sd = 9.07), with a range of 0-45, as compared with the mean number of symptoms reported as nonmenstrual among the selected subjects (n = 633), which was 12.67 (sd = 9.07), with a range of 0-47. Figure 11 illustrates the distribution of the number of symptoms among the subjects in the selected sample as well as a comparison of menstrual symptoms with nonmenstrual; the distribution for number of menstrual symptoms is a highly skewed one, with the majority of subjects falling in the 0-12 range (87.4%). The distribution of nonmenstrual symptoms follows a different pattern; that is, nonmenstrual symptoms present a more uniform, normally distributed pattern.

Among the select sample (n = 633), the percentage of symptoms checked as menstrual was calculated. Percent menstrual was defined as the number of symptoms identified as menstrual, controlling for the number of symptoms checked by each subject. Therefore, within a given subject's set of responses, the percent of symptomatology identified as primarily menstrual ranged from 0 to 100%, indicating a full range of responses; that is, certain subjects indicated that for all symptoms checked, none were menstrually related while others reported that all symptoms reported were menstrually related. The mean percent of symptoms identified as menstrual by this sample of women was 30.9 (sd = 2.73); thus on an average, given that the person had a certain number of symptoms, about one-third of those symptoms were identified as menstrually related. The median percentage of symptoms identified as menstrual was 23.6.

FIGURE 11. DISTRIBUTION OF NUMBER OF SYMPTOMS REPORTED AS MENSTRUAL OR NON MENSTRUAL IN SELECT SAMPLE (N=633)



In addition, within the select sample (n = 633) the percentages of symptoms checked as nonmenstrual were calculated as well as percent menstrual. The percentage of symptomatology identified as primarily nonmenstrual ranged from 1-100%, indicating a full range of responses. The mean percent of symptoms identified as nonmenstrual was 61.6 (sd = 3.70), thus about two-thirds of those symptoms reported by a person were identified as nonmenstrually related.

The relationship of mean cluster severity to origin (menstrual, nonmenstrual, and mixed).* The simple relationship between mean cluster severity and origin (not accounting for any other variable) was examined in cross tabular form. As shown in Tables 27 and 28, differences among menstrual, nonmenstrual, and mixed groups were strongest in clusters 5 (water retention) and 7 (arousal).

In cluster 5, water retention, the relationship was significant ($X^2 = 36.16$, df = 8, $p < .001$), and it indicated that severe symptoms were more typical of the menstrual group than the nonmenstrual group. Persons with low water retention scores were more often in the nonmenstrual group.

In cluster 7, arousal, the relationship was significant ($X^2 = 60.02$, df = 8, $p < .001$). Thus among people who reported high arousal scores, more of them were located in the nonmenstrual group.

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* The menstrual group consisted of subjects whose reported symptomatology was menstrually related 55 to 100% of the time. Nonmenstrual subjects identified the origin of their symptomatology as menstrual 0 to 44% of the time. The remaining subjects were considered mixed.

Table 27

Frequency Distribution of Select Sample
by Origin of Symptoms and Mean Symptom Severity
of Cluster 5 (water retention)
(numbers in cells represent number of subjects)

	Mean Symptom Severity				
Origin	Little or no reaction	Mild	Moderate	Strong/ acute	Total
Nonmenstrual	309	116	14	1	440
Mixed	28	18	5	0	51
Menstrual	53	46	14	2	115
Total	390	180	33	3	606

$X^2 = 36.16$; $df = 8$; $p < .001$

Table 28

Frequency Distribution of Select Sample
by Origin of Symptoms and Mean Symptom Severity
of Cluster 7 (arousal)
(numbers in cells represent number of subjects)

	Mean Symptom Severity				
Origin	Little or no reaction	Mild	Moderate	Strong/ acute	Total
Nonmenstrual	102	160	131	31	424
Mixed	21	12	14	4	51
Menstrual	66	23	14	5	108
Total	189	195	159	40	583

$X^2 = 60.02$; $df = 8$; $p < .001$

Relationship of origin of symptomatology to GWB scores. The percentage of symptoms by origin was collapsed to create three groups: Group 1, menstrual, consisted of women who reported that 56-100% of their symptoms were menstrually related; Group 2, mixed, consisted of women who reported that 45-55% of their symptoms were menstrual; and Group 3, nonmenstrual, consisted of women who reported that 0-44% of their symptoms were menstrual. As can be seen in Table 29, subjects who identified their symptoms as primarily menstrual were more likely to have high GWB scores ($X^2 = 37.97$, df = 9, $p < .001$).

In addition to calculating menstrual and nonmenstrual groups in this manner, the percentage of symptoms designated as menstrual was also collapsed into groups representing standard deviations from the mean to look at the relationship in a slightly different way.

Table 29

Frequency Distribution of Select Sample
by Origin and General Well-Being Categories
(numbers in cells represent number of subjects)

	General Well-Being Categories			
Origin	Severe Distress	Moderate Distress	Positive Well-Being	Total
Nonmenstrual (0-44%)	73	101	255	429
Mixed (45-55%)	2	8	40	50
Menstrual (56-100%)	6	13	95	114
Total	82	122	390	593

$X^2 = 37.97$; df = 9; $p < .001$

Section III. Relationship Between Psychological Well-Being and Self-Reports of Symptomatology: Research Question 6

Research question 6 asked, "What are the relationship and interrelations among self-reports of number of symptoms, severity rating, type, source of symptomatology, and demographic and health factors to the subjective appraisal of psychological well-being of employed women?" The major hypothesis was, "The number, type (somatic, affective, behavioral, or concentration), severity of symptoms, and demographic (age, income, ethnicity) and health factors will be more related to differences in psychological well-being than will source of symptom (menstrual and nonmenstrual)."

Since chi square (X^2) analysis of cross tabular data cannot examine interrelationships among the components of symptomatology and the relationship of all those facets to psychological well-being, regression analyses were performed. As indicated in a previous chapter, MCR was the hierarchical regression model used as the data analytic system, and three regression models were developed. The first model examined the relationship of demographics, number of symptoms, severity, and origin to GWB scores, while the second model examined the relationship of demographics, type, and origin to GWB scores. The third model examined differences in psychological and physical symptomatology to GWB scores.

The analysis of the hypothesized relationships among the variables determined whether the proportion of variance in psychological well-being accounted for by demographic factors, number of symptoms, severity of symptomatology, and type of symptom would exceed the proportion of

variance in psychological well-being accounted for by source of symptomatology (menstrual and nonmenstrual). In order to address the central hypothesis, nine subhypotheses were developed. The following sections are organized in accordance with these nine subhypotheses which allows for a logical progression of the results to the major hypothesis. Table 30 depicts the overall regression plan.

Regression Model I

Regression Model I was an analysis in which demographic factors and health were entered first into the equation, followed by number of symptoms, mean symptom severity, and source of symptomatology. Type of symptom was excluded from this model and analyzed separately in Regression Model II. This analysis was aimed at answering four subresearch questions (6a, b, c, and e) which had been incorporated into one overall question: "What is the relationship among the reported number of symptoms, symptom severity, source, and demographic and health factors to psychological well-being?"

Demographic and health variables. Demographics (age, income, and ethnicity) and the health factor were entered first into the equation and yielded an R of .4118 with psychological well-being. The R^2, indicating the proportion of variance in psychological well-being accounted for by this set of variables (16.96) was tested for significance by the F test. The F (23.60, df = 4, 462, $p < .001$) indicated that there were significant differences in psychological well-being as a function of demographic and health factors. Most of the variance in psychological well-being accounted for by this set of variables was due to the influence of health. The semi-partial correlation coefficient

Table 30

Overall Regression Plan for Analysis

Regression Model 1				Regression Model 2				Regression Model 3			
Step of Equation	Variable(s) Entered	R^2	Increment	Variable(s) Entered	R^2	Increment		Step of Equation	Variable(s) Entered	R^2	Increment
Step 1	Demographics	.16965	.16965	Demographics	.16965	.16965		Step 1	Physical Symptoms	.24462	.24462
Step 2	Number of Symptoms	.41146	.2418	Number of Symptoms	.41146	.2418		Step 2	Psychol. Symptoms	.66124	.41662
Step 3	Severity	.46451	.0530	C1 to C8 Number Items in Clusters	.57936	.1679		Step 1	Psychol. Symptoms	.63914	.63114
Step 4	Number of Menstrual Symptoms	.52877	.0642	Severity of Clusters 1-8	.71105	.1317		Step 2	Physical Symptoms	.66124	.02210
Step 5	Interactions: Menstrual with All Else	.53114	.0025	Number of Menstrual Symptoms	.73559	.0245					
Step 6				Interactions of Menstrual with All Else	.75876	.02317					

sr^2 was 0.1161 for health, indicating that 11.61% of the variance in psychological well-being not accounted for by the other variables (age, income, ethnicity) was due to the effect of health.

This 11% was the unique variance in psychological well-being that health accounted for, and it did not include variance in psychological well-being that it shared with other demographic variables. The direction of the relationship indicated that subjects with better health had significantly higher GWB scores ($sr^2 = 0.1161$, $F = 64.61$, $df = 1, 462$, $p < .001$). The amount of change in psychological well-being as a function of a one-unit change in health was 0.751. This means that, in the case of health, with all other demographic variables in the equation controlled for, each step down on the health variable (i.e., from excellent to very good) generated a 6.75 point decrease in GWB scores.

Income, age, and ethnicity each accounted uniquely for 1% of the variance which, given the large sample size, was a significant ($p < .05$) contribution to the multiple correlation (R). The relationship of age and psychological well-being, controlling for all other demographic factors in the equation, was a positive relationship. Older subjects were more likely to have higher GWB scores. Again, the relationship between income and GWB scores followed the same pattern, with subjects who generated higher levels of income also experiencing higher levels of psychological well-being. The relationship of ethnicity to GWB scores followed a pattern such that non-Caucasians had higher GWB scores than Caucasians.

It is important to realize that each of these only accounted for 1% of the variance in psychological well-being. Given the sample size, this is a significant proportion of variance. However, looking at the

raw correlations, in the case of ethnicity the relationship was small (.076). Furthermore, while 1% of the variance is statistically significant, the issue of whether such a small effect is clinically significant remains open.

In summary, health, age, income, and ethnicity accounted for 14.61% of the variance in psychological well-being. The remaining variance, 2.35, accounted for all non-unique shared variance, that is, variance accounted for by joint relationships of variables. Thus, the hypothesis that a set of demographic and health variables would account for a significant proportion of the variance in psychological well-being was supported.

Number of symptoms. At the second step of the equation, the number of symptoms was entered into the equation. As shown in Table 30, at the addition of this variable, R^2 rose from 0.17 to 0.41, indicating that the number of symptoms, when added to the equation, accounted for an additional 24% of the variance in psychological well-being. This additional 24% was significant ($p < .001$). Thus, demographics, health, and number of symptoms together accounted for 41% of the variance in GWB scores (0.64). Of the 41% of the variance accounted for by this set of variables, 24% of GWB scores was accounted for by the number of symptoms.

Thus, the study hypothesis that the number of symptoms would account for a significant proportion of the variance in psychological well-being was supported. In fact, it accounted for more variance than did demographic and health factors combined. The raw correlation, that is, the correlation between number of symptoms and GWB scores excluding other factors, showed that the correlation was high ($r = 0.61$), with

subjects who reported higher numbers of symptoms significantly more likely to report lower levels of psychological well-being. Given the presence of other variables in the relationship that was controlling for these variables, for each one point increment in GWB scores, there was a 0.91 decrement in the number of symptoms.

Symptom severity. At the third step of the equation, the degree of symptom severity was entered into the equation. At this point, the multiple R increased to 0.68 yielding an R^2 of 0.46. Thus, with all variables in the equation, 46% of the variance in psychological well-being was accounted for. This increment in R^2, that is, the additional variance accounted for by severity over and above variance accounted for by demographics, health, and number of symptoms, was a significant increment ($p < .001$). However, the unique variance accounted for by symptom severity was 5%, which was less than the 24% of unique variance accounted for by number of symptoms. The hypothesis that symptom severity would account for a significant proportion of the variance in psychological well-being was supported by the fact that the increase in R^2 was a significant increment. For every unit increase in severity, there was a 0.36 point decrease in GWB scores. Thus, people with different severity scores had significantly different GWB scores.

Number of symptoms defined as menstrual. At step four of the equation, number of symptoms defined as menstrual was entered into the equation. With the addition of this variable, the multiple R rose to 0.73, yielding an R^2 of 0.53, thus indicating a .06 increase in the R^2. This increase was significant ($p < .001$), indicating that the perception of source of symptomatology did account for a significant unique proportion of the variance in psychological well-being. The semi-partial

correlation, indicating the amount of unique variance, was 6.4%, which upon examination was considerably less than the percent accounted for by demographics and number of symptoms. The interpretation is that, controlling for health, demographics, symptom severity, and number of symptoms, for each additional symptom defined as menstrual there was an additional 0.7 increase in GWB scores. Thus, controlling for these other factors, it appeared that women who identified more of their symptoms as menstrually related had significantly higher levels of psychological well-being than women who reported their symptoms as nonmenstrual. Thus, the study hypothesis that source would account for a significant proportion of the variance was supported.

Menstrual and nonmenstrual groups. In the last step of the equation, an examination of whether the pattern of results relating symptomatology to psychological well-being was similar for women in menstrual and nonmenstrual groups was made; that is, the form of the relationships in terms of variance accounting for similarities in menstrual and nonmenstrual groups was tested. At this step in the equation, the interaction between the various components of symptomatology and menstrual origin of symptomatology was entered as a set in the equation. The results were not significant, which indicated that, for both menstrual and nonmenstrual groups, the above reported relationships and interrelationships were similar and therefore accounted for a similar proportion of variance in psychological well-being. This did not mean that the menstrual and nonmenstrual groups had the same GWB scores; in fact, women who reported more of their symptoms as menstrual had higher GWB scores. It was the form of the relationship that was the same for both groups, thus supporting the study hypothesis.

In review, the knowledge of a woman's ethnicity, income, health, age, and symptomatology, including origin, accounted for 53% of the variance in psychological well-being with a multiple correlation of 0.73.

Regression Model II

The second regression model aimed to analyze data for the testing of the study hypothesis generated from the following research subquestion (6d): "Is there a relationship between the type and severity of symptoms reported and psychological well-being?"

The first two steps of the equation are identical to those in Regression Model I. The first step of the equation, as before, entered demographic factors. As before, the R^2 equaled 0.17 ($R = 0.41$). Results for semi-partial coefficients were as previously described (Regression Model I, step 1).

At Step 2 of the equation, number of symptoms was entered. As in Regression Model I, the R^2 equalled 0.41 ($R = 0.64$).

At the third step, the type of symptom was entered into the equation. This step aimed to examine the relationship of type of symptom to psychological well-being. The increment in R^2 was 0.17, yielding an R of 0.76 ($R^2 = 0.58$). This increment in R^2 was significant ($p < .001$), indicating that knowledge of symptom type accounted for a significant addition (17%) to the proportion of the variance in psychological well-being. As one can see, the 17% added at this step is not as large as the 24% of variance accounted for by number of symptoms. It was of interest to determine whether symptom type, if entered before number of symptoms in the equation, would yield a larger increment than the 24%

accounted for by number of symptoms. This was done in a separate analysis, and the results showed that entering symptom type (prior to entering number of symptoms) yielded an R^2 of 0.58 (that is, 58% of the variance including demographic and health variables, with 41% due to increment). Comparing the R^2s obtained, one can see that entering type first accounted for almost as much variance as entering both type and number of symptoms (57.8% vs. 57.9%). In fact, once knowledge of type was available, knowledge of number of symptoms accounted only for an additional 0.5% (one-half percent) of the variance in psychological well-being. This was partly due to the fact that when there was information about how a person responded to particular types of symptoms, there was also some information about how many symptoms that person responded to in general. However, with knowledge of number of symptoms, the additional knowledge about type accounted for a significant additional proportion of variance (17%) in psychological well-being. Therefore, the study hypothesis that, controlling for previous relationships, type of symptom would account for a significant proportion of the variance in psychological well-being was supported. The symptom clusters which primarily accounted for this effect were symptom clusters 6 (negative affect) and 7 (arousal). Controlling for all variables entered into the equation up to this point, persons who had high GWB scores were more likely to have low scores on negative effect. Persons with high GWB scores were also more likely to have high scores on arousal.

At the fourth step of the equation, severity of cluster scores was entered into the equation. This step aimed to examine the relationship of cluster severity to psychological well-being. The R^2 rose to 0.71 ($R = 0.84$), indicating that knowledge of cluster severity, when added to

knowledge of demographics, health, and other symptomatology variables, helped to account for an additional 13% of the variance, which was significant ($p < .001$). Again, clusters 6 (negative affect) and 7 (arousal) accounted for most of the effect, with the direction of the relationships the same as that previously mentioned.

At the fifth step of the equation, the number of symptoms defined as menstrual was entered into the equation. This step aimed to examine the relationship of origin (source) to psychological well-being while controlling for all other variables. The R^2 at this step rose to 0.74, indicating a 2.5% increase in the variance of psychological well-being accounted for by source. This increase was a significant one ($p < .001$). Again, it was important to note that although this 2% increase represented a significant proportion of variance in psychological well-being, this was a small effect size (Cohen & Cohen, 1975). As before, the nature of this relationship was a positive one, with women who reported more of their symptoms as menstrual in origin also showing higher GWB scores.

Thus, with demographics, health, number, type, severity, and origin (source) of symptomatology in the equation, the multiple correlation was 0.86, which is considered a large effect size (Cohen & Cohen, 1975). In addition to the finding that the independent variables were highly correlated with GWB scores, the major hypothesis that demographics and health (16%), number (24%), severity (5%), and type of symptom (17%) would account for more of the variance in psychological well-being than source (2.5%) was supported. However, origin, which accounted for only a small proportion of variance in psychological well-being, provided an interesting finding. It was found that the relationship of origin to

GWB scores was positive; that is, the higher the number of menstrual symptoms, the higher the psychological well-being. Therefore, when origin did make a difference in psychological well-being, it was a positive one.

As in Regression Model I, the last step of the equation tested for interactions between group status (menstrual/nonmenstrual) and all other variables. The increment at this step (.02) was significant ($p < .001$), indicating differences between the groups in terms of the relationship previously described. That is, the relationship of demographics, health, number of symptoms, severity rating, and type of psychological well-being differed in the menstrual and nonmenstrual groups (see Table 31). However, it should be noted that 2.3% was a small effect and that the groups were primarily similar. Thus, the study hypothesis that the pattern of the relationship between menstrual and nonmenstrual groups and psychological well-being when demographics, health, number, severity, and type of symptomatology were controlled would be similar was not supported.

Sources of differences in menstrual and nonmenstrual groups. Separate regression analyses were performed for menstrual and nonmenstrual groups to locate the source of the differences. The results showed the primary differences to be located in the type of symptomatology present and in demographic and health differences.

In terms of demographic and health differences, the addition of these variables at the first step of the equation accounted for 15% and 26% of the variance in psychological well-being with nonmenstrual and menstrual groups respectively (see Table 31). Thus, the correlation of these variables to GWB scores was higher in the menstrual group. In

both groups, health was the primary contributer to the R^2 and, in both groups, the direction of the individual relationships was the same as that previously described among all "selected" subjects.

Table 31

Proportion of Variance Accounted for by Selected Variables in Menstrual and Nonmenstrual Groups

Order of Entry into Regression Analysis	Nonmenstrual Group (0-44% menstrual symptoms)		Menstrual Group (55-100% menstrual symptoms)	
	R^2*	Increment in R^2	R^2*	Increment in R^2
Step 1: Demographic and Health Variables	0.14786	0.14786	0.26450	0.26450
Step 2: Number of Symptoms	0.41864	0.27078	0.47399	0.20949
Step 3: Cluster 1 - Cluster 8 "type"	0.61703	0.19839	0.57254	0.09855
Step 4: Severity Cluster 1 - Cluster 8	0.74655	0.12952	0.72232	0.14978

* R^2 indicates the proportion of variance in psychological well-being accounted for by variables entered up to that point in the equation.

There were differences in symptomatology between the groups in that the effect of having certain kinds of symptoms had different meanings in the two groups. In the menstrual group, the symptoms which were more

strongly related to GWB scores were clusters 2 (concentration) and 6 (negative affect). In the nonmenstrual group, the symptoms which were more strongly related to GWB scores were clusters 6 (negative affect) and 7 (arousal). Symptom 6 (negative affect), which was strongly related to GWB scores in both groups, had a much stronger effect in the nonmenstrual group than in the menstrual group. In terms of negative affect, high scores were strongly related to low GWB scores among both groups; however, that relationship was much stronger in the nonmenstrual group. With other variables (including scores on other symptoms) partialled out of the equation or controlled for, differences in the groups accounted for only 2.5% of variance, and differences were primarily located in demographic and symptom type. Thus, it should be stressed that these differences are not large and might be clinically insignificant. These results indicate that source, menstrual or nonmenstrual, as one way of describing symptoms is not the most important one.

Regression Model III

The third regression model addressed the following research subquestion (6f): "Is there a relationship between type of symptoms (physical and psychological) reported and psychological well-being?" This research subquestion generated one study hypothesis which aimed to determine the proportion of variance in psychological well-being accounted for by physical and psychological symptoms.

The relationship of psychological versus physical symptoms to psychological well-being. The third regression model was utilized to examine the hypothesis that psychological symptoms would account for

more of the variance in psychological well-being than physical symptoms. A test of this hypothesis was examined by performing two regressions, one in which physical symptoms (pain, water retention, and autonomic reactions) were entered first as a set followed by psychological symptoms (negative affect, arousal, concentration, and behavior change), and a second regression in which psychological symptoms were entered first as a set and then physical symptoms afterwards. The results of these analyses were as follows: physical and psychological symptoms together accounted for 66% of the variance in psychological well-being ($R = 0.81$); entering physical symptoms first into the equation yielded an R^2 of 0.24; entering psychological symptoms after physical symptoms yielded an increment in R^2 of 42%. Using the reverse model, entering psychological symptoms first accounted for 64% of the variance with the increment in physical symptoms of 2%. Thus, giving both variables equal chance at the variance, psychological symptoms accounted for a higher proportion of variance in psychological well-being whether they were entered into the equation first or second. Thus, the hypothesis that psychological symptoms would account for more of the variance in psychological well-being than physical symptoms was supported. With this set in the equation completed, all nine subhypotheses have been tested within the three regression models.

In conclusion, self-reports of symptomatology and demographic and health characteristics had a strong relationship to psychological well-being. Reports of demographics, health, number, type, and severity of symptoms individually accounted for more variance in psychological well-being than source. All of the variables accounted for a significant proportion of variance in psychological well-being. Given the

order of entry into the equations, number of symptoms accounted for most of the variance. However, as mentioned previously, type of symptom actually accounted for more variance than number of symptoms if entered first. Psychological symptoms were more predictive of psychological well-being scores than physical symptoms. Origin of symptomatology accounted for only a small proportion of the variance in psychological well-being.

The results as reported in this chapter became the basis for describing whether the presence of symptomatology in general and specifically by components (number, severity, type, and source) was related to differences in psychological well-being. In the next chapter, these findings together with the study's conceptual framework help to explain the relationship of these results to broader theoretical sense. Thus Chapter VII, Discussion, is divided into two parts: interpretation of the major hypothesis and subhypotheses and a general discussion of psychological well-being.

CHAPTER SEVEN

DISCUSSION

This study answered the question, "What is the relationship of self-reports of menstrual and nonmenstrual symptomatology to the subjective appraisal of psychological well-being among employed women." This research question posited that there was a relationship between the presence of symptomatology and psychological well-being, a relationship which was supported by this study's findings. The conceptual linkages between these two phenomena are based on a conceptualization of health as a state of wellness in which social, physical, and psychological dimensions exist in interaction with one another.

The purpose was to clarify the relationship between the presence of symptomatology and psychological well-being by examining whether the presence of symptomatology viewed in its component parts, i.e., number, severity, type, and source (menstrual and nonmenstrual), was related to differences in women's psychological well-being. Further, this study determined which components of symptomatology best predict women's psychological well-being.

From the study research question a major hypothesis was derived. The hypothesis stated that demographic and health factors, number of symptoms, the severity rating, and the type of symptom (somatic, affective, concentration, and behavioral) would account for more of the variance in psychological well-being than would source of symptomatology (menstrual and nonmenstrual). The conceptual framework in conjunction

with this hypothesis dictated a multivariate approach to the problem and, therefore, subhypotheses that provided for a systematic analysis of study variables in relation to psychological well-being were generated. Thus, it was hypothesized that:

1. A set of demographic (income, ethnicity, and age) and health (perceived health status) factors would account for a significant proportion of the variance in psychological well-being.
2. Controlling for demographic and health factors, the number of symptoms would account for a significant proportion of the variance in psychological well-being.
3. Controlling for the above, severity would account for a significant proportion of the variance in psychological well-being.
4. Controlling for the above, source of symptomatology (menstrual and nonmenstrual) would account for a significant proportion of the variance in psychological well-being.
5. The pattern of the above relationships would be similar for menstrual and nonmenstrual groups.

Furthermore,

6. Controlling for demographic and health factors, number of symptoms, type of symptomatology, and its severity would account for a significant proportion of the variance in psychological well-being.
7. Controlling for the above, source of symptomatology (menstrual and nonmenstrual) would account for a significant proportion of the variance in psychological well-being.
8. The pattern of the above relationships would be similar for menstrual and nonmenstrual groups.

Furthermore,

9. Of physical and psychological symptoms, psychological symptoms would account for more of the variance in psychological well-being than would physical symptoms.

The major hypothesis was supported, as were all subhypotheses except number 8. The presence of symptomatology in its component parts of number, type, and severity yielded more information about psychological well-being than source of symptomatology (menstrual or nonmenstrual). These results showed that the more detailed the information one had about symptomatology in its component parts, the more one knew about psychological well-being. Conceptually, this was consistent with the study framework since social, physical, and psychological well-being were considered to be interrelated; that is, knowledge of one provided some knowledge of the other. Further, symptomatology as a whole was shown to be related to psychological well-being as well as to each of the component parts.

There were two major findings of this study. The first finding was that, given a generally healthy sample of employed women, the presence of symptomatology was strongly related to psychological well-being irrespective of the source of symptomatology, menstrual or nonmenstrual. The second finding indicated that the source of symptomatology when menstrually related did have an effect on psychological well-being. However, the effect was a positive rather than a negative one. These findings are important from a research, conceptual, and clinical standpoint. With respect to research, this study provides data for other researchers in terms of power analysis; that is, correlations found in this study enlarge the pool of scientific studies from which other

researchers can draw when making power estimates. Conceptually, it provides empirical data about psychological well-being and its relationship to symptom complaints, which is one aspect of physical well-being, and in turn adds to our understanding of the concept of wellness. In a clinical sense, this study provides information about symptomatology that will be useful in the psychological assessment of primarily healthy women who have symptom complaints. Understanding how self-reports of symptoms influence psychological well-being will assist the practitioner in developing appropriate interventions based on research findings rather than ones based on menstrual mythology.

The Discussion chapter is divided into two parts. The first part addresses the hypotheses and corresponding findings and their relationship to the study's conceptual framework as well as to similar research findings. In the second part a more general discussion of the results, using the conceptual framework as the organizing framework, is presented.

Hypotheses and Corresponding Findings

The major hypothesis determined whether the proportion of variance in psychological well-being accounted for by demographic and health factors, number of symptoms, severity of symptoms, and type of symptom would exceed the proportion of variance accounted for by source of symptomatology. The study subhypotheses provided a logical process toward answering this major hypothesis.

Subhypothesis 1: Demographic and Health Variables

Of demographic and health factors, demographics accounted for very little of the variance compared to the health factor. Health carried almost all of the variance in psychological well-being; therefore, women with better health had significantly better psychological well-being than women who reported poor health. This is in keeping with previous research (Wan & Livieratos, 1978), where it was found that, for all ages (25-64), perceived health status was identified as the most important psychological predictor of variance in one's psychological state. This makes conceptual sense in that perceived health is a personal assessment of one's state of health, an assessment that carries with it significant meaning in terms of one's capabilities based on a health problem.

Thus, it appeared that the demographic factors chosen for inclusion in the multiple regression were not particularly significant predictors of psychological well-being in comparison to the health factor. This finding is consistent with Nagi's 1976 research which indicated that health status and health conditions accounted for more of the variance in physical and emotional performance than the introduction of socio-demographic factors. Both studies suggest that demographics are important factors to consider when assessing psychological well-being; however, other factors appear to be more critical. These findings are important conceptually in that they support the notion that social and psychological well-being are separate dimensions of wellness, and a sensitive indicator of social well-being is needed to gain a better understanding of demographics in their social context. Therefore, of the demographic factors chosen for this study, it can be concluded that health status is of most importance.

The next section of this discussion of the subhypotheses examines the proportion of variance in psychological well-being accounted for by symptomatology. Symptomatology was reduced to its components, i.e., number, severity, type, and source (menstrual and nonmenstrual) of symptomatology. These are several different ways in which to describe symptomatology, and each one represents a more specific measure than the preceding, i.e., severity is a more specific measure than sheer number. What is important about symptomatology in its component state is that the more ways one has to discuss symptomatology, the more information is gained about psychological well-being. Thus, knowledge of the number of symptoms is important; however, its interrelationship with severity type and source makes it even more meaningful in terms of psychological well-being.

Subhypothesis 2: Number of Symptoms

With the addition of number of symptoms, and controlling for demographic and health factors, this variable accounted for an additional significant proportion of the variance, 24%. This means that just knowing the sheer number of symptoms a person has, i.e., their presence, would help predict that person's psychological well-being. This study found that the higher the number of symptoms reported, the lower the psychological well-being. Research conducted by Kaplan et al. (1976) was indirectly supportive of this finding in that the overall correlations obtained indicated that persons reporting more symptoms or problems had lower levels of well-being. It was only indirectly supportive since their measure of well-being was a more global concept, i.e., quality of life related to health, while this study focused on psycho-

logical well-being. The global concept was conceptually more related to this study's conceptualization of wellness, of which psychological well-being was one dimension. As shown by the addition of severity to the equation, more information about psychological well-being will be gained when the interrelation is considered.

Subhypothesis 3: Symptom Severity

Entering symptom severity to the equation added a more specific measure of symptomatology. This variable added an additional 5% to the variance. Thus, when added to number of symptoms, even more information about psychological well-being was obtained. Even though the increment as a single variable accounted for less variance than number, it is their combined relationship that is of importance. Thus, when there is knowledge of both number and severity, a better estimate of psychological well-being can be made.

Subhypothesis 4: Number of Symptoms Defined as Menstrual

Given the presence of other variables in the relationship, number of menstrual symptoms accounted for 6.4% of the unique variance in psychological well-being and as such contributed some information. However, unlike the previous variables in which a negative relationship was produced, the addition of number of menstrual symptoms produced a positive relationship; that is, the more menstrual symptoms a woman had, the higher her psychological well-being. This is an especially interesting finding in light of previous menstrual cycle research. In general, studies on menstrual cycle symptomatology have implied or

directly stated that a woman's psychological state is adversely influenced by the presence of menstrual symptoms. This study suggests that the fact that these women had symptoms at all was more indicative of their psychological state and not that the source was menstrual. In fact, it suggests that women with menstrual symptoms have a higher level of psychological well-being because they are menstrual. Conceptually, this is consistent with the study framework which underscored the importance of the meaning that is attached to an event or object. This is further supported by the 1977 research of Brooks et al. which suggested that women viewed menstruation as a matter of routine and not as overly disruptive. In addition, given the specific characteristics of this sample, i.e., generally healthy women in their 30s, college educated, and employed in a health science campus, one might expect this attitude about menstruation to exist. Thus, it can be hypothesized that the more benign a symptom is perceived psychologically, the less impact it has on one's psychological state. Knowledge of this relationship can be most useful to nurses as they help people cope with the psychological problems related to their symptoms or disease manifestations which have particularly strong social implications, i.e., psoriasis, facial abnormalities, mastectomies.

However, basically these results show that the more that is known about symptomatology, the better a prediction of psychological well-being can be made. In fact, given these results, psychological well-being was predicted with 53% less error than if the study mean for GWB scores was used.

Subhypothesis 5: Menstrual and Nonmenstrual Groups

Since this study aimed to look at patterns of symptomatology among women who experienced menstrual and nonmenstrual symptomatology, study subjects were divided into groups based on the percentage of menstrual or nonmenstrual symptoms experienced. The pattern that emerged was similar for both groups; that is, demographics, health, number, and severity of symptoms in both groups accounted for similar proportions of variance on psychological well-being. Thus, the above reported relationships and interrelationships among variables were similar for both groups, suggesting that women given similar sample characteristics would not perceive symptomatology differently as a function of source (menstrual or nonmenstrual). It might be that other differentiations of source would produce different results.

It would be premature to consider source in general as unimportant. A fruitful line of inquiry could be one such as that taken by Kaplan et al. (1976) in which affective aspects of reported dysfunctions were incorporated into the health index. This is especially important when trying to assess physical well-being which encompasses one's subjective appraisal of the situation, not just the functional level. However, what this research does support is that the differentiation between menstrual and nonmenstrual does not contribute as much to the variance in psychological well-being. It may be that source is a more appropriate part of the concept "social well-being." This is supported by the work of Sommer (1973), Wilcoxin et al. (1976), and Parlee (1974), who suggested that social and psychological factors might be related to the presence of menstrual symptoms; that is, the menstrual aspect carries social and psychological implications while the symptomatology

aspect carries physical implications. This conceptualization is consistent with the study framework which viewed social, physical, and psychological well-being as distinct but interrelated concepts within the larger construct of wellness (health).

Subhypothesis 6: Type and Severity

With the addition of type of symptomatology (after number of symptoms) into the equation, a 17% increase in the proportion of variance was accounted for. When this was reversed and type was entered before severity, 41% was accounted for by type. Thus, one can see that type of symptom yields as much information about psychological well-being as number and type together. Therefore, knowledge of type is a critical factor in understanding changes in psychological well-being. Within the multitude of types of symptoms that can be experienced, certain types correlate more highly with psychological well-being. These symptoms have a much stronger relationship regardless of etiology; that is, just their presence would affect a woman's psychological well-being. In this study, negative affect and arousal were the two symptom clusters, irrespective of source, which accounted for most of this effect. Both these clusters were viewed as psychological symptoms. This suggests that different kinds of symptoms, in this case negative affect and arousal, have different implications for psychological well-being. Thus, knowing the type of symptom provides a large portion of the additional information about psychological well-being. Based on these findings, it might be hypothesized that, conceptually, type of symptom, irrespective of source, is more related to psychological well-being than source, and that source is more related to social well-being.

This hypothesis, if pursued, might contribute to the further development of the concept of social well-being.

With the addition of severity to type, 13% additional variance was accounted for. Thus, type and severity together accounted for 29% of the variance in psychological well-being, which was consistent with other symptomatology variables, except source, in which the more sophisticated measure yielded more information about psychological well-being.

Subhypothesis 7: Number of Symptoms Defined as Menstrual (after Type)

As before, in Regression Model I, number of symptoms defined as menstrual accounted for a small proportion of the variance in psychological well-being and maintained the same positive relationship. With type in the equation, the number of menstrual symptoms accounted for 2.5% of the variance as opposed to 6.4% without type; thus the 2.5% constituted an even smaller effect size. This might suggest that, once type is accounted for, the meaning attached to the type is also accounted for. Thus, the unique variance of the menstrual aspect is even further reduced. This might indicate some conceptual link between meaning of type and meaning of source. Again, the interrelationship of social and psychological well-being would not preclude this notion particularly because of the small effect size on psychological well-being. Thus, this study supports the hypothesis that the source dimension has far less to do with psychological well-being than other symptomatology components. And, even when source defined as menstrual or nonmenstrual is introduced as a factor, the direction of the relationship is positive, with menstrual symptoms more indicative of higher psychological well-being.

In summary, given all the ways in which to talk about symptomatology, the strongest component was type of symptomatology, regardless of source. It has generally been the pattern that the more sophisticated the symptomatology measure, the more information could be obtained about psychological well-being. However, in the case of source of symptomatology an interesting situation arose in the sense that, even though it was a finer measure, it did not pick up much of the variance in psychological well-being. As pointed out earlier, this will warrant further investigation of source as being conceptually closer to social well-being. Thus the presence of symptomatology was found to be related to psychological well-being, as were the components, when viewed from a multivariate perspective.

Subhypothesis 8: Interactions with Menstrual and Nonmenstrual Groups

As was previously hypothesized when type was not included in the regression (Subhypothesis 5), the pattern of the relationships between demographics, health, number, severity, and type of symptomatology to psychological well-being was hypothesized to be similar in both menstrual and nonmenstrual groups. However, study results indicated that the groups were different and that the sources of the differences were primarily located in demographics and health differences and in type of symptomatology. It is important to note that 2.3% of the variance is a small effect size and that the groups were primarily similar.

Source of Difference Between Groups

The source of difference between groups was located primarily in demographic and health factors and type of symptomatology. In terms of demographics and health differences, the correlation of these variables, particularly health, was higher in the menstrual group. This means that knowledge about demographic and health factors in the menstrual group yielded more information about psychological well-being than in the nonmenstrual group. Even though the interactions were small, one might investigate these differences, based on the literature which indicates a wide range of sociocultural factors related to attitudes toward health and menstruation (Janiger, 1972; Snow, 1977).

Symptomatology differences between groups suggests that certain types of symptoms carry different meanings when associated with menstrual or with any other reason. In the menstrual group, concentration and negative affect symptoms were more strongly related to psychological well-being, while negative affect and arousal were the findings for the nonmenstrual group. As can be seen, negative affect was an important predictor of psychological well-being in both groups regardless of source, but particularly in the nonmenstrual group. Thus, the presence of negative affect symptoms that were nonmenstrually related created a stronger negative effect on the psychological state of women in the sample than when the symptoms were menstrually related. Women who considered concentration symptomatology to be menstrually related were more strongly influenced psychologically by the occurrence. This makes sense since in a population of employed women, the ability to concentrate takes on important meaning. This is especially true in light of discriminatory remarks about women's cognitive capabilities

being diminished due to the menstrual cycle (Smith, 1975). It could be hypothesized that the social pressure on working women about their capabilities would exert undue stress and anxiety over the presence of symptoms from which reduced work capacity might be assumed by others. In terms of the nomenstrual group, arousal was strongly related to psychological well-being in a positive direction, the higher the arousal the higher the psychological well-being. This finding suggests that acknowledgement of positive affect would be more apt to occur in the nonmenstrual group since, historically, menstruation has been viewed in a more negative sense. Again, it seems clear that investigation aimed at examining the role of meaning in relation to the experience of symptoms would be a fruitful endeavor.

In summary, it appears from these findings that regardless of source, negative affect has a strong relationship to psychological well-being. This suggests that negative affect is an unpleasant experience for anyone, and it is much worse when it is related to nonmenstrual sources. Psychological symptoms in the menstrual group were not more important than in the nonmenstrual group, suggesting that women with negative symptoms are more disturbed psychologically because of events other than menstruation.

Subhypothesis 9: Psychological and Physical Symptoms and Psychological Well-Being

Symptom clusters were grouped into two categories, physical and psychological. The results suggest that women are bothered more psychologically by the presence of psychological symptoms, irrespective of source, than by physical symptoms. This can be explained in part by the

degree of legitimacy associated with having psychological versus physical symptoms. According to Lennane and Lennane (1973) and Howell (1974), discrimination against women patients continues to exist. The general notion is that women are unreliable historians and that, as a result of their basic emotionality, the likelihood that their symptoms are reflective of a "real" disease is small. It can be hypothesized that this demeaning social attitude could have a strong influence on a woman's psychological state and, when added to the already manifested psychological symptoms, might exacerbate the situation even further. In the case of physical symptoms, it would appear to be somewhat easier to justify complaints since they can be directly observed. In any event, this research suggests that women with more psychological symptoms have poorer psychological well-being, and further investigations aimed at clarifying the social and psychological basis for this situation are deemed important. This is logical in light of this study's findings regarding source; that is, exploration of etiology other than the menstrual cycle would be appropriate when investigating a woman's overall general psychological state.

In summary, this study's findings provided support for the hypothesized relationship between the presence of symptomatology and psychological well-being. The development of a more refined measure of symptomatology was shown to be of value in obtaining information about a woman's psychological well-being. In addition, study findings supported that source of symptomatology, menstrual or nonmenstrual, is not a critical component in predicting psychological well-being. Of major importance is the additional knowledge gained by the empirical data in relationship to the conceptual framework. It has been hypothesized,

based on these findings, that source of symptomatology might be more related to social well-being than to psychological well-being. This is further supported by the greater influence of psychological symptoms, rather than physical symptoms, on psychological well-being. And, lastly, the findings of this study will be of use to other research which attempts to contruct scales which measure health status or wellness.

General Discussion

The second part of this chapter deals with a more general discussion of the study results as they relate to the conceptual framework. The purpose of this section is to examine the extent to which these findings clarify more fully our understanding of the concepts of psychological well-being, wellness, and symptomatology.

The results of this study indicate that the presence of menstrual symptoms is not the most important factor to consider when assessing the overall psychological status of women. Even though the presence of symptoms by themselves was seen as problematic, this study made clear that there are other factors such as demographics, health perceptions, and the number, severity, and type of symptom that a woman experiences that play a more prominent role in determining differences in psychological well-being than does the source (menstrual or nonmenstrual) of symptomatology. Thus, how a woman rates her own psychological well-being has more to do with these other factors.

The relationship between the study's two major concepts, psychological well-being and symptomatology, was viewed from a social psycho-

logical perspective. The middle range theory of definition of the situation became the guide for explaining the study results in a theoretical light and was the unifying theory from which propositions were derived. Definition of the situation refers to the subjective meaning that a particular situation has to a person (Burr, 1979). In this case, the particular situation being defined by the individual was her overall psychological state in the presence of symptoms. The experience of symptoms was not simply a physiological experience, but rather it had meaning and value. The kind and extent of the meaning and value varies among people. Therefore, describing patterns of psychological well-being and symptomatology that indicate a similar experience among women contributed to the support of the proposition that "the definition of the situation influences the effects of those situations in such a way that the effect tends to be congruent with the definition."

This theory is particularly valuable in explaining study results which document that women with menstrual complaints had significantly higher psychological well-being than women with nonmenstrual symptoms. From this general proposition it can be hypothesized that the results which represent the effect provided the basis for drawing inferences about how women define their situation in terms of menstrual symptomatology. The findings suggest that the meaning attached to menstrual symptoms may have provided the basis for defining the symptoms as benign, thereby reducing anxiety and worry about the presence of the symptoms. This would further suggest that menstrual symptoms were viewed more as a matter of routine and not as a debilitory or negative experience. Given the study sample of educated Caucasian women between the ages of 21 and 44 employed on a health science campus, this seemed

to be a reasonable conclusion. It would seem that this group of women were less apt to be steeped in stereotypic notions about the negative aspects of the menstrual cycle.

From this general proposition a more specific one was developed which reflects more specifically the content of this study. The proposition was stated as follows: that definitions (social norms) about the appropriateness of sex role behavior in relationship to menstrual cycle health problems influenced the subjective appraisal of psychological well-being in such a manner as to produce congruence between the definition and the effect. The proposition has to be tested further to obtain valid empirical data with which to substantiate it. This would focus new research on examining perceptions, definitions, meaning, and values related to the situation rather than on the situation itself. As stated previously, this approach would provide a broader theoretical base within which the effects of the menstrual cycle symptomatology on pscyhological well-being could be studied.

This study suggests that although women may experience specific menstrual symptoms that are distressing, this experience does not negatively affect their overall assessment of their psychological health. This finding could provide new insight into the role of menstruation in health and illness. In addition, this study was viewed as a beginning step in understanding how women perceive their psychological health when menstrual complaints are present. Further scientific work is needed to clarify the relationship of source of symptomatology to physical and social well-being as well as to clarify how differing definitions of one's situation relate to specific behavioral outcomes. In doing so, the concept of health, an essential concept for

the discipline of nursing, will be more clearly delineated from a theoretical basis.

It was considered important to explain the research questions from a social psychological perspective for several reasons. First, since the focus of this study was on human behavior as it relates to health and illness, a definition of health that was multidimensional and which encompassed social, physical, and psychological aspects of health in interaction with one another was necessary. This definition provided the basis for a social psychological approach to examining a view of health which incorporated the personal perceptions of the individual in the evaluation of her own health. Consequently, in this study health was defined as a multidimensional state of wellness that included social, psychological, and physical well-being (Wan & Livieratos, 1978).

In addition, the review of literature documented that a gap in knowledge existed with respect to descriptive data about women's menstrual experiences and psychological well-being. This lack of scientific data suggested that descriptive data which reflected the point of view of the subject was needed in order to document women's menstrual experiences. Given the Wan and Livieratos definition of health, the emphasis on well-being is a critical factor and implies the subjective appraisal of the situation in which a woman finds herself. The data generated in this research through self-reports documented patterns of psychological well-being and of symptomatology experienced by a generally healthy population of Caucasian women between the ages of 19-69 who were employed on a large university health science campus and captured the intent of documenting data-based personal perceptions of the situation. Consequently, the data have a subjective quality

attached to them; that is, the persons answering the questionnaire did so based on the knowledge, value, and meaning of the situation to which each was asked to respond.

Secondly, a social psychological approach to psychological well-being provided a much broader view of the psychological health of an individual. It placed the psychological experience of an individual in a social context while accounting for the physical or physiological experience separately from the psychological but still in relationship to it. This approach of assessing mental health from a more psychological standpoint rather than from a physiological one is consistent with recent attempts to clarify concepts of mental health.

In this study, psychological well-being was a broad multidimensional construct within which mental distress, mental health, and positive well-being were subsumed. The personal perception of an individual's overall psychological state was assessed and, as such, provided a more general measure of psychological status. This view of psychological well-being shifted the focus from a more limiting definition in which specific clinical categories such as depression, manic-depression, and neuroticism were used as the measure of psychological status to a broader, more complex definition. Consequently, the goal of assessing women's overall or general psychological status based on their subjective appraisal of the situation was achieved.

Thirdly, much of the literature which addresses the relationship of a woman's psychological status to the menstrual cycle has been focused on the presence of menstrual complaints. However, it seemed to this researcher that there were other dimensions of symptomatology than simply the presence of menstrual symptoms that might have a bearing on

women's psychological well-being. Thus symptomatology was separated into component parts of which there were four: number of symptoms reported, severity of symptoms reported, type of symptoms reported, and source of symptomatology (menstrual and nonmenstrual). The goal was to determine how much each component part contributed to differences in psychological well-being. In doing so, the effect that a symptom identified as menstrual had on psychological well-being was measured and then compared with the influence of the other components. This approach provided a new framework for defining symptomatology and, based on study results, was considered a viable and fruitful line of inquiry.

Previous research on women's psychological status in relation to menstrual cycle complaints has viewed this relationship in a narrow sense. Many have approached the investigation from a univariate rather than a multivariate level. That approach limited the ability of the investigator to examine complex relationships that might have existed and which had the potential to influence study results. The more traditional univariate line of inquiry placed major emphasis on the assumption that the mere presence of menstrual symptoms, because they were menstrual in origin, was the major factor which influenced alterations in the psychological status among women. This researcher questioned whether simply the presence of a menstrual symptom was the key factor in understanding the relationship of menstrual symptoms to psychological well-being. It was believed to be a more complex situation, one in which multiple factors interacted with one another.

In conclusion, several important associations between psychological well-being and menstrual sympatomatology were uncovered. Previous to this research, a univariate approach to explaining a woman's psycholog-

ical state in relation to menstrual symptomatology had been used. This was a limiting approach in that it did not take into account many important variables. Through this investigation, the unique and combined effects of study variables on psychological well-being within a social psychological framework were uncovered. As a consequence, light was shed on the multiplicity of factors, psychological and social, that influence the assessment of one's psychological state. This study supports the notion that the interplay of social, psychological, and physiological aspects of an individual's experience is a critical factor in the development of scientific explanations of health behavior.

CHAPTER EIGHT

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

Within an interactionist framework and a multivariate approach, the findings of this study indicated that the presence of symptomatology and its component parts (number, severity, type, and source) were related to differences in psychological well-being among generally healthy women employed on a university health sciences campus. Further, it was suggested that the presence of certain kinds of symptoms and the identification of the source of the symptom carried with it particular meaning and contributed to the changes in psychological well-being that women experience. This chapter provides a summary of the investigation, the limitations of the study, the implications of the research findings, and suggestions for further research.

Summary of the Study

The major problem area for the investigation of this study was to explore the relationship between the presence of symptomatology and the subjective appraisal of psychological well-being among employed women. The study framework was an interactionist approach (Denzin, 1978; Manis & Melter, 1972; Mead, 1934), an approach that views man and his behavior within a social context. The core of this theoretical perspective rests in the notion that the situations in which behavior occurs have meaning

and value. In addition, these situations are symbolic in nature and behavior is conducted in terms of the symbolic meaning of the situation. Thus the concepts of psychological well-being and symptomatology are viewed from the standpoint of their subjective appraisal and within the context of their associated meaning. Wellness is viewed as being composed of three dimensions, social, psychological, and physical well-being. Well-being, which implies subjective appraisal, places the appraisal of one's own situation in terms of psychological well-being and symptomatology within a social context. This appraisal emphasizes the personal meaning attached to symptomatology over and above the objective criteria used to measure the presence of symptoms. Thus, it is not the mere presence of symptoms and all their facets, but the meaning attached to their presence that is deemed conceptually important. Changes in one's psychological status are viewed as a function of their relationship to social and physical well-being; that is, the impact of symptomatology has symbolic meaning to some extent in each of these dimensions of wellness. However, clarifying conceptually the extent to which each contributes to the other and determines the meaning attached to the dimension would assist in the development of a concept of health that has an empirical basis.

The central hypothesis was "that demographic characteristics, health factors, the number of symptoms, the severity of the symptoms, and the type of symptoms (somatic, affective, concentration, and behavioral) would account for more of the variance in psychological well-being than would source of symptomatology (menstrual and nonmenstrual)." From this major hypothesis, nine subhypotheses were formulated.

This was a descriptive cross sectional survey aimed at collecting data from working women employed on a large metropolitan health science campus. The collection of data was accomplished through the use of a structured questionnaire. The data analytic system chosen as the best way to handle the number and complexity of the variables in the study was multiple regression correlation analysis (MCR). This system is a highly general and flexible system which has the capacity to handle the complexity of the relationships that characterize the behavioral sciences (Cohen & Cohen, 1975).

The study population surveyed were all part-time and full-time female employees of a large university. The population surveyed totaled 4,653 female employees. This sampling frame was constructed through the campus locator system, a computer system designed to locate all campus employees. From the population surveyed, a study sample was obtained and consisted of all those female employees who voluntarily completed and returned the research questionnaire. This volunteer sample consisted of 1,179 subjects.

From that entire sample, a carefully selected sample (n = 633), based on specific critera, was obtained upon which the major hypothesis-testing analyses were conducted. The typical subject within this select sample was a primarily healthy Caucasian, well-educated woman in her 30s. Occupations were mainly white collar, that is, professional workers or office/clerical with a financial situation reflecting middle to upper-middle income range. Most of the subjects were Christian or Agnostic, and subjects were most likely married or never married, with no children in residence.

Data were collected through the use of a structured research questionnaire which was sent through the campus mail to all part-time and full-time female employees (n = 4,653). The questionnaire took approximately one hour to complete. Questionnaires were requested to be returned within one month of the receipt of the questionnaire. The research questionnaire was divided into five sections, the first and second of which contained questions regarding general health status and personal characteristics. The third section contained the General Well-Being Schedule (GWB) (Dupuy, 1978b), a standardized research instrument which is composed of 22 items. The fourth section contained the Moos Menstrual Distress Questionnaire (MDQ), which is a standardized measure of menstrual symptoms. Open-ended questions in the fifth section elicited information about management strategies for symptoms that subjects reported, attitudes about menstruation, and number of social roles currently held. The full questionnaire is shown in Appendix B, while the General Well-Being Schedule is shown in Appendix C and the Moos Menstrual Distress Questionnaire is shown in Appendix D.

Validity and reliability of the General Well-Being Schedule and the Moos Menstrual Distress Questionnaire have been established in previous research. In terms of the General Well-Being Schedule, content, criterion, and construct validity were obtained. Reliability of the GWB was established through different studies using different populations. Content validity of the Moos Menstrual Distress Questionnaire was obtained by Moos (1977) in the construction of the instrument. The reliability of the instrument as established by Moos was substantiated by Markum (1976).

Data for this study were analyzed by using an overall data analytic strategy of multiple correlation and regression (MCR). This approach allowed for the testing of study hypotheses aimed at clarifying the degree of association among several independent variables, i.e., demographic, health, and symptomatology variables, as well as the relationship of those independent variables to the dependent variable of psychological well-being. Since MCR is a powerful general and flexible data analytic system that has both a descriptive and inferrential function, it yields measures of the whole relationship of a research factor to the dependent variable, as well as partial or unique relationships, in addition to provisions for statistical hypothesis testing and power analysis (Cohen & Cohen, 1975).

Through multiple correlation and regression, it became possible to produce results that explained the multiple effects of demographic, health, and symptomatology variables. In addition, use of analysis of variance provided for the assessment of the unique variance contributed by the individual variables. A hierarchical approach was used in order that variables could be entered into the regression equation in a predetermined order. The approach to the analysis of study data was planned in two phases: 1) the generation of descriptive data and relationships, and 2) hypothesis testing using a regression model. The descriptive phase was approached through the use of frequency distributions, cross tabulations, and cross breaks.

A first step in the analysis of study data was to determine the distribution of each of the variables in the study. Frequency distributions were obtained for both the entire sample and select sample on all variables except the open-ended general questions. Summary statis-

tics, such as mean, standard deviation, and variance, etc., were obtained for each frequency. Organization of the data in this format allowed the researcher to examine the variability of each of the study variables.

Additional information regarding the joint frequency of two or more variables was needed and, therefore, data in a cross tabular format for the major variables in the select sample were obtained. From this summarization of the data the researcher was able to determine the degree of association between independent variables and the dependent variable.

Lastly, cross break procedures, in which the means of variables were organized in rows and columns of a contingency table, were used as another method of analyzing data. Information in this format allowed for another view of the data and provided a different type of information from that obtained in the cross tabular format.

Hypothesis testing was accomplished through the use of three regression models. Model I examined the relationships between the demographic characteristics, the number of symptoms, symptom severity, and origin of symptomatology (menstrual and nonmenstrual) and psychological well-being. Model II examined the relationship of type of symptomatology (8 symptom clusters) to psychological well-being. Model III examined the relationship of physical and psychological symptoms to psychological well-being.

Summary of Research Findings

The results of this data analysis were divided into three areas: 1) psychological well-being, 2) symptomatology, and 3) the relationship of symptomatology components to psychological well-being.

The distribution of the GWB scores of the entire sample was a highly skewed one, with the majority of subjects scoring in the "positive well-being" range. Among the select sample, the distribution of GWB scores was almost identical to the distribution for the entire sample and was not significantly different. Again the distribution of GWB scores in the select sample was a highly skewed one, with the majority of subjects scoring in the "positive well-being" range. Thus, about one third (33.8% of the sample) scored in the moderate to severe distress range. Utilizing data from the HANES, sample results were compared to national norms. The distribution of GWB scores for the national norms was similar to both the entire and the select sample GWB score distribution.

The pattern of symptomatology obtained from study data indicates that the mean number of symptoms endorsed among the selected subjects ($n = 633$) was 19.79 ($sd = 9.35$), with a range of 0-45. The distribution of the number of symptoms among the subjects in the selected sample was normally distributed. The relationship of the number of symptoms to GWB scores was significant. Persons who reported many symptoms were significantly more likely to have low GWB scores than were those who reported few symptoms, and people who reported a low number of symptoms were significantly more likely to have high GWB scores.

Among the select sample, subjects who reported symptomatology (irrespective of how many symptoms they endorsed) perceived those symptoms to be slightly above "mild" in severity. The relationship of the mean symptom severity to GWB scores was significant. Basically, the relationship was that people who had positive well-being had symptoms that fell in the "mild or less severe" range.

The percentage of symptoms checked as menstrual was calculated. Percent menstrual was defined as the number of symptoms identified as menstrual, controlling for the number of symptoms checked by each subject. Therefore, within a given subject's set of responses, the percent of symptomatology identified as primarily menstrual ranged from 0 to 100%, indicating a full range of responses; that is, certain subjects indicated that for all symptoms checked none were menstrually related, while others reported that all symptoms reported were menstrually related. On an average, given that the person had a certain number of symptoms, about one-third of these symptoms were identified as menstrually related. The percentage of symptoms designated as menstrual were collapsed to create three groups: Group 1, menstrual, consisted of women who reported that 56-100% of their symptoms were menstrually related; Group 2, mixed, consisted of women who reported that 45-55% of their symptoms were menstrual; and Group 3, nonmenstrual, consisted of women who reported that 0-44% of their symptoms were menstrual. Subjects who identified their symptoms as primarily menstrual were more likely to have high GWB scores.

Among the select sample, the number of symptoms reported in each cluster varied. The broadest range of scores, 1-8, were located in clusters 2, concentration, and 6, negative affect. The smallest range,

1-4, was found in cluster 4, autonomic reactions. A mode of 8 in cluster 6, negative affect, was found to be the highest number reported in any of the clusters, as well as the highest median (5-6). Out of eight possible clusters, the mean number of clusters on which subjects reported symptomatology was 5.8 with a SD of 1.62 (n = 435). Thus, the average number of symptom clusters acknowledged by subjects was between 5 and 6.

Among the select sample, the highest mean cluster severity scores among subjects were in negative affect and arousal. The lowest scores were reported in autonomic reaction and control symptoms. As a function of different numbers of missing values, n's ranged from 583 to 606. The relationship of mean cluster severity to general well-being was significant in seven out of eight clusters. Cluster five, water retention, was the only nonsignificant relationship. In the case of arousal, the relationship was positive. That is, subjects who reported high levels of arousal were more likely to have high GWB scores than were subjects with low arousal levels. All other relationships were negative, with subjects reporting high symptom severity showing low GWB scores.

The distribution of the number of symptoms among the subjects in the selected sample was compared in terms of menstrual and nonmenstrual symptoms. The distribution of the number of menstrual symptoms was a highly skewed one, with the majority of subjects falling in the 0-12 range (87.4%). The distribution of nonmenstrual symptoms followed a different pattern; that is, nonmenstrual symptoms presented a more uniform, normally distributed pattern.

The major hypothesis of this study was supported in that components of symptomatology were found to be related to psychological well-being.

Study results indicated that there were significant differences in psychological well-being as a function of demographic (age, income, and ethnicity) and health factors. Of these four factors, health was the most critical variable, yielding 11% of the variance for this set. With the addition of the variable, "number of symptoms", an additional 24% of the variance in psychological well-being was accounted for.

A significant increment was obtained after the addition of severity to the equation and accounted for 5% of the variance in psychological well-being. With the addition of number of symptoms defined as menstrual, the increment was significant at the $p < .001$ level. The amount of unique variance accounted for by this variable was 6.4%. However, the interaction between the various components of symptomatology and source of symptomatology (menstrual and nonmenstrual) indicated that the relationship was not significant; that is, the groups were similar with respect to the amount of variance that each group contributed to psychological well-being.

A significant increment was obtained with the addition of type into the equation and accounted for 17% of the variance in psychological well-being. When type was entered before number of symptoms, 41% of the variance was due to type. Thus, entering type first accounted for almost as much variance as number and type together. The addition of the severity variable accounted for an additional 13% of the variance in psychological well-being.

Again, with the addition of source to the equation after type, a 2% increase in variance in psychological well-being was accounted for by source. This increase was significant ($p < .001$); however, it was considered a small effect size. The pattern of relationship between

menstrual and nonmenstrual groups was tested between groups and all other variables. The increment was significant, indicating that there were differences between groups based on study variables. This difference, however, was only 2.3%, which was considered a small effect size.

Physical and psychological symptoms together accounted for 66% of the variance in psychological well-being. Entering physical symptoms first yielded 42% of the variance. Using the reverse model, with psychological symptoms first, 64% was accounted for, and 2% was accounted for physical. Thus, psychological symptoms accounted for more of the variance than physical ones in psychological well-being.

Limitations of the Study

This section addresses the limitations of this study in terms of design, sample, tools, and data analysis.

Design Limitations

The correlational survey as a design is deemed a useful approach for the development of knowledge which aims to determine the direction and magnitude of the relationship among phenomena. However, its limitation rests in its inability to determine a causal relationship. This approach aims to identify the relationship of the tendency of data to vary consistently; therefore the findings should be viewed within this interpretation.

Sample Limitation

Methodological considerations, such as sample, are very closely connected to generalization based on study findings. Since this study used a correlational survey approach, it is tempting to generalize to other samples without careful consideration of the sample on which findings were based. In this study, a limitation in terms of study findings is that generalizations must be tempered by the fact that this sample was a generally health group of Caucasian women in their mid-30s who were employed in a metropolitan-based university that was primarily a health science campus. Each of these factors must be acknowledged when applying findings to other samples and to the larger population of employed women.

Instrument Limitations

The structured research questionnaire has inherent difficulties in that questions must be relevant, clear, and should contain sufficient response options to each question. In this study, although on the whole specific questions on the questionnaire did not appear to create problems, it was difficult to assess the extent to which data collected were accurate since they were unverifiable. The researcher assumed that the questionnaire was completed honestly and thoughtfully. Another limitation of the questionnaire is its length and level of reading which, in both cases, most probably discouraged persons from completing the questionnaire, particularly those women from lower socioeconomic, less-educated backgrounds. This was reflected in the returns, in which the majority of responses came from educated, professional or office/ clerical workers. In addition, these women were assumed to be healthy

and motivated, which again altered the picture of the women who responded with respect to psychological well-being and symptomatology.

Data Analysis Limitations

A basic limitation of a multiple correlation regression model is in its very purpose, that is, looking at multiple relationships. As such, findings are viewed from the standpoint of how multiple factors interrelate and not as unitary measures. Thus, findings of this research must be discussed in terms of how the independent variables work together in relation to changes in the dependent variable.

Implications

In order to adequately assess the state of wellness of a particular individual, regardless of the level of the immediate health situation, the nurse, in providing comprehensive nursing practice, must attend to the three dimensions of wellness, i.e., social, psychological, and physical well-being. The use of each of these dimensions in the assessment process provides a broad picture of the patient in totality. The social domain which addresses interaction with others takes into account concepts such as sensory deprivation, loneliness, and isolation, each of which is a major concept which nursing practice must address. The physical well-being dimension involves examining the responses to physical problems. Concepts such as elimination, immobilization, exercise, fatigue, and disability must be utilized by the nurse in the development of the nursing-care plan for the patient. And, lastly, psychological well-being deals with such concepts as depression, anger,

resistance, frustration, and sadness. Thus, data collected by the practitioner on each of these dimensions provide essential information on which to plan care, care that is based on a conceptual and scientific basis. The functions of the nurse are of two kinds: independent and dependent (O'Rourke, 1976; Phaneuf, 1975). This conceptualization of nursing serves as a guide for determining appropriate nursing interventions, interventions which aim to help people cope (physically, psychologically, and socially) with their actual or potential health problems. In order to investigate clinical problems related to the well-being of patients, research aimed at describing the specific factors which are related to a particular phenomenon is needed. This research would add to scientific knowledge through description of the way in which components of symptomatology relate to psychological well-being. Understanding more about the many different ways in which to define symptomatology and the degree of its relationship to psychological well-being can assist the nurse in making psychosocial assessments in conjunction with a presenting health problem.

The specific factors which influence psychological well-being serve as the data base from which nurses can draw scientific information about how to effectively help people cope with the psychological aspects and social aspects of a health problem.

Suggestions for Future Research

The value of any research rests in its contribution to the knowledge base of the phenomenon as well as its usefulness as a model when designing subsequent research. A major contribution of this research

are the descriptive data generated about the relationship of symptomatology to psychological well-being. Additional research utilizing a similar conceptual framework and design is needed to verify the reliability of the findings. Along these same lines, studies which are designed so that many of the variables are controlled by the sample will be helpful in more precisely predicting the amount of variance accounted for by the most significant factors. These studies would provide statistical data which would aid other researchers in determining effect size and thus estimate power more specifically. Once these specific factors are identified, then time series and longitudinal studies which would provide data about the stability of the factors over time would be fruitful. All of the above would add to, clarify, and verify the factors which relate to psychological well-being in a multivariate sense.

A next step would be to employ experimental designs in which matched samples of women and control groups are used to examine the relationships. This would help establish causal relationships between the independent variables (components of symptomatology) and differences in the dependent variable (psychological well-being) through comparison. Clinical trials could be employed to test the relationships of these factors in the clinical sense, that is, which and how much of the factor(s) produces a clinically significant improvement or deterioration in psychological well-being. It appears that, given the present state of nursing, concentration on verifying the factors that predict changes in psychological well-being are needed. In addition, studies which aim to describe the meaning that is attached to the presence of health problems and its relationship to wellness would be complementary to the above kinds of research when working within the same conceptual framework.

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APPENDIX A

COVER LETTER/CONSENT FORM

Cover Letter/Consent Form

November 1979

Dear University Employee:

Recent commentaries on women's health have revealed a lack of scientific information about many health problems that women experience. This situation has created difficulties in planning for and providing services to women. As a doctoral student in Nursing, I am conducting a study which aims to describe employed women's perceptions of their health and to examine the different patterns of coping with their health experiences.

The attached questionnaire has been sent to all women (staff and faculty) at the university. It is designed to gather pertinent data about your personal characteristics and health status. It will take approximately one-half to three-quarters of an hour to complete. Your completion of this questionnaire would be appreciated.

All information to be collected will be kept confidential. No names should be placed anywhere on the questionnaire. The only personal information available will be your indication of whether or not you wish to participate in the study.

If you have any questions about participation in this study, you may contact me at (415) 924-7892. If for some reason you do not wish to do this, you may contact the Committee on Human Research, which is concerned with protection of volunteers in research projects. You may reach the Committee between 8-5, Monday to Friday by calling or by writing them directly.

Completion of this questionnaire is voluntary. Please indicate your willingness to participate by checking the appropriate box below and returning this letter to me. If I do not receive this letter, I will be doing a follow-up to ensure that you have received the questionnaire.

1. [ ] I do wish to participate, and have completed and sent the questionnaire separately from this letter.

2. [ ] I do not wish to participate in this study, and therefore I am returning this letter and the uncompleted questionnaire.

- -

Fold Above
Be sure return address is visible

Maria Williams O'Rourke, RN
Dept. of Mental Health and Community Nursing,
School of Nursing

Staple together before mailing

APPENDIX B

QUESTIONNAIRE FOR STUDY ON THE HEALTH STATUS OF EMPLOYED WOMEN

Questionnaire for Study on the Health Status of Employed Women

General Information

This questionnaire contains a variety of items which pertain to your personal characteristics (age, education, etc.) and to your health status (presence of symptomatoloty, mental outlook). Each question is important to the conducting of this study. Therefore, please be suer to answer each question. Although you are not required to do so, it is hoped that you will complete the questionnaire and return it to Maria Williams O'Rourke, RN, Doctoral Candidate, N505Y, Dept. of Mental Health and Community Nursing, School of Nursing by no later than November 30, 1979. Please be sure to return the cover letter separately from this questionnaire. All responses to this survey will be kept confidential and anonymous.

Part I: HEALTH HISTORY

General Health

1. How would you rate your current overall health status?
   1 ( ) Excellent; 2 ( ) Very Good; 3 ( ) Good; 4 ( ) Fair;
   5 ( ) Poor

2. Have you had any major survery in the past 3 months?
   1 ( ) Yes (Please explain) _____ 2 ( ) No

3. Have you had any major illness during the past 3 months?
   1 ( ) Yes (Please explain) _____ 2 ( ) No

4. Have you been hospitalized in the past 3 months?
   1 ( ) Yes (Please explain) _____ 2 ( ) No

Reproductive System

5. Have you had your ovary(ies) removed? 1 ( ) Yes, only one;
   2 ( ) Yes, both; 3 ( ) No

6. Have you had your uterus (womb) removed? 1 ( ) Yes; 2 ( ) No

7. If answer to Number 6 is No, have you been diagnoses as having any disease or abnormality associated with your uterus? 1 ( ) Yes
   (Please explain) _____ 2 ( ) No

8. Do you still menstruate (have your periods)? 1 ( ) Approximately you often do you menstruate? (e.g. every 24 days, every 6 weeks, etc.) _____ 2 ( ) No (Please explain; be specific) _____

9. Are you currently or have you been pregnant within the last 6 months?
   1 ( ) Yes; 2 ( ) No

10. Are you currently or have you been breast feeding within the last 6 months? 1 ( ) Yes; 2 ( ) No

11. Are you actively attempting to get pregnant? 1 ( ) Yes; 2 ( ) No

Birth Control

12. Are you or your partner presently using birth control? 1 ( ) Yes; 2 ( ) No (Please explain) _____

13. Current method of birth control. (Check any that are applicable; include partner's method.)

1 ( ) Birth control pills	2 ( ) Diaphragm	2 ( ) IUD
4 ( ) Condom	5 ( ) Foam	6 ( ) Rhythm
7 ( ) Vasectomy	8 ( ) Sterilization	9 ( ) None
10 ( ) Not applicable	11 ( ) Other (Please specify) _____	

14. Do you consider your method of birth control safe for your body? 1 ( ) Yes; 2 ( ) No (Please explain) _____ 3 ( ) Not applicable

15. Do you consider your method of birth control sufficiently reliable to prevent you from getting pregnant? 1 ( ) Yes; 2 ( ) No (Please explain) _____ 3 ( ) Not applicable

PART II: PERSONAL CHARACTERISTICS

16. How old are you? _____ years

17. What is your primary racial/ethnic background? (Check only one)

1 ( ) American Indian	6 ( ) Other Asian	11 ( ) Black/Other than Afro American
2 ( ) Chinese	7 ( ) Middle Eastern	
3 ( ) Japanese	8 ( ) Mexican/Mexican-American/Chicano	12 ( ) Caucasian/ Northern Europe
4 ( ) Filipino		
5 ( ) Pakistani/ East Indian	9 ( ) Latin American/ Latino	13 ( ) Caucasian/ Southern Europe
	10 ( ) Black/Afro American	

14 ( ) Caucasian/Other (Specify) _____
15 ( ) Other (Specify) _____

18. What is your present religious preference? (Check only one)

1 ( ) Agnostic	5 ( ) Jewish	9 ( ) Hindu
2 ( ) Atheist	6 ( ) Eastern Orthodox	10 ( ) Islam
3 ( ) Humanist	7 ( ) Mysticism	11 ( ) Protestant
4 ( ) Roman Catholic	8 ( ) Buddhist	(Denomination) _____
	12 ( ) Other (Specify) _____	

19. Are you now: (Check only one)
1 ( ) Married; 2 ( ) Widowed; 3 ( ) Separated; 4 ( ) Divorced; 5 ( ) Never married

20. With whom do you live?
Number of persons _____; Sex _____; and Relationship of person (s) _____

21. How many times have you been pregnant? (Check only one)
0 ( ); 1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( );
7 or more ( )

22. How many natural children do you have? (Check only one)
0 ( ); 1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( );
7 or more ( )

23. How many children presently live with you? Include natural, adopted, foster, and step children. (Check only one) 0 ( ); 1 ( ); 2 ( ); 3 ( ); 4 ( ); 5 ( ); 6 ( ); 7 or more ( )

24. What is the highest level of education obtained by you? (Check only one)

1 ( ) Grammar school or less
2 ( ) Some high school
3 ( ) High school graduate
4 ( ) Completed technical/ school after high school
5 ( ) Some college
6 ( ) College degree
7 ( ) Some graduate or professional school after college
8 ( ) Completed graduate school; Masters level
9 ( ) Completed graduate school; Doctorate level

25. Are you currently working? (Check only one)

1 ( ) 40 hours or more
2 ( ) 20-39 hours
3 ( ) Less than 20 hours on a regular basis
4 ( ) Casual/On call
5 ( ) Other (Specify) _____

26. What is your household income (include joint and shared incomes)? (Check only one)

1 ( ) Less than $5,000
2 ( ) 5,000-9,999
3 ( ) 10,000-14,999
4 ( ) 15,000-19,999
5 ( ) 20,000-24,999
6 ( ) 25,000-29,999
7 ( ) 30,000-34,999
8 ( ) 35,000-39,999
9 ( ) 40,000-44,999
10 ( ) 45,000-49,999
11 ( ) 50,000-59,999
12 ( ) 60,000-69,999
13 ( ) 70,000-79,999
14 ( ) 80,000 or above

27. What is your employment status? 1 ( ) Academic; 2 ( ) Staff

28. If staff, what is your occupational group (e.g., R.N., L.V.N., clerical, engineer, etc.)? (Be specific)_____

29. If academic, what is your occupational group?

1 ( ) Academic administrative office
2 ( ) Regular teaching faculty-ladder rank
3 ( ) Lecturer
4 ( ) Other teaching faculty
5 ( ) Librarian
6 ( ) Research
7 ( ) Other (Specify) _____

30. If academic, identify your primary discipline (e.g. Nurse, Physician, Sociologist, etc.) _____

31. How long have you been employed in your present position?

1 ( ) Less than 1 month
2 ( ) 1 mo to less than 6 mos
3 ( ) 6 mos to less than 1 year
4 ( ) 1 yr to less than 2 yrs
5 ( ) 2 yrs to less than 3 yrs
6 ( ) 3 yrs to less than 4 yrs
7 ( ) 4 yrs to less than 5 yrs
8 ( ) 5 years or more

PART III: MENTAL OUTLOOK

Check only one box for each question. Do not leave any questions unanswered. Work quickly.

32. How have you been feeling in general? (DURING THE PAST MONTH)

1 ( ) In excellent spirits
2 ( ) In very good spirits
3 ( ) In good spirits mostly
4 ( ) I have up and down in spirits a lot
5 ( ) In low spirits mostly
6 ( ) In very low spirits mostly

33. Have you been bothered by nervousness or your "nerves"? (DURING THE PAST MONTH)

1 ( ) Extremely so - to the point where I could not work or take care of things
2 ( ) Very much so
3 ( ) Quite a bit
4 ( ) Some - enough to bother me
5 ( ) A little
6 ( ) Not at all

34. Have you been in firm control of your behavior, thoughts, emotions OR feelings? (DURING THE PAST MONTH)

1 ( ) Yes, definitely so
2 ( ) Yes, for the most part
3 ( ) Generally so
4 ( ) Not too well
5 ( ) No, and I am somewhat disturbed
6 ( ) No, and I am very disturbed

35. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? (DURING THE PAST MONTH)

1 ( ) Extremely so - to the point that I have just about given up
2 ( ) Very much so
3 ( ) Quite a bit
4 ( ) Some - enough to bother me
5 ( ) A little bit
6 ( ) Not at all

36. Have you been under or felt you were under any strain, stress, or pressure? (DURING THE PAST MONTH)

1 ( ) Yes - almost more than I could bear or stand
2 ( ) Yew - quite a bit of pressure
3 ( ) Yes - some - more than usual
4 ( ) Yes - some - but about usual
5 ( ) Yes - a little
6 ( ) Not at all

37. How happy, satisfied, or pleased have you been with your personal life? (DURING THE PAST MONTH)

1 ( ) Extremely happy - could not have been more satisfied or pleased
2 ( ) Very happy most of the time
3 ( ) Generally satisfied - pleased
4 ( ) Sometimes fairly happy, sometimes fairly unhappy
5 ( ) Generally dissatisfied, unhappy
6 ( ) Very dissatisfied or unhappy most or all the time

38. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory? (DURING THE PAST MONTH)

1 ( ) Not at all
2 ( ) Only a little
3 ( ) Some - but not enough to be concerned or worried about
4 ( ) Some, and I have been a little concerned
5 ( ) Some, and I am quite concerned
6 ( ) Yes, very much so and I am very concerned

39. Have you been anxious, worried, or upset? (DURING THE PAST MONTH)

1 ( ) Extremely so - to the point of being sick or almost sick
2 ( ) Very much so
3 ( ) Quite a bit
4 ( ) Some - enough to bother me
5 ( ) A little bit
6 ( ) Not at all

40. Have you been waking up feeling fresh and rested? (DURING THE PAST MONTH)

1 ( ) None of the time
2 ( ) A little of the time
3 ( ) Some of the time
4 ( ) A good bit of the time
5 ( ) Most of the time
6 ( ) All of the time

41. How often were you bothered by any illness, bodily disorder, aches or pains? (DURING THE PAST MONTH)

1 ( ) Every day
2 ( ) Almost every day
3 ( ) About half the time
4 ( ) Now and then, but less than half the time
5 ( ) Rarely
6 ( ) None of the time

42. Has your daily life been full of things that were interesting to you? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

43. Have you felt down-hearted and blue? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

44. Have you been feeling emotionally stable and sure of yourself? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

45. Have you felt tired, worn out, used-up, or exhausted? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

46. Have you been concerned, worried, or had any fears about your health? (DURING THE PAST MONTH)
    1 ( ) Extremely so
    2 ( ) Very much so
    3 ( ) Quite a bit
    4 ( ) Some, but not a lot
    5 ( ) Practically never
    6 ( ) Not at all

47. Did you feel relaxed, at ease, or high strung, tight, or keyed up? (DURING THE PAST MONTH)
    1 ( ) Felt relaxed and at ease the whole month
    2 ( ) Felt relaxed and at ease most of the time
    3 ( ) Generally felt relaxed but at times felt fairly high strung
    4 ( ) Generally felt high strung but at times felt fairly relaxed
    5 ( ) Felt high, strung, tight, or keyed-up most of the time
    6 ( ) Felt high strung, tight, or keyed-up the whole month

48. How much energy, pep, or vitality did you have or feel? (DURING THE PAST MONTH)
    1 ( ) Very full of energy - lot of pep
    2 ( ) Fairly energetic most of the time
    3 ( ) My energy level varied quite a bit
    4 ( ) Generally low in energy, pep
    5 ( ) Very low in energy or pep most of the time
    6 ( ) No energy or pep at all - I felt drained, sapped

49. Did you feel depressed? (DURING THE PAST MONTH)
    1 ( ) Yes - to the point that I left like taking my life
    2 ( ) Yes - to the point that I did inot care about anything
    3 ( ) Yes - very depressed almost every day
    4 ( ) Yes - quite depressed several times
    5 ( ) Yes - a little depressed now and then
    6 ( ) No - never felt depressed at all

50. Did you feel healthy enough to carry out the things you like to do or had to do? (DURING THE PAST MONTH)
    1 ( ) Yes - definitely so
    2 ( ) For the most part
    3 ( ) Health problems limited me in some important ways
    4 ( ) I was only healthy enough to take care of myself
    5 ( ) I needed some help in taking care of myself
    6 ( ) I needed someone to help me with most or all of the things I had to do

51. Were you generally tense or did you feel any tension? (DURING THE PAST MONTH)
    1 ( ) Yes - extremely tense, most or all of the time
    2 ( ) Yes - very tense most of the time
    3 ( ) Not generally tense, but did feel fairly tense several times
    4 ( ) I felt a little tense a few times
    5 ( ) My general tension level was quite low
    6 ( ) I never felt tense or any tension at all

52. Did you feel active, vigorous, OR dull, sluggish? (DURING THE PAST MONTH)
    1 ( ) Very active, vigorous every day
    2 ( ) Mostly active, vigorous - never really dull, sluggish
    3 ( ) Fairly active, vigorous - seldom dull, sluggish
    4 ( ) Fairly dull, sluggish - seldom active, vigorous
    5 ( ) Mostly dull, sluggish - never really active, vigorous
    6 ( ) Very dull, sluggish every day

53. Have you felt cheerful, lighthearted? (DURING THE PAST MONTH)
    1 ( ) None of the time
    2 ( ) A little of the time
    3 ( ) Some of the time
    4 ( ) A good bit of the time
    5 ( ) Most of the time
    6 ( ) All of the time

54. Considering your life as a whole, rate yourself as to how things are (going) at present?
    ( ) 10 . . . . . Absolutely tops - could not be better
    ( ) 09 . . . . . Very well, could hardly be better
    ( ) 08 . . . . . Actually quite good
    ( ) 07 . . . . . Pretty good really
    ( ) 06 . . . . . Somewhat positive
    ( ) 05 . . . . . Positive and negative aspects about even
    ( ) 04 . . . . . Somewhat negative
    ( ) 03 . . . . . Pretty bad really
    ( ) 02 . . . . . Actually quite bad
    ( ) 01 . . . . . Very bad, could hardly be worse
    ( ) 00 . . . . . Absolutely bottom - could not be worse

Additional comments, if any, about your mental outlook and general health.

PART IV: SYMPTOMATOLOGY SECTION

Instructions: Please read and follow instructions carefully. (1) For each symptom, circle the number of the description that best describes your experience of that symptom DURING THE PAST MONTH. (2) Circle only one number for each category. (3) Include all symptoms experienced, menstrual/menopausal or non-menstrual/menopausal related. (4) Identify in the column marked PRIMARY ORIGIN whether the symptom you experienced was PRIMARILY menstrual in origin (due to your menstrual cycle/menopause) or PRIMARILY non-menstrual in origin (not due to your menstrual cycle/ menopause). Be sure to check only one column for each symptom experienced, even if a symptom has been experienced as both menstrual or non-menstrual. Indicate only its primary origin. (5) For symptoms marked as "no reaction", leave origin column blank. (6) Be sure to complete the PRIMARY ORIGIN section, regardless of whether you still menstruate, are menopausal, post menopausal, or have had your uterus and/or ovaries removed.

SYMPTOM		DESCRIPTIVE CATEGORY						PRIMARY ORIGIN	
Symptoms:	Menstrual and nonmenstrual	No Reaction	Barely Notice	Mild	Moderate	Strong	Acute	Menstrual	Non-Menstrual
Example:	Weight gain	1	(2)	3	4	5	6	X	
	Headache	(1)	2	3	4	5	6		
	Chest pain	1	2	(3)	4	5	6		X
55.	Weight gain ----------	1	2	3	4	5	6		
56.	Insomnia ----------	1	2	3	4	5	6		
57.	Crying ----------	1	2	3	4	5	6		
58.	Lowered school or work performance ----------	1	2	3	4	5	6		
59.	Muscle stiffness --------	1	2	3	4	5	6		
60.	Forgetfulness ----------	1	2	3	4	5	6		
61.	Confusion ----------	1	2	3	4	5	6		
62.	Take naps or stay in bed ----------	1	2	3	4	5	6		
63.	Headache ----------	1	2	3	4	5	6		
64.	Skin disorders ----------	1	2	3	4	5	6		
65.	Loneliness ----------	1	2	3	4	5	6		
66.	Feelings of suffocation -	1	2	3	4	5	6		

SYMPTOM	DESCRIPTIVE CATEGORY						PRIMARY ORIGIN	
Symptoms: Menstrual and nonmenstrual	No Reaction	Barely Notice	Mild	Moderate	Strong	Acute	Menstrual	Non-Menstrual
67. Affectionate ----------	1	2	3	4	5	6		
68. Orderliness ----------	1	2	3	4	5	6		
69. Stay home from work or school ----------	1	2	3	4	5	6		
70. Cramps (uterine or pelvic) ----------	1	2	3	4	5	6		
71. Dizziness or faintness --	1	2	3	4	5	6		
72. Excitement ----------	1	2	3	4	5	6		
73. Chest pain ----------	1	2	3	4	5	6		
74. Avoid social activities -	1	2	3	4	5	6		
75. Anxiety ----------	1	2	3	4	5	6		
76. Backache ----------	1	2	3	4	5	6		
77. Cold sweats ----------	1	2	3	4	5	6		
78. Lowered judgment --------	1	2	3	4	5	6		
79. Fatigue ----------	1	2	3	4	5	6		
80. Nausea or vomiting -------	1	2	3	4	5	6		
81. Restlessness ----------	1	2	3	4	5	6		

SYMPTOM	DESCRIPTIVE CATEGORY						PRIMARY ORIGIN	
Symptoms: Menstrual and nonmenstrual	No Reaction	Barely Notice	Mild	Moderate	Strong	Acute	Menstrual	Non-Menstrual
82. Hot flashes ----------	1	2	3	4	5	6		
83. Difficulty in concentration ----------	1	2	3	4	5	6		
84. Painful or tender breasts ----------	1	2	3	4	5	6		
85. Feelings of well-being --	1	2	3	4	5	6		
86. Buzzing or ringing in ears ----------	1	2	3	4	5	6		
87. Distractable ----------	1	2	3	4	5	6		
88. Swelling (e.g., abdomen, breasts, ankles) --------	1	2	3	4	5	6		
89. Accidents (e.g., cut finger, break dish) -----	1	2	3	4	5	6		
90. Irritability ----------	1	2	3	4	5	6		
91. General aches and pains -	1	2	3	4	5	6		
92. Mood swings ----------	1	2	3	4	5	6		
93. Heart pounding ----------	1	2	3	4	5	6		
94. Depressed (feeling sad or blue) ----------	1	2	3	4	5	6		

SYMPTOM	DESCRIPTIVE CATEGORY						PRIMARY ORIGIN	
Symptoms: Menstrual and nonmenstrual	No Reaction	Barely Notice	Mild	Moderate	Strong	Acute	Menstrual	Non-Menstrual
95. Decreased efficiency ----	1	2	3	4	5	6		
96. Lowered motor coordination ----------	1	2	3	4	5	6		
97. Numbness or tingling in hands or feet ----------	1	2	3	4	5	6		
98. Changes in eating habits ----------	1	2	3	4	5	6		
99. Tension ----------	1	2	3	4	5	6		
100. Blind spots or fuzzy vision ----------	1	2	3	4	5	6		
101. Bursts of energy or activity ----------	1	2	3	4	5	6		
ADDITIONAL SYMPTOMS NOT MENTIONED ABOVE								
102. _____	1	2	3	4	5	6		
103. _____	1	2	3	4	5	6		

104. Is this pattern of symptoms you have just described a typical month?
1 ( ) Yes; 2 ( ) No
Please explain your answer in as much detail as possible.

105. Please describe the way in which you manage/handle/deal with/cope with/alleviate your symptoms. Be specific when possible.

106. Do you think that you menstrual cucle/menstruation has or has had any effect on your interaction with other people?
1 ( ) Yes; 2 ( ) No Please explain your answer.

107. Do you think that menstruation/menstrual cycle has or has had any effect on your life? 1 ( ) Yes; 2 ( ) No
Please explain in what way it has helped and/or hindered you.

108. If you were in the position of explaining menstruation to a young girl who was beginning to menstruate, what would be the single most important message you would want her to remember about menstruation?

109. Describe the variety of different roles that you presently hold in life (e.g., friend, physician, mother, etc.). Be specific.

APPENDIX C

GENERAL WELL-BEING SCHEDULE

General Well-Being Schedule

Check only one box for each question. Do not leave any questions unanswered. Work quickly.

1. How have you been feeling in general? (DURING THE PAST MONTH)
   - 1 ( ) In excellent spirits
   - 2 ( ) In very good spirits
   - 3 ( ) In good spirits mostly
   - 4 ( ) I have up and down in spirits a lot
   - 5 ( ) In low spirits mostly
   - 6 ( ) In very low spirits mostly

2. Have you been bothered by nervousness or your "nerves"? (DURING THE PAST MONTH)
   - 1 ( ) Extremely so - to the point where I could not work or take care of things
   - 2 ( ) Very much so
   - 3 ( ) Quite a bit
   - 4 ( ) Some - enough to bother me
   - 5 ( ) A little
   - 6 ( ) Not at all

3. Have you been in firm control of your behavior, thoughts, emotions OR feelings? (DURING THE PAST MONTH)
   - 1 ( ) Yes, definitely so
   - 2 ( ) Yes, for the most part
   - 3 ( ) Generally so
   - 4 ( ) Not too well
   - 5 ( ) No, and I am somewhat disturbed
   - 6 ( ) No, and I am very disturbed

4. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? (DURING THE PAST MONTH)
   - 1 ( ) Extremely so - to the point that I have just about given up
   - 2 ( ) Very much so
   - 3 ( ) Quite a bit
   - 4 ( ) Some - enough to bother me
   - 5 ( ) A little bit
   - 6 ( ) Not at all

5. Have you been under or felt you were under any strain, stress, or pressure? (DURING THE PAST MONTH)
   - 1 ( ) Yes - almost more than I could bear or stand
   - 2 ( ) Yew - quite a bit of pressure
   - 3 ( ) Yes - some - more than usual
   - 4 ( ) Yes - some - but about usual
   - 5 ( ) Yes - a little
   - 6 ( ) Not at all

6. How happy, satisfied, or pleased have you been with your personal life? (DURING THE PAST MONTH)
   - 1 ( ) Extremely happy - could not have been more satisfied or pleased
   - 2 ( ) Very happy most of the time
   - 3 ( ) Generally satisfied - pleased
   - 4 ( ) Sometimes fairly happy, sometimes fairly unhappy
   - 5 ( ) Generally dissatisfied, unhappy
   - 6 ( ) Very dissatisfied or unhappy most or all the time

7. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel, or of your memory? (DURING THE PAST MONTH)

1 ( ) Not at all
2 ( ) Only a little
3 ( ) Some - but not enough to be concerned or worried about
4 ( ) Some, and I have been a little concerned
5 ( ) Some, and I am quite concerned
6 ( ) Yes, very much so and I am very concerned

8. Have you been anxious, worried, or upset? (DURING THE PAST MONTH)

1 ( ) Extremely so - to the point of being sick or almost sick
2 ( ) Very much so
3 ( ) Quite a bit
4 ( ) Some - enough to bother me
5 ( ) A little bit
6 ( ) Not at all

9. Have you been waking up feeling fresh and rested? (DURING THE PAST MONTH)

1 ( ) None of the time
2 ( ) A little of the time
3 ( ) Some of the time
4 ( ) A good bit of the time
5 ( ) Most of the time
6 ( ) All of the time

10. How often were you bothered by any illness, bodily disorder, aches or pains? (DURING THE PAST MONTH)

1 ( ) Every day
2 ( ) Almost every day
3 ( ) About half the time
4 ( ) Now and then, but less than half the time
5 ( ) Rarely
6 ( ) None of the time

11. Has your daily life been full of things that were interesting to you? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

12. Have you felt down-hearted and blue? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

13. Have you been feeling emotionally stable and sure of yourself? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

14. Have you felt tired, worn out, used-up, or exhausted? (DURING THE PAST MONTH)

1 ( ) All of the time
2 ( ) Most of the time
3 ( ) A good bit of the time
4 ( ) Some of the time
5 ( ) A little of the time
6 ( ) None of the time

15. Have you been concerned, worried, or had any fears about your health? (DURING THE PAST MONTH)
    1 ( ) Extremely so 3 ( ) Quite a bit 5 ( ) Practically never
    2 ( ) Very much so 4 ( ) Some, but not a lot 6 ( ) Not at all

16. Did you feel relaxed, at ease, or high strung, tight, or keyed up? (DURING THE PAST MONTH)
    1 ( ) Felt relaxed and at ease the whole month
    2 ( ) Felt relaxed and at ease most of the time
    3 ( ) Generally felt relaxed but at times felt fairly high strung
    4 ( ) Generally felt high strung but at times felt fairly relaxed
    5 ( ) Felt high, strung, tight, or keyed-up most of the time
    6 ( ) Felt high strung, tight, or keyed-up the whole month

17. How much energy, pep, or vitality did you have or feel? (DURING THE PAST MONTH)
    1 ( ) Very full of energy - lot of pep
    2 ( ) Fairly energetic most of the time
    3 ( ) My energy level varied quite a bit
    4 ( ) Generally low in energy, pep
    5 ( ) Very low in energy or pep most of the time
    6 ( ) No energy or pep at all - I felt drained, sapped

18. Did you feel depressed? (DURING THE PAST MONTH)
    1 ( ) Yes - to the point that I left like taking my life
    2 ( ) Yes - to the point that I did inot care about anything
    3 ( ) Yes - very depressed almost every day
    4 ( ) Yes - quite depressed several times
    5 ( ) Yes - a little depressed now and then
    6 ( ) No - never felt depressed at all

19. Did you feel healthy enough to carry out the things you like to do or had to do? (DURING THE PAST MONTH)
    1 ( ) Yes - definitely so
    2 ( ) For the most part
    3 ( ) Health problems limited me in some important ways
    4 ( ) I was only healthy enough to take care of myself
    5 ( ) I needed some help in taking care of myself
    6 ( ) I needed someone to help me with most or all of the things I had to do

20. Were you generally tense or did you feel any tension? (DURING THE PAST MONTH)
    1 ( ) Yes - extremely tense, most or all of the time
    2 ( ) Yes - very tense most of the time
    3 ( ) Not generally tense, but did feel fairly tense several times
    4 ( ) I felt a little tense a few times
    5 ( ) My general tension level was quite low
    6 ( ) I never felt tense or any tension at all

21. Did you feel active, vigorous, OR dull, sluggish? (DURING THE PAST MONTH)
    1 ( ) Very active, vigorous every day
    2 ( ) Mostly active, vigorous - never really dull, sluggish
    3 ( ) Fairly active, vigorous - seldom dull, sluggish
    4 ( ) Fairly dull, sluggish - seldom active, vigorous
    5 ( ) Mostly dull, sluggish - never really active, vigorous
    6 ( ) Very dull, sluggish every day

22. Have you felt cheerful, lighthearted? (DURING THE PAST MONTH)
    1 ( ) None of the time
    2 ( ) A little of the time
    3 ( ) Some of the time
    4 ( ) A good bit of the time
    5 ( ) Most of the time
    6 ( ) All of the time

APPENDIX D

MOOS MENSTRUAL DISTRESS QUESTIONNAIRE

Moos Menstrual Distress Questionnaire

On the next three pages is a list of symptoms which women sometimes experience. For each symptom choose the descriptive category listed below which best describes your experience of that symptom today. Circle the number of the category which best describes your experience of the symptom today. Even if none of the categories is exactly correct, choose the one that best describes your experience. Please be sure to circle one number for each symptom.

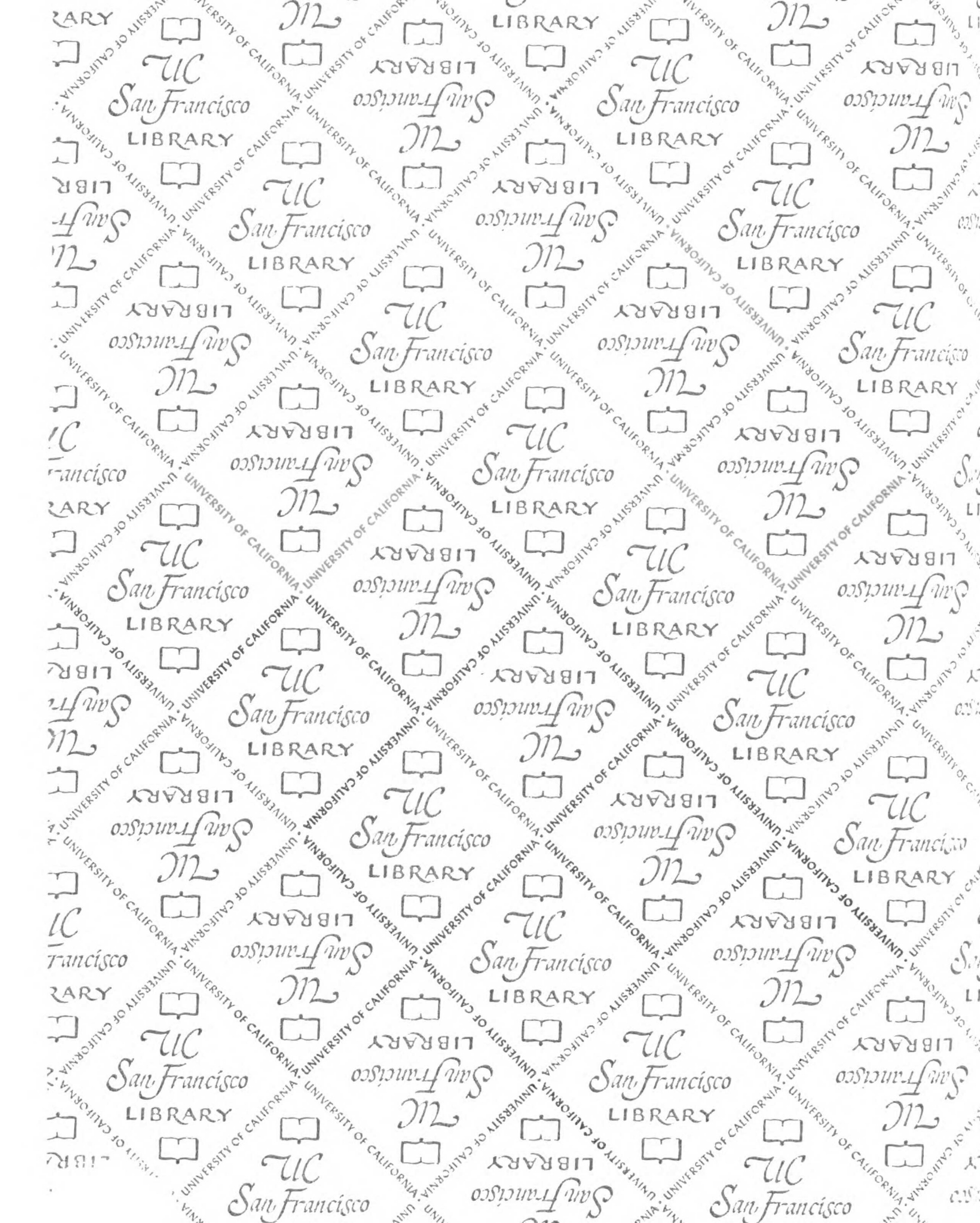
Descriptive Categories

1 - No reaction at all
2 - Barely noticeable
3 - Present, mild
4 - Present, moderate
5 - Present, strong
6 - Acute or partially disabling

1.	Weight gain	1	2	3	4	5	6
2.	Insomnia	1	2	3	4	5	6
3.	Crying	1	2	3	4	5	6
4.	Lowered school or work performance	1	2	3	4	5	6
5.	Muscle stiffness	1	2	3	4	5	6
6.	Forgetfulness	1	2	3	4	5	6
7.	Confusion	1	2	3	4	5	6
8.	Take naps or stay in bed	1	2	3	4	5	6
9.	Headache	1	2	3	4	5	6
10.	Skin disorders	1	2	3	4	5	6
11.	Loneliness	1	2	3	4	5	6
12.	Feelings of suffocation	1	2	3	4	5	6
13.	Affectionate	1	2	3	4	5	6
14.	Orderliness	1	2	3	4	5	6
15.	Stay home from work or school	1	2	3	4	5	6
16.	Cramps (uterine or pelvic)	1	2	3	4	5	6

17.	Dizziness or faintness	1	2	3	4	5	6
18.	Excitement	1	2	3	4	5	6
19.	Chest pains	1	2	3	4	5	6
20.	Avoid social activities	1	2	3	4	5	6
21.	Anxiety	1	2	3	4	5	6
22.	Backache	1	2	3	4	5	6
23.	Cold sweats	1	2	3	4	5	6
24.	Lowered judgment	1	2	3	4	5	6
25.	Fatigue	1	2	3	4	5	6
26.	Nausea or vomiting	1	2	3	4	5	6
27.	Restlessness	1	2	3	4	5	6
28.	Hot flashes	1	2	3	4	5	6
29.	Difficulty in concentration	1	2	3	4	5	6
30.	Painful or tender breasts	1	2	3	4	5	6
31.	Feelings of well-being	1	2	3	4	5	6
32.	Buzzing or ringing in ears	1	2	3	4	5	6
33.	Distractable	1	2	3	4	5	6
34.	Swelling (e.g. abdomen, breasts, or ankles	1	2	3	4	5	6
35.	Accidents (e.g. cut finger, break dish). .	1	2	3	4	5	6
36.	Irritability	1	2	3	4	5	6
37.	General aches and pains	1	2	3	4	5	6
38.	Mood swings	1	2	3	4	5	6
39.	Heart pounding	1	2	3	4	5	6
40.	Depression (feeling sad or blue)	1	2	3	4	5	6
41.	Decreased efficiency	1	2	3	4	5	6
42.	Lowered motor coordination	1	2	3	4	5	6

43.	Numbness or tingling in hands or feet . .	1	2	3	4	5	6
44.	Change in eating habits	1	2	3	4	5	6
45.	Tension	1	2	3	4	5	6
46.	Blind spots or fuzzy vision	1	2	3	4	5	6
47.	Bursts of energy or activity	1	2	3	4	5	6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