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Reliability and Validity of the Health Promoting Lifestyle Profile to Describe Health
Practices of Women Experiencing a Chronic Condition

by

Anne Marie Foss-Durant

THESIS

Submitted in partial satisfaction of the requirements for the degree of
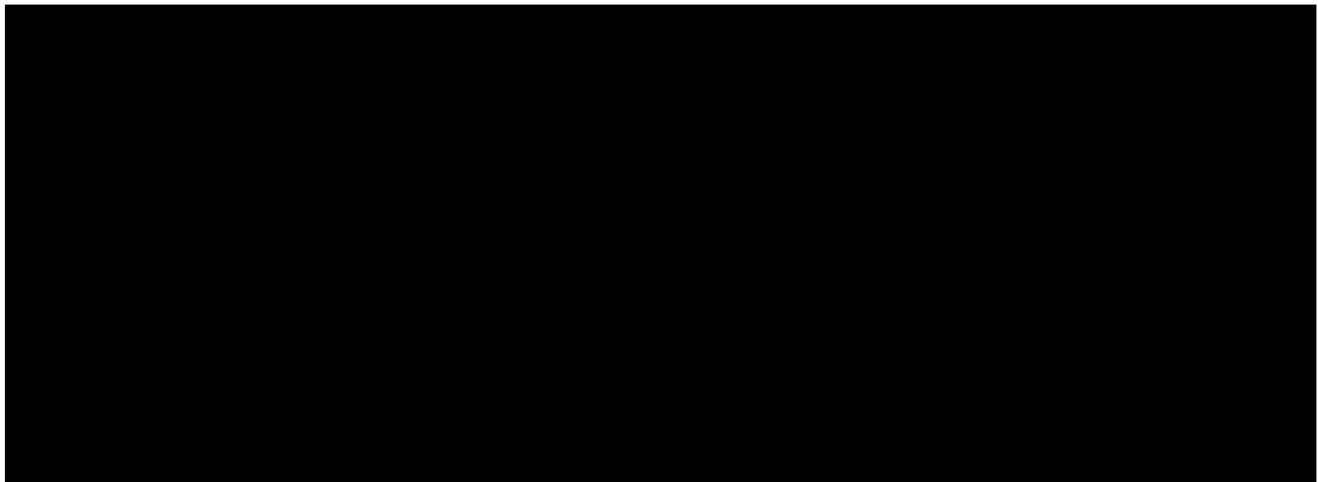
MASTER OF SCIENCE

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Nothing worthwhile is ever accomplished alone. I would like to acknowledge those individuals who provided encouragement, support, and feedback throughout the thesis process. To Dr. Diana Taylor, Dr. Catherine Chesla, and Dr. Diane Storer-Brown, thank you for your encouragement, time and support through the many drafts of this work. To my family, Patric W. Durant, and Patric G. Durant, thank you for providing the day to day support necessary to undertake this work. To the Family Nurse Practitioner class of 1998, thank you for your continued encouragement throughout the entire two years. I will always be proud to be associated with such a supportive group of professionals as you.

<u>Introduction</u>

In partial fulfillment of the requirements for the completion of the Master of
Science degree in Nursing, I am submitting a research proposal and manuscript that
represents my period of study at UCSF and was primarily conducted and written by
myself. The manuscript, titled Reliability and Validity of the health Promoting Lifestyle
Profile to Describe Health Practices of Women Experiencing a Chronic Condition,
beginning on page 42, will be submitted to a peer review journal, Nursing Research on
July 15, 1998.

Table of Contents

List of Tables

List of Figures

The Study Problem

<u>Introduction</u>

Individuals living with a chronic illness can achieve levels of wellness. For example, a person living with diabetes is generally well but is susceptible to ketotic states during periods of high stress or illness. Utilizations of health promoting practices are thought to maintain wellness and prevent exacerbation of the illness state. Those individuals who experience Premenstrual Syndrome (PMS) are unique in that their chronic illness is cyclical and the periods of exacerbation are predictable. Historically, the PMS symptoms experienced by women have been attributed to unhealthy behaviors. Excessive caffeine, sedentary lifestyle, poor dietary habits and lack of stress management techniques have been implicated as potential causes of PMS. By developing an understanding of the health behaviors characteristic of a population or individual patient, more effective treatment plans could be developed.

<u>Statement of the Problem</u>

The purpose of this study is twofold. First, this study seeks to describe the health behaviors of women experiencing a chronic recurring illness, PMS. Second, the purpose is to test the utility of a health practice questionnaire, the Health Promoting Lifestyle Profile, in a population experiencing a chronic illness. The population of interest in this study is women experiencing severe PMS. This study will be a secondary analysis of data gathered by Dr. Diana Taylor at the University of California at San Francisco in her randomized clinical trial titled Nursing Strategies for PMS Symptom Management (NINR

R29-NR02699, 1992 - 1997). The data of interest are the responses of the study

participants on the Health Promoting Lifestyle Profile at time of enrollment and prior to

any study interventions.

The Health Promoting Lifestyle Profile, a 48-item self-assessment tool, was used

to evaluate the health promoting behaviors of women experiencing severe PMS across two

menstrual cycles. Walker, Sechrist and Pender developed the Health Promoting Lifestyle

Profile as a risk assessment tool for researchers in 1987. Their original sample consisted

of 952 adult volunteers living in North Dakota and Illinois. Of theses participants, 46%

were women. Recruitment of subjects took place in work sites, colleges and social or

recreational organizations. Participants were approached face to face. It is reasonable to

assume that their sample consisted of relatively healthy individuals who were interested in

learning about their health practices. Although the tool was proven reliable and valid in

this population for research purposes, further testing in populations with chronic illnesses

has been limited.

Specific Aims

In general, this secondary analysis aims to assess the utility of the Health

Promoting Lifestyle Profile in a group of women diagnosed with a chronic recurring

illness. The specific aims of this study are:

Aim #1: To describe the health promotion practices utilized by women experiencing a

chronic recurring condition, severe premenstrual syndrome (PMS) as described by

the Health Promoting Lifestyle Profile.

Aim #2: To evaluate the reliability and factorial validity of the Health Promoting Lifestyle Profile for women diagnosed with a chronic recurring illness.

Research Questions

The secondary analysis will look to answer the following research questions:

1. What health practices, as described by the Health Promoting Lifestyle Profile, are utilized by women with severe PMS?

2. Is the Health Promoting Lifestyle Profile a reliable and valid instrument in populations with chronic illnesses for research purposes?

Significance

This study is significant for two reasons; first it describes the health promoting behaviors utilized by women experiencing a chronic illness. Health research has typically ignored the gender differences in response to illness until recently. It is now well accepted, for example, that women present differently with myocardial infarction. Women's symptoms are typically described as 'vague'. In the case of the MI, women are more likely to report nausea, fatigue, anxiety and atypical chest discomfort. As major consumers of the health care industry, women are less likely to be listened to by practitioners and are more likely to have their illnesses attributed to a psychological cause

(Taylor & Woods, 1996). Little research based knowledge exists regarding gender differences in illness presentations, symptoms and response to therapy for many common illnesses.

The primary focus of health research has been disease oriented. Limited studies have investigated health promoting behaviors, yet most chronic illnesses can be partially attributed to cumulative effects of an unhealthy lifestyle. As people age they are more likely to experience a chronic illness. Since women tend to live longer, they are more likely to suffer from a chronic illness. The cost of chronic illness, in terms of health care resources, is tremendous. Ideally, attention would be given to the health promoting and health damaging behaviors of the individuals before they begin exhibit signs or symptoms of illness. In this way the incidence of chronic illness and its sequelae could be reduced.

Secondly, thorough assessment is vital for a practitioner to effectively manage the health and illness concerns of an individual. In today's health care system, the focus is often the acute needs presented in the episodic visits, with health care maintenance and risk reduction deferred to later times. Due to practitioner time limitations, the ability to quickly assess the health promoting and health damaging behaviors of an individual is invaluable in the health care process. The individual could be encouraged to continue healthy behaviors, and health damaging behaviors could be explored. Symptom management and treatment could be more individualized and theoretically more effective.

Seeking to promote high level wellness in a well population should decrease the incidence of chronic illness later in life. Additionally, seeking to promote wellness in a

chronically ill population would prevent exacerbation of the illness. Emphasizing

wellness in patients experiencing a chronic illness is thought to promote independence and

psychological well being. These efforts could result in an overall decrease of health care

service utilization and significant cost savings. The Health Promoting Lifestyle Profile has

promise for becoming a self-administered health practice assessment tool useful in a busy,

primary care setting.

Review of Related Literature and Conceptual Framework

Review of Related Literature

Thousands of articles (6,899) exist that refer to health behavior or wellness, but as

the descriptors narrow the topic (lifestyle, chronic illness and women) the number of

articles is drastically reduced (81). Most of the literature pertaining to health promotion is

specific for an intervention (effects of exercise, pharmacological agents or stress reduction

techniques) or disease (hypertension or cardiac disease). Few of the investigations

involved lifestyle modification or health promoting behaviors. This investigation utilized

computerized searches in both the social science and nursing fields to focus on health

behavior and lifestyle in chronic illness and women. The following represents a sample of

the available literature from the following indexes: Medline, CINAHL and Health and

Psychosocial Index. Searches were conducted from the year 1966 through 1998, with a

majority of the literature located in searches over the last eight years. This study seeks to

add to the current literature in two ways: first by describing the health practices of women

experiencing PMS across the menstrual cycle and second by providing reliability and validity data on an instrument designed to measure health practices.

Health Practices Utilized in the General Population

The incorporation of health promoting behaviors into an individual's lifestyle is known to prevent illness. In the case of hypertension, the inclusion of health promoting behaviors such as a low salt, low fat diet and daily exercise are known to reduce blood pressure and are first line therapies in the treatment of hypertension. These lifestyle modifications can prevent further heart damage and later cardiac disease. Of interest to researchers has been which health promoting behaviors do the general population employ to prevent illness or disease.

Prohaska, Leventhal, Leventhal and Keller (1985) conducted a survey of 396 people attending a health fair to evaluate the effect of age on the use of health promoting behaviors, vulnerability to illness and symptom recognition. The authors developed six questionnaires representing six illnesses; heart attack, lung cancer, colorectal cancer, high blood pressure, senility and colds (Prohaska et al, 1985 p. 570). Participants were randomly assigned one of the six questionnaires to complete. The first part of the form provided a list of health promoting practices and asked individuals how often they engaged in each activity and how effective they believed the health promoting activity was in terms of preventing illness. A second part of the questionnaire asked individuals to assess their vulnerability of the disease and to evaluate signs or symptoms associated

with that particular disease. The study results indicated that as a person ages, he or she is more likely to engage in health promoting practices. The health promoting behaviors reported to be significantly higher for the older adults included avoiding physical exertion ($F = 11.4$, $p < .01$), having regular medical check ups ($F = 16.4$, $p < .01$), getting enough sleep ($F = 11.6$, $p < .01$), breathing clean air and drinking pure water ($F = 17.1$, $p < .01$), eating a balanced diet ($F = 21.9$, $p < .01$), obtaining information on the prevention of diseases ($F = 6.8$, $p < .01$), obtaining information on the causes of diseases ($F = 6.8$, $p < .01$), avoiding harmful health habits ($F = 9.1$, $p < .01$), avoiding salt ($F = 11.8$, $p < .01$); (j) using laxatives or enemas ($F = 5.0$, $p < .01$), avoiding emotional distress ($F = 7.4$, $p < .01$), avoiding feelings of anger, depression and anxiety ($F = 30.5$, $p < .01$), avoiding struggles or taking things as they come ($F = 6.7$, $p < .01$) and staying mentally alert ($F = 13.4$, $p < .01$). The older adults in this study scored lower on the item related to regular aerobic or strenuous physical activity ($F = 12.5$, $p < .01$). The older participants were also more likely to rate their vulnerability as high ($F = 6.9$, $p < .01$). Female participants, across all age groups, were more likely to report that they followed a low salt diet ($F = 8.46$), included bran in their diet ($F = 7.91$) and had regular medical check ups ($F = 16.68$) (Scheffe $p < .01$). The authors concluded incorporation of health related behaviors into a personal lifestyle might be attributed to age and perceived vulnerability, but acknowledge that results may reflect the uniqueness of the study population.

Kim, Shin, Nakama and Masami (1991) conducted a study of health practices used by Korean individuals diagnosed with a chronic illness. They surveyed 5,201 adults,

20-59 years old, to studying the impact of demographic variables (age, gender, education and living status), health related practices utilized by the respondents, and their self perceived health status on the incidence chronic illness. Results indicated that there were gender differences in the health practices utilized and their associated morbidity. Males were found to smoke cigarettes (71% versus 5%) and consume alcohol (41% versus 3.3%) more frequently than females ($p < .05$). Higher morbidity rates were found for those individuals who were over/under weight, less physically active, consumed more alcohol or smoked (OR 1.92, 1.49. 2.11, 1.05 respectively). The morbidity rates for women were higher than those for men if there was a past history of cigarette smoking (OR 1.66, $p < .05$) or alcohol consumption of 1 - 12 times per month (OR 0.47, $p < .05$). Due to the epidemiologic nature of this study, no reason was given for this finding. The authors concluded that health promoting practices were related to the physical health status in a positive direction. The effect of these practices on an individual's health status was cumulative and independent. The more health practices utilized for the longer period of time, the better the individual's physical status.

A survey conducted in the South of Wales by Davison, Frankel and Smith (1992) implies that culture plays an important part in health protecting behaviors. This ethnographic study investigated 180 participants' views of health, causes of good health and bad health, and the concept of prevention as they related to coronary heart disease. Most participants were able to provide accurate information on heart disease risk factors, but this information did not translate into improved health behaviors. Since education

alone failed to produce behavioral changes, the authors suggested that health behaviors and lifestyle are at least in part influenced by other circumstances. Results indicated that 42% of all respondents believed fate or luck influenced an individual's risk for coronary heart disease. Participants frequently were able to cite instances of sudden deaths in health individuals, as well as long survivals in individuals with poor health habits. According to the authors, this produces a conflict between health promotion education, individual experiences and culture. This conflict needs to be addressed in order to successfully assist an individual in making health promoting lifestyle changes. The authors advocated for a change in health promotion interventions and education that is more culturally sensitive, emphasizing the controllable versus the uncontrollable, and assisting the individual in making those changes.

The Prohaska, Leventhal, Leventhal and Keller (1985) study indicates that some degree of vulnerability to disease or experience of symptoms is usually present before health-promoting practices are incorporated into a person's lifestyle. Furthermore Kim, Shin, Nakama and Masami's (1991) research indicates that women are at a higher risk of morbidity due to poor health practices. The purpose of the above studies was to define and link the concepts of health promoting behaviors with the concepts of age, gender, culture and control. The designs utilized by the author were appropriate to the level of the research questions asked. All of the above studies are additionally strengthened by the use of large sample sizes. The authors developed the instruments used in the above studies. The results of reliability and validity testing of those instruments were not

reported in the articles. Some indication of pilot testing for inter-rater reliability and content validity would have strengthened the results. The use of convenience samples brings the additional problem of potential sampling bias. Prohaska, Leventhal, Leventhal and Keller (1985) report this as a weakness of their study. Recruiting individuals who attend a health fair selects for those who are interested in health prevention or health promotion activities. Furthermore, inclusion criteria required participants to read English and therefore eliminating non-English speaking ethnic groups. This poses a threat to the generalizability, as this excludes a growing portion of the American population. Kim, Shin, Nakama and Masami utilized data collected during a national census survey. The information provided by the participants could have been limited to what they would be willing to share with the government. Since this study was conducted in Korea, one must also keep in mind that cultural differences may prohibit generalizability to the American population. For example, dietary practices of the Korean population are very different from that of the American population. As a result, the risk of certain chronic illness, such as coronary disease, is lower in the Korean population. These differences and similarities between the cultures can impact the research variables and must be taken into considered when utilizing the study results.

The ethnographic work by Davison, Frankel and Smith is useful in defining and relating certain key concepts: health, control, illness avoidance and prevention. This was a large study population for an ethnographic design, as this method of research is labor intensive. Ethnographic studies depend upon the investigator's skill at interviewing and

joining with the community. Information provided to the researchers may depend upon the characteristics of the key informants and the personal characteristics of the interviewer. Some participants may not be as forthcoming with information if for example the interviewer is a male versus a female. Participants will want to be viewed favorably and the study to be successful. Therefore, the observations and responses gathered by the investigators may reflect the novelty of participating in the research study. Skilled researchers familiar with ethnographic techniques will be able to counter these effects.

Women's Health Promoting Practices

Women, because of their assigned societal roles, are thought to approach health care and health promotion differently than men. The woman's roles of wife, mother and worker can create a conflict with her own health needs. Calnan and Johnson conducted two studies, one in 1985 and a smaller study in 1991. The first study described women's perception of health. The authors were specifically interested in the impact of socioeconomic status on health. Using an exploratory design, Calnan interviewed 60 British women, who were 22-55 years old. Half of the women (30) were from a lower socioeconomic (SES) status and the remainder (30) were from an upper SES status. The women were interviewed by a trained investigator and asked to define health, illness and their perceived vulnerability to disease. There was similarity among the groups as to their definitions of health and illness. One exception, was the use of more negative descriptors, such as the absence of illness, in defining health by the members of the

higher SES group. Most women related the concept of vulnerability to having experienced signs or symptoms of the disease. Calnan concluded that SES has little impact on health status and suggests that other, yet determined variables control health behaviors.

A second study (Calnan and Williams, 1991) used a qualitative method of in-depth interviewing with a smaller sample size. Ten lower SES households and ten upper SES households were interviewed to explore their perception of health and the importance of health related practices. The results indicated that health, in most instances, was taken for granted. It was not until individuals experienced symptoms that they began to attend to lifestyle practices. Women in the lower SES households were less able to make lifestyle changes due to economic and family constraints. Health promotion operated at a functional level in the lower SES households. Basic family needs and chores took precedence over health promoting activities. The perceived vulnerability of illness was less important in health promoting behaviors than was the development of symptoms. Calnan and Williams concluded a woman's family role influences the type of health promoting behavior she utilizes.

Gottlieb, Lloyd and Bernstein (1987) analyzed the responses of a Behavioral Risk Survey for the effects of gender and age. This study was conducted by the Texas Department of Health, using a questionnaire that was developed by the Center for Disease Control. Responses were received from 1840 people, 55% of which were female. Findings of this study indicated women were more likely than men to report insufficient

physical activity (64% versus 60%) and used eating to cope with stress (31% versus 15%). Men tended to use alcohol (8% versus 3%), smoking (26% versus 22%) and exercise (21% versus 14%) as stress reducing measures. More women (19%) than men (7%) indicated that at times they were unable to participate in daily activities secondary to stress. Overall analysis for health behavioral risk factors revealed fewer women were obese (20% versus 24%, p < .05), cigarette smokers (27% versus 34%, p < .01) and heavy drinkers (4% versus 17%, p < .001) when compared to men. Women were also less physically active (64% versus 61%, p < .05), least likely to drink and drive (3% versus 11%, p < .001) and more likely to use seatbelts (42% versus 36%, p < .01) than their male counterparts.

Devine and Olsen (1982) used a phenomenological approach to investigate how women's roles influence health behaviors, specifically diet. In depth interviews were conducted with 36 women, ages 32 - 63, in a small city in New York. Analysis revealed there were eight roles women held that influenced the nutritional choices made for her and/or her family. They were the food manager, the caretaker of family nutrition, the teacher, the peacemaker, the partner, the worker, the volunteer, the friend/women in a social group and the pleasure provider (Devine and Olsen, 1992 p 91). The food manager was concerned with providing nutritionally balanced meals for the family, as was the caretaker and the teacher role. Caretakers held more personal responsibility for the dietary choice in the family and teachers wanted the family to learn good dietary habits. Peacemakers, as it implies, wanted to avoid family conflicts, where as partners wanted

mutual nutritional goals. Workers and volunteers were absorbed with other aspects of family and work. Nutrition was not a high priority for these women. Friends or women in a social group consumed a diet that conformed to the expectations of the group. Pleasure providers were interested in the family enjoyment of food. The authors suggest these nutritional roles change over the life of a woman in concert with her other roles (wife, mother, friend, worker) and influence her health promotion behaviors. The task of providing nutrition to the family may mirror other aspects of a woman's life. Devine and Olsen recommended that health promotion and symptom management strategies take a woman's perceived roles and relationships into consideration, as they can influence health outcomes.

Duffy (1988) mailed a questionnaire to 600 female employees of a large southwestern University to explore the influence of the locus of control, self-esteem and perceived health status on the use of health promoting behaviors. Each woman was mailed a demographic sheet, a Multidimensional Health Locus of Control Scale, a Rosenberg Self Esteem Scale, a Health Perceptions Questionnaire and a Health Promoting Lifestyle Profile. Two hundred sixty two women responded. The results of a canonical correlational analysis for predictor variables indicated that health locus of control, self esteem, social support, exercise, health outlook, and current health status influence the health promoting behaviors (Canonical correlation of .78, 36.3% of the variance explained). Since the group was relatively homogeneous in nature, the authors conceded that sample bias may exist. This research lends support to the ideas that health

promotion is multidimensional, encompassing several bio-psycho-social variables.

The above studies continue the task of defining the concepts of health, health promotion, and variables that influence health. The focus of the research was on women. Results of the studies are valuable in exploring the different approach women took toward health and health promotion activities. The designs utilized by the authors of the above studies were appropriate to the level of research conducted. These exploratory studies utilized both surveys and interviews as methods of data collection. Instruments utilized by these authors were not included in the articles. The ability to view the instruments or the inclusion of pilot testing results would have strengthened the research conclusions. Calnan(1985, 1991) and Gottlieb, Lloyd and Bernstein (1987) utilized a random method of selecting their study samples from census tracks, therefore increasing the likelihood that the study findings were generalizable. Devine and Olsen(1992) and Duffy (1988) used convenience samples, which may or may not be characteristic of the general population. With the exceptions of Gottlieb, Lloyd and Bernstein (1987) and Duffy (1988) the sample sizes are small. However, even though the sample size was large in Duffy's article, the response rate to the mailed questionnaire was 44%. Duffy also utilized a homogeneous sample drawn from university women. Her results indicate that respondents were mostly Caucasian women with doctorate degrees, who were employed full time. These sample characteristics contribute to the phenomenon of sample bias and hinder the generalizability to other groups. Calnan's studies are conducted in the United Kingdom. Although similar in culture to the United States, the SES and health

practices differ, which may reduce the generalizability of the results. Gottlieb, Lloyd and

Bernstein utilized data collected by the Texas Department of Health. The responses, in

their study, may reflect the information participants were willing to share with a

governmental agency. Although Gottlieb, Lloyd and Bernstein report statistically

significant results, some results indicate a small clinical difference. Their results indicate

that insufficient physical activity was reported by 61% of the males and 64% of the

females, 24% of the males and 20% of the females reported obesity and uncontrolled

hypertension was reported by 2% of the males and 3% of the females.

Health Seeking Practices

Often before seeking the advice of a health professional, individuals will attempt

some self care strategies. The following literature looks at variables associated with

health seeking practices. Drossman, McKee, Sandler, Mitchell, Cramer, Lowman and

Burger (1988) studied the psychosocial profiles of 238 clinic patients: 72 diagnosed with

irritable bowel syndrome (IBS), 82 patients with IBS who did not seek medical attention

for bouts of the disease and 84 patients without IBS. Study participants were examined

by a gastroenterologist, and asked to complete a health and demographic questionnaire, a

Minnesota Multiphasic Personality Inventory (MMPI), Life Experience Survey, Illness

Behavior Questionnaire, Social Support Questionnaire and Family APGAR. In addition

participants kept a two-week diary recording daily pain and symptoms. More than 85%

of the participants in the groups were female. The findings indicated that the IBS patients

(patients) who seek care are psychologically different from those persons with IBS who

do not seek care(non patients), as well as patients not diagnosed with IBS (controls). IBS

patients demonstrated abnormal personality traits as evidenced by higher scores in the

hypochondriasis (33% of the patients versus 5% of the non patients and 0% of the

controls, p < .001), depression (21% of the patients, 7% of the non patients and 4% of

the controls, p < .001), hysteria (20% of the patients, 9% of the non patients and 2% of

the controls, p < .001), psychasthenia (23% of the patients, 9% of the non patients and 2%

of the controls, p < .001) and schizophrenia (25% of the patients, 17% of the non patients

and 4% of the controls, p < .001) scales of the MMPI. IBS patients also reported pain

(97% versus 64%, p < .0001), nausea and vomiting (50% versus 13%, p < .0001) and

unexplained weight loss (22% versus 4%, p < .001) more often than non patients. These

reports were noted to increase when the patients were under stress. IBS patients tended to

deny or minimize emotional concerns, display concern about bodily functions and require

reassurances about their health (Drossman, 1988). The authors concluded treatment of

the physical/biological complaints might not be sufficient to produce clinical

improvement. They suggested that psychosocial factors be explored for their contribution

to the disease process and addressed as needed.

Sutherland and Goldstein (1992) sought to describe cancer patients who self-

selected to participate in a cancer support group called The Wellness Community. This

study combined information gathered during a survey with participant observer

information. The authors interviewed 65 individuals at the time of initial contact with

The Wellness Community, then again at five months and ten months. Clients were

categorized based on their frequency of participation as high level participants, low level

participants and non participants. Demographic information revealed that most of the

participants were Caucasian, married and not currently working. Most participants were

in their mid to late 50's. High level participants were more educated and affluent. They

sought to actively participate in their treatment and viewed the cause of the disease to be

related to lifestyle factors. They felt that emotional or psychological changes could help.

Low level participants were mostly men and the least educated. They tended to be in the

poorest health, had a low level of functioning and suffered more from depression.

Nonparticipants were employed and had the lowest incomes. They were the most

satisfied with their life, in the best health and related the cause of the cancer to heredity.

The authors concluded that The Wellness Community attracts people who take a holistic

view of health and are more self care oriented.

McLaughlin and Zeeberg (1993) studied the utilization of self-care strategies in

patients with Multiple Sclerosis (MS) in the United States (n=35) and Denmark (n=51).

Of those participating in the study, 60% were female, 62% were married and 51% were

employed. The results found most of the self-care behaviors were directed at combating

fatigue. Self-care strategies were utilized by 90% of the Danish and 94% of the

Americans. Some differences existed in their approach to self-care. Americans were

more likely to experiment with various self-care practices, where as the Danes would stay

with one or two well-proven behaviors. Americans had read more literature on the

disease, made efforts to get adequate sleep, participated in regular physical exercise and

were more likely to have used medication, yoga and 'mind exercises' to combat depression. Both Danes and Americans had altered their diets to include balanced low fat meals and took supplemental vitamins. The authors concluded, when suffering from a chronic illness, both the Danes and Americans adopted self-care strategies. The process of initiating self-care practices was viewed as empowering or a means of attaining control over the chronic disease.

Lindsey (1996) advocated a reconceptualization of health and illness, focusing more on the client's capacities and promotion of health behaviors. Using a phenomenological approach, Lindsey queried eight patients living with chronic illness as to the meaning of health and illness. She delineated six recurring themes. They included honoring the self, connecting with others, creating opportunities, celebrating life, transcending the self and acquiring a state of grace. Creating opportunity encompassed the idea of making changes to promote learning and personal growth. Transcending self entailed the ability to dream as an escape mechanism providing the patient freedom from their physical limitations. Acquiring a state of grace involved the wholeness and connectedness associated with spirituality. Lindsey concluded health is more than the absence of disease and encompasses the way a person lives their life. Davidhizar and Shearer (1997) agree with Lindsey. The authors remind the practitioner, by focusing on risk education and health behaviors, individuals experiencing a chronic illness are removed from the sick role. This encourages these individuals to maximize their assets, preserves their ego integrity and promotes psychological health.

These studies describe concepts related to health seeking practices. As indicated in the articles, this encompasses not only biological but psychosocial phenomena as well. The research designs utilized by the authors are appropriate to the exploratory nature of the studies. The above studies obtained convenience samples from referrals or volunteers who met the study criteria for the chronic illness under study. In the study by Drossman, et al, (1988) the IBS patients were referred for study participation by medical clinics at two North Carolina hospitals. These patients may have had severe or long-standing disease. They may have failed at prior treatment attempts to control IBS and may have been referred to the study as a last attempt at symptom management. Furthermore, it was never made clear how those with IBS who do not seek medical attention and the control groups were recruited. Why would a practitioner refer a patient to a research study requiring extensive and invasive testing if they are asymptomatic? In the Sutherland and Goldstein study, sample size was small (65), and limited to those individuals who participated in a drop in orientation at The Wellness Community in Santa Monica, California. This method of participant recruitment selects for those patients who were available during the drop-in hours, lived near by or are able to be transported to the center. It also required either a referral or prior contact with the center. These sampling techniques can contribute to unrepresentative study population, reducing the generalizability of the research conclusions. Lindsey utilized a sample of eight, although small, it was appropriate for the interpretive phenomenological method utilized by the study. The reliability of the phenomenologic approach depends heavily upon the skill of the investigator, and interview schedule. Lindsey interviewed participants three times.

The first interview asked open-ended questions. A second interview was conducted with more focused questions for the purpose of clarifying information. The third interview was a focus group that allowed participants to react to the data. These are excellent techniques to document and define the existence of concepts or trends.

Most of the authors, with the exception of Lindsey, provide a detailed account of the questions/questionnaires used in the data collection. This allows the reader to determine some level of content validity. Drossman, et al, utilized standardized instruments that had previously been tested for reliability and validity. Providing some measure of reliability or validity testing strengthens the research results. In McLaughlin and Zeeberg's study one must consider the cultural differences and similarities before generalizing the research conclusions. Although American culture can trace its origins to Northern European culture, some differences do exist particularly in the health care systems. The higher rate of experimentation of the Americans with self-care practices may reflect the goals of a privatized health care system versus those of a socialized system. In the Sutherland and Goldstein study the characteristics of the Wellness Community in Santa Monica, California may be responsible for the results. The geographical location, meeting times, and general membership may attract educated, affluent participants. As a result, less educated or less affluent members might feel uncomfortable or out of place. Discussions and lectures may not be suited for less educated or less affluent participants.

Health Practices Utilized by Women with PMS

PMS is a complex phenomenon that encompasses not only biological processes, but psychosocial processes as well. Historically, this disease has been associated with poor health practices. The following literature defines PMS and begins to delineate some of the health practices or self care strategies used by women experiencing PMS.

Gannon, Luchetta, Padie and Rhodes (1989) surveyed 211 healthy women who were recruited to participate in a study investigating the effects of lifestyles on chronic stress, PMS and physical health. Participants completed an Everyday Problem Scale, Physical Symptoms Survey and Menstrual Distress Questionnaire. The women were 18 - 39 years old. Oral contraceptives (OCs) use was documented in 82% of the sample. Results indicated that chronic stress was found to correlate with the Menstrual Distress Questionnaire responses. No significant correlation was determined between PMS and caffeine, alcohol intake or parity. These authors concluded that those women who suffer from poor health may be more susceptible to PMS. An alternative explanation offered is that the ill effects of poor health habits may be misinterpreted as PMS. OC's are often prescribed as a treatment for women experiencing PMS. These pills tend to stabilize the hormones and reduce the PMS symptoms. Therefore, the 82% of women taking OC's in this study were not experiencing PMS and acted as a control group. In 1990, Goodale, Domar and Benson evaluated the effects of relaxation on PMS symptoms in 46 women. The study participants were first asked to complete a daily reporting form for two months. At that time, the forms were reviewed to confirm the existence of PMS symptoms. The

women were then randomly assigned to one of three treatment groups (a) the charting group, (b) the reading group and (c) the relaxation group. The charting group continued to complete the daily reporting forms. The reading group, in addition to the daily reporting, was asked to read for 15 – 20 minutes twice a day. The relaxation group was asked to perform relaxation exercises for 15 - 20 minutes twice a day and complete the daily reporting. The charting group functioned as a control for the recording of information or the tracking of symptoms. The reading group functioned as a control for the effect of taking time out twice a day to relax. Results indicated those women in the relaxation group reported a greater decrease in symptoms than either the reading or the charting groups (58%, 27% and 17% respectively, p < .025). The results of this study imply that PMS symptoms are responsive to stress management techniques.

Woods, Taylor, Mitchell and Lentz (1992) sought to better explain the PMS symptom experience. They recruited 656 women, 18 - 45 years old, to participate in an epidemiological study. Through interviews and completion of a 90-day health diary, the authors determined that most women experiencing PMS did not view themselves as ill. Since PMS is not an illness-based phenomenon, the authors determined current self-care remedies were inappropriate, and research needed to look at health promoting behaviors.

A study by Johnson, McChesney and Bean (1988) reported similar findings. The 730 healthy college aged women surveyed in their study used lifestyle modifications to self treat PMS symptoms. The lifestyle modifications included diet changes, exercise and vitamins. Few of the respondents sought the assistance of a healthcare provider or felt the

symptoms interfered with their functioning. Although not a representative sample, the results again emphasizing the fact that most women experiencing PMS did not view themselves as ill, and attempt self care through the use of health promoting behaviors.

Friedman and Jaffe (1985) surveyed 384 women to evaluate their PMS symptom experience. Slightly less than half (48%) of the women belonged to minority groups, which tend to be under represented in the literature. The authors' findings concur PMS is experienced by a number of healthy women who for the most part do not seek medical attention for their symptoms. Occupation, age, physical activity level, marital status and schooling were not significantly associated with the experience of PMS. However those women with shorter cycles, less schooling and housewives tended to report more symptoms ($F = 5.0$, $p < .01$).

Futterman, Jones, Miccio-Fonseca and Quigley (1992) explored the effects of medical and psychiatric problems and life experiences on the severity of PMS. Using the Premenstrual Experience Assessment, 878 women, who resided in California, New York and Ohio were surveyed. Those women who reported severe discomfort tended to be clerical workers, where as professionals and students reported mild discomfort ($H^2 = 27.92$, $p < .01$). The severity of symptoms was positively related to having had more gynecological problems, more life stressors, a longer duration of symptoms, and a mother, friend or relative with similar symptoms. Gynecological problems associated with severity of symptoms were removal of an ovary ($X^2 = 7.12$, $p < .05$), caesarian section ($X^2 = 9.15$, $p < .05$), a disease associated with sexual contact or gonorrhea ($X^2 =$

6.72 and 8.84 respectively, p < .05). Life stressors were defined as arguments with significant others (X^2 = 10.82, p < .005), frequent illness (X^2 = 8.74, p < .05) or problems with children (X^2 = 7.51, p < .05). Approximately 60% of the women used some type of medication for menstrual problems. The authors indicated that PMS may be related to poor physical and emotional health practices as well as sociological influences.

Winter, Ashton and Moore (1991) studied the relationship between satisfaction with a woman's marital, sexual and family relationships and the experience of PMS. Using a descriptive design, two groups of women were asked to complete the Index of Marital Satisfaction, Index of Sexual Satisfaction and the Index of Family Relationships. Each group contained 26 subjects, all of whom were patients of the same Nurse Practitioner. Results indicated women experiencing PMS had more dissatisfaction with their martial (F = 8.66, p < .005) and sexual relationships (F = 6.22, p < .02) than women who did not experience PMS. Family relationships were not effected by the experience of PMS. The authors cautioned that PMS could have pre-existed the dissatisfaction with the relationship or could be worsened by the conflicts experienced in the relationship. The presence of PMS may also predispose a woman to relationship problems. The lack of control over the PMS might theoretically diminish her self worth and self esteem, there by affecting her relationships. Since the woman is still capable of providing nurturing in the familial relationship, the authors hypothesized that PMS would not significantly affect this relationship.

Mitchell, Woods and Lentz (1994) have conducted several studies looking at the

PMS experience. Utilizing epidemiological methods, the authors recruited a community-based sample of healthy women. They interviewed 142 women, asking them to complete several instruments measuring life events, menstrual socialization influences, feminine socialization depression, health habits, age and parity. The information gained was used to further differentiate three types of PMS symptom experiences. The three types were defined as PMS, Premenstrual Magnification (PMM) and Low Symptom (LS). A constant level of symptoms characterizes PMM, which worsens premenstrually. Their results indicated women with PMS and PMM experienced more psychological distress and also had mothers who were symptomatic. Those with PMS tended to be older, to practice more positive health promoting behaviors, to be more educated and less traditional. Women with PMM experienced more depressive symptoms, more negative life circumstances and were less educated. This research lends support to the impact of environmental factors, socialization, demands and resources, on the symptom experience and symptom management strategies used by these women.

Taylor and Woods (1991) tested a model of contributing social and behavioral factors in the severity of premenstrual negative affect (PNA). The authors recruited participants from a randomly selected community-based sample. Three ethnic groups were represented in this study. The total sample was then divided into two smaller subgroups, one group (N = 222) was used to develop the model and a second group (N = 119) was used to test the model. The authors found that education ($r = .31$), health practices ($r = .20$), stress ($r = 20$), and distress ($r = .25$) influenced the severity of PNA.

Menstrual socialization influenced health practices ($r = -.10$). Women with a high level

of stress ($r = .28$) and negative menstrual socialization ($r = .26$) experienced more distress

and practice few health promoting behaviors resulting in more intense PNA.

The purposes of the above studies were to define and estimate the prevalence of

PMS. As such, they are considered epidemiological studies and the designs utilized by

the authors are consistent with this type of study. Sample sizes are adequate for the

studies and there is some use of instruments that have been tested for reliability and

validity. PMS is a complex phenomenon and has been misunderstood in the past. As a

result, many definitions of PMS have existed. It is now recognized that PMS can easily be

confused with an underlying clinical depression or chronic stress reaction. In the study by

Gannon, et al (1989) the results were confounded by the use of OCs. The sample in her

study consisted of healthy, young, college aged females, whereas women who

experienced PMS tend to be in their late 20's - 30's. Therefore, the results obtained may

be more related to situational stress. Johnson, McChesney and Bean also acknowledge

the possibility of sample bias, due to the young age and homogeneity of their sample.

Most of these studies are strengthened by the use of reliable and valid instruments.

However, few of the authors report piloting the instrument or collecting reliability data

during their study. An estimate of reliability and validity would have added to the strength

of the results. Due to the epidemiological nature of the studies, prior verification of the

existence of PMS was not done except in the Taylor and Woods study. Therefore the

possibility exists that chronic stress or depression could account for some of the results.

The literature indicates that illness is a complex process that is influenced by biological, psychological and social processes. The incorporation of health promoting practices into an individual's lifestyle has been shown to depend upon perceived vulnerability or development of initial symptoms. Family and work related roles heavily influence the incorporation of health promoting practices into a woman's lifestyle. Furthermore, women have higher morbidity rates when they practice health-damaging behaviors. These studies have provided a beginning foundation of inquiry with regard to health and illness in women. The descriptive and predictive studies related to PMS have shown that even women with chronic recurring illness, such as PMS, use self-care strategies. The use of positive health practices has been associated with a lower severity of PMS. It is plausible that women may also use health-damaging behaviors (alcohol and/or drug use or social isolation) to cope with the PMS experience. Health practice may also change in relation to the menstrual cycle phase. More health damaging behaviors may be used premenstrually when the symptoms associated with PMS are worse.

Measurement & Instruments

This paper focuses on the Health Promoting Lifestyle Profile developed by Walker, Sechrist and Pender in 1987. Although other instruments exist that measure health promoting behaviors, they will not be discussed.

The HPLP

Walker, Sechrist and Pender (1987) developed the HPLP as a means of assessing health promoting behaviors. This instrument is based on the belief that health or wellness is concept that is independent of illness. Instead of a health illness continuum, there are separate continua for health and illness. Health is defined as a process, involving goal-directed behavior, competent self-care, and satisfying relationships with others (Pender, 1987, p 27). Health promoting behaviors are activities, which are incorporated into the lifestyle, directed at maximizing positives. This instrument sought to identify and define those key health behaviors associated with a healthy lifestyle.

The original instrument contained 107 items (Walker, et al, 1987). The items were reviewed by the authors for repetitiveness and content validity. Items that were scaled negatively were rephrased so that a high score correlated with positive health practices. Inter-item correlations were calculated to identify and eliminate redundant items. This reduced the number of items contained in the HPLP to 70. Item correlations ranged from -.098 - .651. The items were then subjected to factor analysis using the principle axis factoring extraction method. Because the items were conceptualized as interrelated, the authors selected the principle axis method of extraction over the principle component method. This resulted in 16 factors, with several of these factors having only a few items and low reliability estimates. After reviewing the 16 factors, it was determined that some could be combined, conceptually, into six subscales. Twenty-two items did not load cleanly into the matrix and were deleted from the instrument. An oblique rotation

was used to increase the percent of variance explained by the factor matrix. A final factor

analysis confirmed the existence of six subscales and explained 47.1% of the variance.

The subscales were titled (a) self-actualization, (b) health responsibility, (c) exercise, (d)

nutrition, (e) interpersonal support and (f) stress management. Self actualization was the

dominant factor in the HPLP. It is conceptualized as the interaction between a person and

their physical and social environment. The resulting instrument contained 48-items that

asked individuals to rate statements on a 4-point Likert scale. The scale consists of the

following response choices: 1 = Never, 2 = Sometimes, 3 = Often and 4 = Routinely. The

instrument s duplicated in Figure 1.

Testing of this instrument occurred in population of 952 healthy Midwestern

volunteers. The study population was mostly Caucasian. Approximately half (54%) were

female with the average age of 39.2 years. The participants' ages ranged from 18 - 88.

Most participants had some college and earned an average of $25,000 - $35,000 per year.

Reliability testing determined the instrument to have a high internal consistency, with an

alpha coefficient of .922. The internal consistency of each subscale ranged from .702

(Stress management) - .904 (self-actualization). To evaluate stability, the questionnaire

was administered to 63 participants on two separate occasions, two weeks apart. Results

indicated that the instrument was stable and reliable for basic research (Pearson r = .926

overall with values ranging from .808 - .905 on each of the subscales).

Studies Utilizing the HPLP

Walker, Kerr, Pender and Sechrist (1990) translated the HPLP into Spanish. A back translation method was used. This involved translating the instrument into Spanish, then back into English with a review for discrepancies after each translation. The authors recruited Hispanic volunteers from community colleges, well child clinics, factory workers and attendees of a summer festival in the Midwest. The sample included 485 individuals, of which 48% were females. The average age was 30 years old and ranged from 15 - 79 years old. Most of the subjects identified themselves as Mexican or Chicano. The median educational level ranged from 5 - 8 years. The factor analysis confirmed the same six subscales as the English version. Internal consistency was found to be .94 for the total scale, with subscales ranging from .70 (nutrition) - .87 (self-actualization). To evaluate the stability, the HPLP was re-administered to 53 participants two weeks later. The instrument's stability was tested using a test-retest method. Pearson's r was .87 for the total scale and ranged from .79 - .85 for the subscales. The results indicated that the Spanish version is similar to that of the English version in terms of reliability.

Kuster and Fong (1993) retested the Spanish version of the HPLP on a convenience sample of 106 Spanish speaking Central Americans' over the age of 18. Since the Hispanic population in this country is not homogenous, the authors felt it reasonable to test the HPLP in other Spanish speaking populations. Of those participating, 57% were female, with an average age of 27.7 years. The median educational level was

9.9 years and the average income was $4,999 annually. Over half resided in the Untied

States for less than five years. The internal consistency was found to be .94 for the total

scale with subscale scores ranging from .64 - .88. The authors then asked 17 of the

original study participants to complete a second HPLP, two weeks later. The Pearson's r

was .71 for the total scale and ranged from .59 (interpersonal support) - .78 (self-

actualization). Kuster and Fong's test retest scores were lower (.71 vs. .93) than those

reported by Walker, Kerr, Pender and Sechrist.

Other authors have validated this instrument (See Table 1) for their particular

study populations. Lusk, Kerr and Ronis (1995) in a study on the health promoting

lifestyles of blue collar, skill trade and white collar workers reported the internal

consistency of the HPLP to be .93 for the total scale, with subscales ranging from .73 -

.89. Their sample included 638 workers in a Midwestern automotive plant. Evans and

Nies (1997) studied the effects of daily hassles on exercise participation in

perimenopausal women. These authors reported the internal consistency of the exercise

subscale to be .88. The convenience sample for this study included 35 women attending

graduate nursing school, ages 35 - 55. Kemp and Hatmaker (1992) studied the health

practices of low income pregnant women. Their sample included 65 women between 20 -

41 weeks gestation. The internal consistency for the total scale was found to be .90 for

this group. O'Brien (1993) studied the health promoting behaviors of spouses who were

caring for partners with Multiple Sclerosis. The sample included 20 care givers recruited

from the local chapter of the Multiple Sclerosis Society. The internal consistency was

found to be .82 for the total scale in this study. Fowler (1997) studied health promoting behaviors in persons with Parkinson's Disease. The sample included 42 individuals who attended informational and emotional support groups for people's with Parkinson's Disease. The internal consistency was reported to be .94 for the total scale with the subscales ranging from .80 - .92 in this population. Other authors; Riffle, Yoho, Sams (1989), Jones and Nies (1996), Ahijevych and Bernhard (1994) and McManus (1996) have reported the original reliability and validity estimates provided by Walker, Sechrist and Pender. With the exception of Fowler, all of these studies have used relatively healthy study participants. In Fowler's study, although all of the participants are diagnosed with Parkinson's, most are males and well enough to attend the support group meetings. All of the authors use an internal consistency measure for the total scale. Health is viewed as a construct to which each of the subscales or related concepts contribute meaning. Therefore, it is appropriate to measure internal consistency for the total scale as well as the overall scale.

Conceptual Framework

As a member of the University of California at San Francisco School of Nursing Symptom Management Faculty Group, Dr. Taylor utilizes the conceptual model for symptom management as a guide in her research (1994). According to this model, symptom management is a dynamic process involving the symptom experience, the symptom management strategies and symptom outcomes. Each of the processes is dependent upon the other. The symptom experience is the culmination of many variables

that prompt the individual to attempt self care or to seek the advice of a professional.

Symptom management strategies are interventions used by the patient, their family, health

care provider and the health care system to prevent illness, symptom recurrence or

maintain health status. Symptom outcomes are variables used to measure the level of

wellness and functional ability. They directly influence the symptom status.

Women who suffer from severe PMS are unique, in that their symptomotology is

cyclical or recurring. PMS is a psycho-socio-biological disorder that can be exacerbated

by any number of psychological or social stressors. Some of the variables involved in the

perception of symptoms include demographic, psychological, sociological, physiological,

and environmental as well as the health and illness status of the woman. The evaluation

of the symptom is the patients' determination of the seriousness of the PMS symptoms

(the intensity, frequency and threat of disability). The symptom responses are the

manifestation of the PMS and include physiological responses (bloating, edema),

psychological responses (mood changes, altered self-esteem), and interpersonal responses

(conflicts, angry outbursts, crying). By utilizing a multimodal treatment package

individualized through personal choice and administered in a structure of peer support

and professional guidance, Dr. Taylor (1992,1997) predicted a reduction in PMS

symptoms and an improvement in health promoting practices.

Pender (1987) advances the concepts of health and illness as existing on separate

continua. Therefore health is not defined as the absences of illness, but is the "...

actualizing of inherent and acquired human potential through goal-directed behavior,

competent self-care, and satisfying relationships with others while adjustments are made

as needed to maintain structural integrity and harmony with the environment" (Pender,

1987, p 27). It is reasonable to conclude that health promoting behaviors should be

utilized by everyone. Health promoting behaviors are activities that a person incorporates

into their lifestyle directed at maximizing enjoyment and pleasure or increased self-

awareness and self-satisfaction. According to Pender's theory, these positives need to be

encouraged regardless of the health status. Health promoting behaviors act as buffers,

increasing the individual's resiliency. They function similarly to self-esteem and social

support. Healths damaging behaviors, on the other hand, need to be identified and

extinguished. It is Pender's belief that a majority of the chronic illness can be attributed

to years of unhealthy lifestyle. If health care professionals were to assess health

promoting behaviors routinely, and intervene early, chronic disease might be prevented.

When a woman presents for treatment, she brings with her a whole array of health

practices and beliefs. Some of the practices/beliefs are health promoting or protecting

and others health damaging. The literature indicates that women do not view PMS as an

illness. Many women have come to accept PMS as part of being a female. Therefore, few

actively seek treatment for bothersome symptoms and most self-treat. Increased life

stresses, role conflict, poor dietary habits and limited physical activity have all been

implicated as causes for PMS. The "worker" described by Devine and Olsen (1992), a

woman who is absorbed with other aspects of family and work, typifies the stress and role

conflict issues many women face today. The demands on her life leave little time for

adequate sleep, relaxation or physical activity. The constant stress she experiences leaves little reserve to cope with additional stressors, such as the cyclical fluctuation in hormones. As a result, the woman continues to experience severe PMS and furthermore will likely continue in this pattern unless health promoting behaviors (stress management, time management or coping strategies) are incorporated into her lifestyle.

The ability to objectively measure the health behaviors a person utilizes assists in the development of highly individualized management strategies that are more likely to produce positive outcomes. Using Pender's perspective, separating the wellness and illness continuum, refocuses the need to continue promoting the high level wellness, risk reduction, and disease prevention regardless of the patient's current health status. Most of the common causes of death and disability in this country can be directly related to the cumulative effects of an unhealthy lifestyle (Pender, 1987). A proactive approach requires that health promoting behaviors be discussed with every patient. The outcomes should result in a higher level of functioning for those already afflicted with a chronic illness and in the long term, a decreased incidence of chronic illness.

This study seeks to add to the current body of literature by; providing an accurate description of health promoting and health damaging behaviors commonly used by women experiencing severe PMS and testing the utility of an existing instrument that measures health promoting behavior in a population experiencing a chronic illness. The descriptive and qualitative work has assisted in identifying health promoting behaviors and the influences of these behaviors. The ability to quantitatively measure health

behaviors allows one to make comparisons between groups and draw stronger conclusions. Utilizing a self administered, reliable and valid tools will make the assessment of health behaviors practical for most clinicians. Once one has an understanding of the health behaviors of an individual or population treatments can be more individualized. Individualizing treatment modalities should theoretically increase compliance and satisfaction and therefore should be more effective. According to Pender's theory, a health behavior inventory should be a standard part of the assessment process in all primary care settings.

Methods

Study Design

This is a secondary analysis of a randomized, repeated measure clinical trial conducted by Dr. Diana Taylor at the University of California at San Francisco School of Nursing, Department of Family Health. Dr. Taylor (1992-97) has provided participant recruitment, enrollment procedures and data collection. This study investigates the pretreatment health practices, across two menstrual cycles, in women with severe PMS. Although based on the clinical trial, this study is a confirmatory descriptive design focused on describing the health promoting behaviors of women experiencing severe PMS and confirming the internal consistency and stability of a health behavior inventory, the Health Promoting Lifestyle Profile (Walker, Sechrist and Pender, 1987).

The study design focuses on two aims. The secondary aim is to test the validity

and reliability of the Health Promoting Lifestyle Profile in a new population of women

experiencing a chronic illness. This is a confirmatory analysis of the original work done

by Walker et al in 1987. The analysis will follow the methods used by Walker, Sechrist

and Pender in the original psychometric testing of the instrument.

The primary aim is to describe the health promoting practices of women

experiencing a chronic recurring illness. Therefore, the study design can also be

considered descriptive. The study does not include a control group. There is no

randomization to treatment groups and no manipulation of variables. Pollit and Hungler

(1995, p 178) state that "the purpose of descriptive research is to observe, describe and

document the aspects of a situation."

Sample

A two-stage purposive sampling process (retrospective and prospective symptom

assessment) was used to identify and confirm women who met the diagnostic criteria for

severe PMS, specifically the Premenstrual Negative Affect (PNA) symptom cluster[1]. In

the first stage of the sampling process, recruitment was accomplished through posters,

and newspaper advertisements, as well as health care offices, in the San Francisco area.

An attempt was made to recruit women of color and diverse cultural backgrounds. The

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[1] PNA is characterized by the following symptoms: anger, anxiety, depression,

decreased concentration, impatience, impulsivity, irritability, loneliness, mood swings,

rapid mood changes, tearfulness and tension.

women who responded were screened over the telephone for the following criteria: (1.) 18 – 45 years of age, (2.) regular menstrual cycles lasting 26 – 32 days for the last six months, (3.) not using OC's, (4.) not pregnant or lactating, (5.) no current medical, gynecological or psychiatric disorders and (6). not currently on medication that effect hormone levels or mood. The women were asked to complete the Menstrual Symptom Severity List (MSSL) during the telephone interview. This is a 51- item symptom severity checklist that was used to screen for symptom severity. It has been found to be reliable in delineating symptom patterns (Taylor, 1996). Only those that met the criteria for PNA, affective symptom changes that are worse premenstrually and subside within one week after menses, progressed to stage II sampling. To confirm the existence of PNA women were asked to keep a symptom diary for two months, using the MSSL and the Washington's Women Health Diary. During this baseline period participants were also asked to complete a Health Promoting Lifestyle Profile both premenstrually and postmenstrually for two menstrual cycles. This provided baseline measures of health promoting practices for Dr. Taylor's study that will be used for analysis in this study.

Procedures

Data from the baseline Health Promoting Lifestyle Profile were obtained from Dr. Taylor. Initially, as described above, women were interviewed by telephone and retrospectively identified as having severe PMS, specifically Premenstrual Negative Affect (PNA) cluster symptoms. Each woman who met the screening criteria was then asked to volunteer for the treatment phase. A consent to participate in the research study

that had been approved by the University of California at San Francisco's Institutional Review Board was provided to each participant. During an interview, women were given instructions and a packet containing questionnaires to complete during two menstrual cycles. These included the Washington Women's Health Diary and several HPLPs. These questionnaires provided prospective confirmation of the high premenstrual symptom severity and became the baseline data. The Health Promoting Lifestyle Profiles were to be completed during day 1 of the menstrual cycle, looking back over the past week (a premenstrual measure) and again during day 15 looking back over the past week (a postmenstrual measure) for two menstrual cycles. For the original study, 190 women were eligible to participate. Of the 190, 134 were randomized into early and delayed treatment groups. Complete baseline data was obtained from 93 women for their first menstrual cycle and 71 for the second menstrual cycle. Individual responses were recorded and entered into a Statistical Package for Social Science (SPSS) program format.

Analysis

Aim #1: Descriptive statistics will be generated for the overall HPLP score and each of the six subscales for the premenstrual and postmenstrual data for the two baseline cycles. Using Pender's six factor structure, six subscale scores will be calculated for each menstrual cycle phase, premenstrually and postmenstrually, for the two baseline cycles. The subscale score is the mean response for each item contained in the subscale. The items are divided among the subscales as follows, Self Actualization (13 items), Health

Responsibility (10 items), Exercise (5 items), Nutrition (6 items), Interpersonal Support

(7 items) and Stress Management (7 items). Subscale scores will be described and

compared using a paired t-test for each menstrual cycle to reveal any significant

differences in the health promoting practices across the two menstrual cycles and within

each menstrual cycle.

Aim #2: Reliability will be estimated for both the overall scale and each subscale using

measures of both internal consistency and stability. Cronbach's alpha will be calculated

and used to determine the internal consistency reliability. Alphas will be generated for

each subscale, both premenstrually and postmenstrually for each cycle. The stability of

the HPLP will be calculated using Pearson's r as a measure of item correlation between

each cycle phase and each cycle. The factor analysis of the subscales will be verified

using the principle axis factoring techniques. If necessary an oblique rotation, Pender's

process, will be performed. These methods are consistent with the original testing of the

HPLP as Walker, Sechrist and Pender's relate in their 1987 article.

Results

The results and subsequent finished product of this thesis will be a publishable

paper. All results, discussion and conclusions of this study may be found in the

accompanying article.

Reliability and Validity of the Health Promoting Lifestyle Profile to Describe Health Practices of Women Experiencing a Chronic Condition

Abstract

Health practices have been shown to have a positive and cumulative effect on the future health status of generally healthy adults, however little is known about the health practices of people living with a chronic condition. Perimenstrual symptoms, when experienced as severe, can be a chronic condition for 10 to 15% of menstruating women. Historically, perimenstrual symptoms (PS) have been attributed to unhealthy behaviors such as excessive caffeine intake, sedentary lifestyle, poor dietary habits and lack of stress management techniques. Limited studies have investigated health promoting behaviors yet most chronic illnesses can be partially attributed to cumulative effects of an unhealthy lifestyle (Pender, 1987). Furthermore, some studies suggest that the use of positive health practices has been associated with a lower severity of PS.

This study adds to the current literature in two ways: first by describing the health practices of women experiencing severe PS across the menstrual cycle, and second, by estimating reliability and validity of an instrument designed to measure health practices, the Health Promoting Lifestyle Profile (HPLP), in women experiencing a chronic condition. This investigation, conducted as part of a clinical trial of symptom management therapeutics (Taylor, 1996), included 134 women who met the criteria for severe perimenstrual symptoms and who completed the HPLP during the premenstrual and postmenstrual phases of two pretreatment menstrual cycles. Most of the participants were Caucasian (76%); college educated (69%), employed full time (63%), and had health insurance coverage (72%) and were an average age of 37 (+/- 5.7) years.

Data analysis revealed that few women routinely utilized health care practices, however most health promoting practices were used some of the time. Nutritional health practices were utilized often by 52 -67% of the women. Approximately 30% of the women never used exercise or practiced health responsibility. Most health practices increased in the postmenstrual phase and decreased slightly in the premenstrual phase, suggesting that premenstrual symptom severity is associated with a decline in health practices.

HPLP reliability was estimated using measures of internal consistency (Cronbach's alpha) and stability (test-retest method). The overall HPLP internal consistency reliability was high (.98) and subscales reliability estimates ranged from .93 - .65. Stability estimates were acceptable (> .65) for all subscales (.79 - .88). Item to subscale correlation was evaluated as a measure of construct validity and found to vary greatly. Estimates ranged from a low of .20 - .69 for the Health Responsibility subscale ("Have my blood pressure checked" r = .20, "Attend educational programs on the environment in which we live" r = .69) to a high of .54 - .80 for the Self Actualization Subscale ("Find each day interesting and challenging" r = .54, "Like myself" r = .80). Pender's original factor structure was not confirmed due to the small sample size relative to the HPLP items. The HPLP was found a reliable instrument for measuring specific health promoting behaviors in a population of women with a chronic recurring condition.

According to Pender (1987), wellness is a concept that is independent of illness. Therefore, individuals living with a chronic condition can achieve high level wellness. Utilization of health promoting practices is thought to maintain wellness and prevent exacerbations of the chronic condition. Those individuals who experience perimenstrual symptoms (PS) are unique in that their chronic condition is cyclical and their periods of exacerbations are predictable. Historically PS symptoms have been attributed to unhealthy behaviors such as excessive caffeine intake, sedentary lifestyle, poor dietary habits and lack of stress management techniques. This paper utilizes PS as a model for a gender specific chronic illness. By developing an understanding of the health behaviors characteristic of a women with PS, one can develop an understanding of health practices characteristic of women experiencing a chronic condition. With this information, more individualized and effective treatment plans can be developed.

This study adds to the current literature in two ways: first by describing the health practices of women experiencing severe PS across the menstrual cycle and second by estimating reliability and validity of an instrument designed to measure health practices, the Health Promoting Lifestyle Profile (HPLP), in women experiencing a chronic condition. This investigation was conducted as part of a clinical trial of symptom management therapeutics (Taylor, 1996). The data of interest are the responses of women experiencing severe PS who completed the Health Promoting Lifestyle Profile (HPLP) at the time of enrollment, prior to any study interventions.

Women and Health Practices

Until recently, health research has typically ignored the gender differences in response to illness until recently. As major consumers of the health care industry, women are less likely to be listened to by practitioners and are more likely to have their illnesses attributed to a psychological cause (Taylor & Woods, 1996). Little is known about the gender differences in illness presentation, symptoms or response to therapy for many common illnesses. The primary focus of health research has been disease focused. Limited studies have investigated health promoting behaviors yet most chronic illnesses can be partially attributed to the cumulative effects of an unhealthy lifestyle (Pender, 1987). As people age they are more likely to experience a chronic illness. Since women tend to live longer, they are more likely to suffer from a chronic illness. Seeking to promote wellness in a chronically ill population should prevent exacerbation, promote independence and psychological well being. Seeking to promote high level wellness in a well population should decrease the incidence of chronic illness later in life. These efforts should result in an overall decrease of health services utilization and significant cost savings.

Health behaviors have been associated with a cumulative positive effect on the health status and a decrease in the incidence of disability in a health adult population. Belloc and Breslow (1972) surveyed 6,928 adults living in Alameda County, California to evaluate the effects of common health practices on the health status. Health practices investigated included hours of sleep, regularity of meals, physical activity, cigarette smoking and alcohol intake. Those individuals who followed good health practices were found to be in better health. This effect was independent of age, socioeconomic status, and gender. Wiley and Camacho (1980) re-interviewed a subgroup of participants in Belloc and Breslow study (N = 3,892) nine years

later. These authors confirmed the association between the use of good health practices and better health status and established a decrease in the incidence of illness and disability among those participants using good health practices.

The incorporation of health promoting practices in a person's lifestyle has been shown to depend upon perceived vulnerability to disease or the development of initial symptoms. Prohaska, Leventhal, Leventhal and Keller (1985) surveyed 396 individuals attending a health fair to evaluate the effect of age on health practices, vulnerability to illness and symptom recognition. Although not a representative sample, the results indicated that as a person ages their perceived vulnerability to illness increased, as did the number of health promoting practices they utilized. Calnan and Johnson (1985) found that the utilization of health practices by women was independent of their social economic status (SES). The 60 women in their study attributed vulnerability to the experience of symptoms. In a later study, Calnan and Williams (1991) interviewed 10 women from a lower SES and 10 women from a high SES and confirmed that perceived vulnerability to an illness was less important than the development of symptoms of an illness in the use of health promotion practices. The authors also found that women in the lower SES were unable to make lifestyle changes due to financial constraints.

Family and work related roles heavily influence the incorporation of health promoting practices into a woman's lifestyle. Devine and Olsen (1992) confirmed this, with their study of the influence of role on nutritional health practices. Their research identified eight roles related to meal selection and planning. The roles were the food manager, the caretaker of family nutrition, the teacher, the peacemaker, the partner, the worker, the volunteer, the friend/women in a social group and the pleasure provider (Devine & Olsen, 1992 p 91). These roles were

assumed to change over the woman's lifetime as circumstances changed, such as the children leaving home or the woman entering the work force and found to be necessary when recommending the utilization of health promoting practices. Duffy (1998) reached similar conclusions, in her survey of female employees at a large southwest university (N = 262) where she found that health promotion is multidimensional, and encompasses several bio-psycho-social variables. Locus of control, self-esteem and perceived health status were found to influence the use of health promoting behaviors. These studies have provided a beginning foundation of inquiry with regard to health practices utilized by women.

Perimenstrual Symptom Experience and Health Practices

The descriptive and predictive studies related to PS have shown that even women with chronic recurring illness, such as PS, use self-care strategies. In work completed by Woods, Taylor, Mitchell and Lentz (1992) it was found that women with PS do not consider themselves ill. After interviewing 656 women ages 18 - 45, the authors concluded that the illness based self care remedies may not be appropriate for women with PS and efforts should be directed more towards health promotion. Johnson, McChesney, and Bean (1988) came to the same conclusion in their survey of 730 healthy college women. Most of the participants in their study did not seek the advice of a health care provider for their perimenstrual symptoms and attempted self-care through dietary changes, vitamin supplements, and exercise.

The use of positive health practices, such as dietary restrictions and exercise, has been associated with a lower severity of PS. Mitchell, Woods and Lentz (1994) interviewed 142 women in an epidemiological study to define PS. Three types of PS were delineated; low symptom severity, PS and premenstrual magnification (PMM). PS tended to be reported by

older, more educated women in less traditional roles. These women also reported utilizing health promoting behaviors. PMM entailed a constant level of symptoms that worsened premenstrually. Women with PMM tended to have more depressive symptoms, experience more negative life circumstances and were less educated. The authors concluded that environmental, social demands and available resources influence the experience of PS. Taylor and Woods (1991) similarly reported that education, health practices, stress and distress influenced the severity of perimenstrual negative affect symptoms[1]. Their results are based on an investigation of a random community based sample of 222 women.

Little is known about which health promoting and health damaging behaviors influence the PS experience. Gannon, Luchetta, Padie and Rhodes (1989) surveyed 211 women to investigate the effects of lifestyle on chronic stress, PS and physical health. No significant relationships were found between the experience of PS and the use of caffeine, the use of alcohol or parity. However, the authors concluded that poor health status might make a woman more susceptible to PS. One problem with this study was that 82% of the participants were currently taking oral contraceptives (OCs). OC's are often prescribed to stabilize the cyclical fluctuation of hormones and reduce PS. Therefore, their results may be attributed to the effects of chronic stress or sensitivity to exogenous stressors and not PS. Freidman and Jaffe (1985) surveyed 384 women to evaluate the PS symptom experience. They reported that neither occupation, age, physical activity, marital status nor amount of schooling influenced the PS experience. However women with shorter cycles, housewives and those with less education tended to report more symptoms ($F = 5.0$, $p < .01$). Winter, Ashton and Moore (1991) reported the responses of 52

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[1]Perimenstrual Negative Affect symptoms are characterized by the following symptoms: anger, anxiety, depression,

women with PS on the Index of Marital Satisfaction, the Index of Sexual Satisfaction and the Index of Family Relationships. The authors found that the women with PS were more dissatisfied with their marital and sexual relationships. The PS experience did not appear to influence the family relationship. Winter, et al theorized that decreased self esteem and self worth as well as lack of control over the symptoms may contribute to the dissatisfaction with relationships. Since the women experiencing PS were still capable of nurturing, the family relationship was not affected.

The literature indicates that women who experience perimenstrual symptoms do not view themselves as ill and attempt to utilize some health promoting behaviors to cope with their symptoms. Life stress and distress, physical well being, self-esteem and the ability to control the symptoms appear to influence the severity of symptoms. Women have attempted to exercise and utilize nutritional health practices to decrease their symptom severity.

Conceptualization and Measurement of Health Promoting Behaviors

Walker, Sechrist and Pender (1987) developed the Health Promoting Lifestyle Profile (HPLP) as a means of assessing health promoting behaviors. This instrument is based on the belief that health or wellness is a concept that is independent of illness. Instead of a health illness continuum, there are a separate continuum for health and illness. Health is defined as a process, involving goal-directed behavior, competent self-care, and satisfying relationships with others (Pender, 1987, p 27). Health promoting behaviors are activities, which are incorporated into the lifestyle, directed at maximizing positives.

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impatience, impulsivity, irritability, loneliness, mood swings, rapid mood changes, tearfulness and tension

This instrument sought to identify and define those key health behaviors associated with a healthy lifestyle. Health, as a construct, is composed of six interrelated concepts or subscales. The subscales were titled Self Actualization, Health Responsibility, Exercise, Nutrition, Interpersonal Support, and Stress Management. Self Actualization was found to be the dominant factor in the HPLP and is conceptualized as the interaction between a person and their physical and social environment. Health Responsibility was a measure of an individual's utilization of the health care system and general health practices. Some examples of items contained in this subscale include, "Report any unusual signs or symptoms to a health care professional"; "Have my cholesterol level checked and know the results"; "Read articles or books about promoting health"; "Question my health care provider or seek a second opinion when I do not agree with recommendations" and "Attending educational programs on improving the environment in which we live". The exercise subscale provided a measure of the frequency an individual participated in aerobic exercise as well as stretching exercises and recreational activities. Nutrition included dietary habits as well as meal planning and food selection. Interpersonal Support provided a measure of intimacy and relatedness to others. The last subscale, Stress Management, provided an indication of stress awareness and utilization of basic stress management techniques.

Development of the HPLP

The original instrument contained 107 items (Walker, et al, 1987). The items were reviewed by the authors for repetitiveness and content validity. Those items that were scaled negatively were rephrased so that a high score correlated with positive health practices. Inter-item correlations ranged from ˉ.10 - .65 and resulted in the elimination of redundant items. The remaining 70 items were then subjected to factor analysis using the principal axis factoring

extraction method. Because the items were conceptualized as interrelated, the authors selected the principal axis method of extraction over the principle component method. This resulted in 16 factors; several of these factors contained only a few items and had low reliability estimates. After reviewing the 16 factors, it was determined that some could be combined on a conceptual basis. Additionally, twenty-two items did not load cleanly into the matrix and were deleted from the instrument. An oblique rotation was used to improve the interpretable factor structure. A final factor solution produced six subscales and explained 47.1% of the variance. The instrument, in its current form, contains 48-items that asks individuals to rate statements on a 4-point Likert scale (See Figure 1). The scale consists of the following response choices: 1 = Never, 2 = Sometimes, 3 = Often and 4 = Routinely.

Reliability and validity testing of this instrument occurred in a sample of 952 healthy, Caucasian, Midwestern volunteers. Approximately half (54%) were female with the average age of 39.2 years. The participants' ages ranged from 18 to 88 years. Most participants reported having some college education and earning between $25,000 - $35,000 per year. Reliability testing determined the instrument to have a high internal consistency, with an alpha coefficient of .92. The internal consistency of each subscale ranged from .70 (Stress Management) to .90 (Self Actualization). To evaluate stability, the questionnaire was administered to 63 participants on two separate occasions, two weeks apart. Results indicated that the instrument was stable and reliable for basic research (Total HPLP Pearson r = .93, with values ranging from .81 to .91 on each of the subscales).

Studies Utilizing the HPLP

Walker, Kerr, Pender and Sechrist (1990) translated the HPLP into Spanish using a back translation method. The testing of this version occurred in a population of Hispanic volunteers recruited from community colleges, well child clinics, factory workers and attendees of a summer festival in the Midwest. The sample included 485 individuals, of which 48% were females. The average age was 30 years old and ranged from 15 to 79 years old. Most of the subjects identified themselves as Mexican or Chicano. The median educational level ranged from 5 to 8 years. The factor analysis confirmed the existence of the six subscales. Internal consistency was found to be .94 for the total scale, with subscales ranging from .70 (Nutrition)[2] to .87 (Self Actualization). To evaluate the stability reliability, the Spanish version of the HPLP was re-administered to 53 of the participants two weeks later. The instrument's stability reliability was tested using a test-retest method. Pearson's r was .87 for the total scale and ranged from .79 to .85 for the subscales. The results indicated that the Spanish version has similar reliability and validity to that of the English version.

Kuster and Fong (1993) retested the Spanish version of the HPLP on a convenience sample of 106 Spanish speaking Central Americans' over the age of 18. Since the Hispanic population in this country is not homogenous, the authors felt it reasonable to test the HPLP in other Spanish speaking populations. Of those participating, 57% were female, with an average age of 27.7 years. The median educational level was 9.9 years and the average income was $4,999 annually. Over half resided in the Untied States for less than five years. The internal consistency reliability was found to be .94 for the total scale with subscale alpha's ranging from .64 to .88. The authors then asked 17 of the original study participants to complete a second

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[2] The low score in the nutrition subscale was attributed to cultural dietary differences. Most of the study population

HPLP, two weeks later. The Pearson's r was .71 for the total scale and ranged from .59 (Interpersonal Support) to .78 (Self Actualization). Kuster and Fong's test retest scores were lower (.71 vs. .93) than those reported by Walker, Kerr, Pender and Sechrist.

Other authors have also validated this instrument for their particular study populations. Results of these tests are listed in Table 1. Riffle, Yoho, Sams (1989), Jones and Nies (1996), Ahijevych and Bernhard (1994) and McManus (1996) have reported the original reliability and validity estimates provided by Walker, Sechrist and Pender. With the exception of Fowler, all of these studies have used relatively healthy study participants. In Fowler's study, although all of the participants are diagnosed with Parkinson's most are males (71%) and well enough to attend the support group meetings.

The individual health practices that comprise the six subscales appear to be influenced by sociocultural variables. As seen in the testing of the Spanish version of the HPLP (Walker, et al, 1990) cultural dietary practices impacted the internal consistency reliability of the Nutrition subscale. According to the work of Devine and Olsen (1992), women's' family and work roles heavily influence the decision to incorporate health practices into their lifestyle. Therefore, a chronic recurring condition, such as severe PS, is likely to be related to use of health promoting or health damaging behaviors. Little is known about the reliability and validity of the HPLP in women experiencing a chronic illness.

Methods

Study Design

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did not eat breakfast or the traditional three meals per day. Dietary practices included two main meals a day and eating mid morning rather than upon arising.

Although using data collected during the pretreatment phase of a clinical trial, this study is a confirmatory descriptive design that replicates the original HPLP testing conducted by Walker et al in 1987. The analysis will follow the methods used by Walker, Sechrist and Pender in the original psychometric testing of the instrument.

Research Questions

Specifically this study aimed to answer the following research questions:

1. What health practices, as described by the Health Promoting Lifestyle Profile, are utilized by women with severe perimenstrual symptoms (PS)?

2. Is the Health Promoting Lifestyle Profile a reliable and valid instrument, for research purposes, in populations with chronic illnesses?

Sample

A two-stage purposive sampling process (retrospective and prospective symptom assessment) was used by Dr. Taylor (1992 - 1997) to identify and confirm women who met the diagnostic criteria for severe PS. In the first stage of the sampling process, recruitment was accomplished through posters, and newspaper advertisements concentrated in the San Francisco area, as well as health care offices. Women were screened over the telephone for the following criteria: (a.) 18 – 45 years of age, (b.) regular menstrual cycles lasting 26 – 32 days for the last six months, (c.) not currently using OC's, (d.) not pregnant or lactating, (e.) no current medical, gynecological or psychiatric disorders and (f). not currently on medications that effect hormone levels or mood. The women were asked to complete the Menstrual Symptom Severity List (MSSL) during the telephone interview. This 51- item symptom checklist was used to screen for

symptom severity. It has been found to be reliable in delineating symptom patterns and severity (Taylor, 1996). Only those that met the criteria for severe PS (symptom changes that are worse premenstrually and subside within one week after menses), progressed to stage II sampling. Of the 190 women who met the eligibility criteria, 134 were randomized into early and delayed treatment groups. Complete baseline data were obtained from 93 women for their first menstrual cycle and 71 for the second menstrual cycle.

Procedures

Each woman who met the screening criteria was then asked to volunteer for the treatment phase and progressed to stage II sampling. Consent to participate in the research study that had been approved by the University of California at San Francisco's Institutional Review Board was provided to each participant. During an interview, women were given instructions and a packet containing questionnaires to complete during two menstrual cycles. These included daily diaries (Washington Women's Health Diary), a symptoms checklist (MSSL) and health practices questionnaires (HPLP) (Taylor, 1996). The Health Promoting Lifestyle Profile was completed on day 1 of the menstrual cycle, looking back over the past week (a premenstrual measure) and again on day 15 looking back over the past week (a postmenstrual measure) for two menstrual cycles prior to initiation of any treatment.

Data Analysis

Aim #1: Descriptive statistics were generated for the overall HPLP score and each of the subscales. Using Pender's six-factor structure, six subscale scores (means, S.D.) were calculated for each menstrual cycle phase, premenstrually and postmenstrually, for the two baseline cycles.

The items are divided among the subscales as follows, Self Actualization (13 items), Health Responsibility (10 items), Exercise (5 items), Nutrition (6 items), Interpersonal Support (7 items) and Stress Management (7 items). Subscale scores were compared using a paired t-test for each menstrual cycle to reveal any significant differences in the health promoting practices between the two menstrual cycles and within each menstrual cycle (premenses and postmenses). Since no differences were found between the two cycles, results reported combine cycle 1 and cycle 2 data for each menstrual cycle phase.

Aim #2: Reliability was estimated for both the overall scale and each subscale using measures of both internal consistency and stability. Cronbach's alpha were calculated and used to estiamtes the internal consistency reliability for each subscale, both premenstrually and postmenstrually for each menstrual cycle. The stability of the HPLP was calculated using Pearson's r as a measure of item correlation between each cycle phase and each cycle. Again, no differences were found between the cycles so results combine cycle 1 and cycle 2 data for each of the menstrual phases. The confirmatory factor analysis of the subscales could not be calculated due to sample size constraints; therefore, item analysis, including item-to-scale correlation assessment as an estimate of construct validity.

Sample Characteristics

Of the 134 eligible women, the mean age of the participants was 37 years (+/- 5.7). The women identified their ethnicity as White (76%), Asian (10%), Black (4%) Hispanic (5%) and Filipino (3%). A majority of the women were college educated (69%) and employed full time (63%). Most of the participants (60%) were partnered or married and had health insurance either through their work or their spouse/partner's place of employment (72%). Slightly more than half

(55%) of the women had children, with most (62%) currently living in the same household as their children. A small percentage of the participants (15%) were single parents. Annual income levels of the participants ranged from $25 - 50,000, with 14% reporting incomes less than the national poverty level ($14, 400).

Health Promotion Activities

Categories of health practices used by women experiencing severe PS were defined by the 6 factors or subscale scores of the HPLP and are summarized in Tables 2 and 3. Subscale means were calculated using the scoring method suggested by Walker, Sechrist and Pender (1987). Using a numerical scoring for the responses, with 1 = Never and 4 = Routinely, an average response was calculated for each subscale.

Responses to cycle 1 premenstrual phase indicate that most health behaviors were practiced only some of the time. The exceptions were eating breakfast and including fiber in the diet (Nutrition subscale), which were routinely incorporated health behaviors. By the postmenstrual phase of Cycle 2, Nutrition subscale responses are beginning to show an increase in the frequency of eating three times a day (39% - 50% responded routinely) and read food labels (27% - 36% responded often). Most (66%) of the women never checked their pulse rate while exercising (Exercise subscale).

Self Actualization practices demonstrated a slight cycle but statistically significant phase difference (t = -4.8, p < .001), with a decrease in Self Actualization activities in the premenstrual phase. Activities such as liking myself, having an enthusiastic and optimistic outlook, feeling happy and content, working toward long-term goals in my life, look forward to the future, having

an awareness of what is important in life and believing that life has purpose were practiced less often in the premenses.

Few women routinely utilized the health promoting behaviors described within the HPLP (see Table 3). Women never routinely utilized Health Responsibility behaviors or Stress Management behaviors. Of those women who utilized Interpersonal Support strategies and Nutritional behaviors, more did so in the postmenstrual phase of the cycle. Conversely, Self Actualization strategies were practiced more frequently in the premenstrual phase. In the areas of Self Actualization, Health Responsibility and Stress Management, 50 -60% of the women practiced health behaviors some of the time. Exercise and Interpersonal Support behaviors were practiced by 37 - 50% of the women some of the time. Some of the time 20 - 36% of the women practiced Nutritional health promotion and 52 - 67% practiced nutritional health promotion often. Interpersonal Support behaviors were used often by 40-44% of the women. Self Actualization and Exercise behaviors were used often by 20 -38% of the women. Health Responsibility and Stress Management practices were utilized often by only 13 - 21% of the women. In contrast, only 3 - 9% of the women never utilized Nutritional or Interpersonal Support health practices and 13 - 22% never practiced Self Actualization and Stress Management. Health Responsibility and Exercise behaviors were never practiced by 27 - 37% of the women. Except for Health Responsibility, more women refrained from any health practices during the premenses (13.5% Self Actualization, 39.5% Exercise, 5% Nutrition, 6.5% Interpersonal Support and 20.5% Stress management) compared to postmenses (11% Self Actualization, 32% Exercise, 3% Nutrition, 3.5% Interpersonal Support and 19% Stress

Management) (p < .001). Health Responsibility practices were consistently never utilized by 30% of the women in both menstrual phases.

Reliability of HPLP

Internal consistency reliability was estimated using Cronbach's alpha. Results were consistent with those produced in other studies (See Table 1). The overall health construct of the HPLP was determined to have an internal consistency reliability of .96. Subscale internal consistency reliability ranged from a low of .65 for the Nutrition subscale to a high of .93 on the Self Actualization subscale.

Stability reliability of the HPLP was estimated using test-retest correlations for individual items in each of the six subscales and the total scale scores. Pearson's correlations (*r*) were calculated between the premenses data of cycle 1 and cycle 2 and the postmenses data of cycle 1 and cycle 2 (a 1 - 3 month retest interval). Both premenstrual and postmenstrual data produced high stability estimates (> .70) for all scores.

Validity of HPLP

Due to the small sample size in relation to the number of items (48) in the HPLP, a factor analysis was not conducted. Item to subscale correlations were then examined as an alternative to the confirmatory factor analysis. Since cycle 1 had a larger sample size (N = 93) and results were similar for both cycles, only cycle 1 results were reported. Walker, et al (1987) used criteria for item analysis, with items correlations > .25 considered acceptable for item retention. If that same criterion were applied, only one item scored below the acceptable level. If a more restrictive criteria of > .65 is applied (Knapp and Brown, 1995), 58% of the premenstrual and 75% of the postmenstrual items scored below the acceptable level.

Of the thirteen items in the Self Actualization subscale, only 2 items (15%) consistently produced high item to subscale correlations (Pearson's r > .65). These items included, "Look forward to the future" and "Realistic about goals I set". In the Health Responsibility subscale, 3 items (30%) produced high item to subscale correlations; "Have my cholesterol checked and know the results", "Read articles or books about promoting health" and "Discuss health concerns with qualified professionals". The Exercise subscale contained 4 items (80%) with high item to subscale correlations. These items were "Perform stretching exercises at least three times per week", "Exercise vigorously for 20 - 30 minutes at least three times per week", "Participate in supervised exercise program or activity" and "Check my pulse rate when exercising". The Nutrition subscale also included four items (67%) that consistently produced high item to subscale correlations. These items included "Eat breakfast", "Choose foods without preservatives or other additives", "Eat three regular meals a day" and "Plan or select meals that include the four basic food groups each day". In the Interpersonal Support subscale, three items (43%) produced high item to subscale correlations: "Praise other people easily for their accomplishments", "Enjoy touching and being touched by people close to me" and "Touch and am touched by people I care about". The Stress Management subscale contained four items (57%) with acceptable stability estimates across the two menstrual cycles. The items were "Take some time for relaxation each day", "Practice relaxation or meditation for 15 - 20 minutes each day", "Consciously relax muscles before sleep" and "Concentrate on pleasant thoughts at bedtime".

Item-to-subscale correlations (Refer to Table 3 and Figure 1) for the Self Actualization subscale ranged from .54 to .80. premenstrually and from .56 to .78, postmenstrually. The item,

"Am enthusiastic and optimistic about life" ($r = .59$), produced a moderate item to scale correlation premenstrually only, whereas "Respect my own accomplishments" ($r =. 55, r = .58$) and "Find each day interesting and challenging" ($r =. 54, r =. 56$) produced moderately low item-to-subscale correlations in the premenstrual and postmenstrual phase respectively. The Health Responsibility subscale produced item-to-subscale correlations of .20 to .69, premenstrually, and .26 to .67, postmenstrually. Low correlation values were associated with all of the subscale items premenstrually except ""Question my health care provider or seek a second opinion when I do not agree with recommendations" ($r =. 66$) and "Seek information from health professionals about how to take good care of myself" ($r =.69$). Postmenstrual item-to-subscale correlations produced similar results except two additional items, "Discuss my health care concerns with qualified professionals" (.66) and "Have my blood pressure checked and know what it is" ($r =.64$), produced a high item-to-subscale correlation. Premenstrual item to subscale correlations ranged from .38 to .69 for the Exercise subscale. Moderate correlation values were obtained on the following items; ""Exercise vigorously for 20 - 30 minutes at least three times a week" ($r =.42$), " "Participate in supervised exercise programs or activities" ($r =.38$) and "Check my pulse rate when exercising" ($r =.60$). Postmenstrual item-to-subscale correlations ranged from .25 to .74, with the same subscale items continuing to produce low item-to-subscale correlations. The item-to-subscale correlations for the Nutrition subscale ranged from .27 to .59, premenstrually, with "Eat three regular meals a day" ($r = .27$), "Eat breakfast" ($r = .29$) and "Choose foods without preservatives or other additives" ($r = .30$) having the lowest correlation values. Postmenstrually the item-to-subscale correlations ranged from .29 to .58, with "Eat three regular meals a day" ($r = .29$) and "Choose foods without preservatives or additives" ($r = .30$) producing

the lowest correlation values. All of the items in this subscale produced low correlation values. Premenstrual item-to-subscale correlations were .47 to .77 for the Interpersonal Support subscale. Postmenstrual item-to-subscale correlations ranged from .38 to .72. The following items produced low correlation values both premenstrually and postmenstrually respectively; "Discuss personal problems and concerns with persons close to me" ($r =.54, r = .53$), "Praise other people easily for their accomplishments" ($r =.54, r = .38$) and "Spend time with close friends" ($r =.47, r = .55$). The Stress Management subscale produced item to subscale correlations of .38 to .72, for the premenstrual data, and .30 to .73, for the postmenstrual data. All items contained in this subscale produced low correlation values except "Use a specific method to control my stress" ($r =.72$ premenstrually, $r =.73$ postmenstrually).

Discussion

The sample consisted of mostly middle class women with health insurance representing the ethnicity of women in the United States. Sample characteristics are similar to those of the national databases, although the local demographics may be slightly different.

Health Practices

Most of the women with severe PS utilized health promotion practices some of the time. Only nutritional practices were utilized often. Furthermore, health promoting practices were utilized less frequently in the premenstrual phase than in the postmenstrual phase, with the exception of those behaviors associated with health responsibility. Those behaviors associated with health responsibility demonstrated little change across the menstrual cycle phases. As expected there was no significant differences found between the menstrual cycles. Examples of these practices include " Reporting any unusual signs or symptoms to a health care professional",

Having my cholesterol checked and knowing the result" and "Reading articles or books about promoting health". Considering the premenstrual phase is the period of high symptom severity, it is not surprising that the utilization of health practices decrease. It is known, that in this population of women, the incidence of depressive mood increases and the level of self esteem decreases in the premenstrual phase (Taylor, 1996). It would be difficult for individuals with low self-esteem and depression to practice self actualization behaviors such as being enthusiastic or optimistic, or being happy and content. Depression also reduces the likelihood that a person will initiate any of the health promoting behaviors, therefore contributing to the lower reported rates of health promoting practices in the premenstrual phase.

None of the women routinely practiced Stress Management behaviors, however 60% practiced Stress Management some of the time. Taylor (1996) reported that these women experienced a high to moderate level of stress, particularly associated with their work. Home related stress was also of a moderate to high level, however this did not include stress associated with the parental role. This is consistent with the findings of Devine and Olsen (1992) and Winter, Ashton and Moore (1990). Devine and Olsen concluded that a woman's perceived roles and relationships will influence her health outcomes. If a woman is absorbed with other aspects or roles, employee, volunteer, parent, spouse or partner little time is left over to attend to other tasks, such as health promotion practices. One would therefore expect the Stress Management measures to be low. Winter, et al in a study on relationships and the incidence with PS hypothesized that since the parental role was primarily a nurturing role, the stress of PS and its associated symptoms would not effect this role.

The subscale means were not reported by Walker, et al (1987), but were provided by

most of the other authors. Mean scores for subscales suggest that comparison studies are similar to this investigation, with the average response "Sometime" to "Often" practicing health behaviors. Self Actualization practices were utilized "Sometime" to "Often". Stress Management, Health Responsibility and Exercise health practices were utilized "Sometimes". Nutritional and Interpersonal Support health practices were utilized "Often". The higher average responses in the Nutrition and Interpersonal Support subscales indicate that dietary practices and social support may be therapeutic and act as a symptom management strategy for these women experiencing severe PS. Notably, both nutritional strategies and peer support have been found to be helpful in relieving PS severity (Taylor, 1996).

Historically, PS has been associated with poor health habits. This has not been entirely supported by this study. Women with severe PS utilize nutritional health practices often. Although more than one-third of the women in the study never exercise, on closer examination they participated in more stretching and vigorous exercise when compared to participants in a recent study of perimenopausal women, age 35 to 55. Evans and Nies (1997) reported that perimenopausal woman had a mean exercise subscale score of 2.1 (+/- .8, N = 35), similar to women in this study (X = 2.2, SD = .80 premenses and X = 2.3, +/- .8 postmenses). While the means are similar for the Exercise subscale of the HPLP, there were noticeable differences in the frequencies of the individual items between a healthy but slightly older group of women in perimenopausal transition compared to women experiencing a chronic condition. Overall, the women experiencing severe PS participated in more stretching (17% participated often and 30% participated routinely) and vigorous exercise (17% participated often and 37% participated routinely) compared to 11% of the perimenopausal women participating in stretching and

vigorous exercise often and 23% participating routinely. The perimenopausal women participated more often in physical recreational activities (17%) when compared to the women with severe PS (17%) but fewer perimenopausal women participated in physical recreational activities routinely (26% compared to 37%). More women with severe PS participated in supervised activities (17 % often and 10% routinely participated in supervised exercise programs compared to none of the perimenopausal women), but fewer checked their pulse when exercising (6% often and 9% routinely) when compared to the perimenopausal women (22% often and 7% routinely) in Evans and Nies' study.

The finding that women with severe PS utilize some health practices may be more reflective of the fact that they are experiencing symptoms. Some authors have found that it is not until a person begins to experience symptoms and to a lesser degree feels vulnerable to a disease that they become more likely to incorporate health behaviors into their lifestyle (Davison, Frankel & Smith, 1992, Prohaska, Leventhal, Leventhal & Keller, 1985 and Calnan & Williams, 1991). Not viewing PS as an illness, (Woods, Taylor, Mitchell & Lentz, 1992 and Johnson, McChesney & Bean, 1988) women are more likely to attempt self care strategies that included health promotion activities than seek the advice of a health care professional. This substantiates the scores of the Health Responsibility subscale, which include health seeking behaviors. None of the women routinely practiced Health Responsibility behaviors and only 16% practiced these behaviors often. Traditionally, self care treatments have targeted either dietary changes or exercise habits. Both of these activities appear to have been attempted by the women participating in this study.

Reliability and Validity of the HPLP

The results of this study are consistent with those of other researchers utilizing the HPLP (Refer to Table 1). The internal consistency reliability for the total scale was found to be .96, which is higher than those of the other studies (.90 to .94), however the mean score was equivalent (2.6) to the ranges of means reported by other investigators (2.4 to 2.6). It is also difficult to interpret the results provided by O'Brien (1993), as these appear to be sums and not mean scores.

The HPLP subscales produced internal consistency reliability estimates that ranged from a low of .65 (Nutrition) to a high of .93 (Self Actualization). Only Walker, Sechrist and Pender (1987) report the complete subscale scores for the instrument. In comparison, this investigation produced the same or higher reliability estimates in the Self Actualization subscale (.93 versus .90), the Interpersonal Support subscale (.87 premenses and .85 postmenses versus .80) and the Stress Management subscale (.82 premenses and .78 postmenses versus .70). The Exercise (.78 premenses and .75 postmenses) and Nutrition (.65 premenses and .71 postmenses) subscales produced lower internal consistency reliability estimates than the original instrument reliability (.81 and .76 respectively). The Health Responsibility subscale produced slightly lower reliability estimates premenstrually (.78) and essentially the same reliability estimates postmenstrually (.82) compared to Walker, et al, (1987) obtained (.81).

Conclusion

Health practices have been shown to have a positive and cumulative effect on the future

health status and incidence of disability in generally healthy adults (Belloc & Breslow, 1972, Wiley & Camacho, 1980). Little is known about the effects of health practices in populations experiencing a chronic condition or illness. Perimenstrual symptoms are unique in that the periods of exacerbation are cyclical and predictable. It has been commonly assumed that people with chronic illnesses do not use health promoting practices, however, women experiencing severe PS compared favorably with healthy adults in using positive health behaviors sometimes to often. Utilization of health practices was found to increase postmenstrually when the symptoms were less severe. Nutritional activities, social support, exercise and stress management techniques appeared to be utilized as symptom management strategies for these women coping with severe symptoms prior to menstruation.

Using PS as a model for chronic conditions emphasizes the biopsychosocial aspects of the symptom experience. PS is directly linked to the physiological cyclical fluctuation of hormones. Stress, nutritional status, and the physical environment can influence the severity of PS. The fact that women with PS utilize health promoting practices some of the time, demonstrates that individuals with chronic conditions are health oriented. Pender, (1987) defined health as a process, involving goal-directed behavior, competent self-care, and satisfying relationships with others. Health promoting behaviors are activities, which are incorporated into the lifestyle, directed at maximizing positives. Women experiencing a chronic condition utilize health practices as a method of symptom management and competent self care.

The Health Promoting Lifestyle Profile appeared to be a reliable and generally valid instrument for assessing overall Health Promoting Lifestyle Profile as well as categories of health practices in women experiencing a chronic condition. This is consistent with the finding

of a number of previous studies. Although, the HPLP has proven to be a reliable instrument for measuring the health behaviors of women experiencing PS, some of the items may not be sensitive or pertinent to the PS experience. The Self Actualization subscale, for example, measures the concepts of hope and self worth. If a woman's self esteem decreases premenstrually, they would theoretically score low on items contained in this subscale during the premenstrual cycle phase. Some women who are depressed or discouraged about the chronicity of PS may continue to score low, where as others may feel better postmenstrually and therefore score higher in the postmenstrual cycle phase. Items such as "Have my blood pressure checked" may more accurately reflect the woman's ability to access the health care system. Access to health care, although important to health promotion, may or may not be in the direct control of the individual.

The HPLP has value as a general screening instrument in a clinical setting. The instrument provides the health care practitioner with a basic assessment. The need for a more focused exam may be determined on an individual basis. Due to the length of the instrument, the form would need to be provided prior to the office visit. An alternative suggestion would be to utilize those subscales, which are appropriate to the assessment being conducted as in the Evan, and Nies study (1997).

Table 1
Comparison of Studies Utilizing the HPLP

AUTHOR	N	TOTAL α	SA	HR	E	NTR	IPS	SM
Walker, Sechrist & Pender	952 Midwestern Adults	.922	.904	.814	.809	.757	.800	.702
Walker, Kerr, Pender & Sechrist	485 Mexican American Adults	.93 X = 2.46 SD = .45[3]	.87 X = 2.91 SD = .52	X = 1.99 SD = .58	X = 2.11 SD = .71	X = 2.53 SD = .60	X = 2.58 SD = .56	X = 2.39 SD = .52
Kuster & Fong (α= .64 to .89)	106 Central American Adults	.94 X = 2.40 SD = .43	>.80 X = 2.86 SD = .56	>.80 X = 1.92 SD = .57	X = 2.01 SD = .64	X = 2.48 SD = .57	X = 2.54 SD = .60	X = 2.28 SD = .58
Lusk, Kerr & Ronis (α = .73 to .89)	638 Blue-Collar, Skilled Trade & White Collar Workers	.93 X = 2.60 SD = .47	X = 3.04 SD = .49	X = 2.24 SD = .57	X = 2.18 SD = .79	X = 2.47 SD = .63	X = 2.86 SD = .57	X = 2.49 SD = .54
Evans & Nies	35 African American Women				.88 X = 2.1 SD = .8			
Kemp & Hatmaker	65 Low Income & Low Risk Pregnant Women	.90 X = 2.38	X = 2.70	X = 2.15	X = 1.63	X = 2.34	X = 2.67	X = 2.37
O'Brien *Scores not calculated as means	20 Spousal Caregivers of Patients with MS	.82 *X = 164 SD = 19	X = 39.6 SD = 8.2	X = 24.3 SD = 6.3	X = 23.7 SD = 3.5	X = 20.2 SD = 2.9	X = 17.1 SD = 3.4	X = 11.4 SD = 5
Fowler (α = .80 to .92) HPLPII	42 Person's with Parkinson's Disease	.94 X = 2.85 SD = .45						
Premenses Cycle 1	90	.93	.93 X = 2.7 SD = .63	.78 X = 2.3 SD = .54	.79 X = 2.2 SD = .80	.65 X = 3.0 SD = .59	.87 X = 2.9 SD = .67	.82 X = 2.3 SD = .59
Postmenses Cycle 1	91	.93	.93 X = 2.8 SD = .63	.82 X = 2.3 SD = .57	.75 X = 2.3 SD = .76	.71 X = 3.1 SD = .59	.85 X = 3.0 SD = .64	.78 X = 2.4 SD = .58

[3] X = Mean, SD = Standard Deviation

SA = Self Actualization, HR = Health Responsibility, E = Exercise, NTR = Nutrition, IPS = Interpersonal Support, SM = Stress Management and X= Mean

Table 2

HPLP Subscale Means, Internal Consistency Reliability
and Stability Reliability

Subscale	Mean	S.D.[4]	Associated Scale Response	Alpha	Stability Est. (*r*)
Self Actualization Premenses	2.7	.63	Sometimes to Often	.93	.80
Self Actualization Postmenses	2.8	.63	Sometimes to Often	.93	.79
Health Responsibility Premenses	2.3	.54	Sometimes	.78	.79
Health Responsibility Postmenses	2.3	.57	Sometimes	.82	.85
Exercise Premenses	2.2	.80	Sometimes	.78	.80
Exercise Postmenses	2.3	.76	Sometimes	.75	.88
Nutrition Premenses	3.0	.59	Often	.65	.78
Nutrition Postmenses	3.1	.59	Often	.71	.82
Interpersonal Support Premenses	2.9	.67	Often	.87	.74
Interpersonal Support Postmenses	3.0	.64	Often	.85	.74
Stress Management Premenses	2.3	.59	Sometimes	.82	.86
Stress Management Postmenses	2.4	.58	Sometimes	.78	.81
HPLP Premenses	2.6	.46	Sometimes to Often	.96	.83
HPLP Postmenses	2.7	.46	Sometimes to Often	.96	.86
HPLP Total	2.6	.43	Sometimes to Often	.98	.83

[4] S.D. + Standard Deviation

Table 3

Construct Validity Estimates for the HPLP:
Item Analysis Within Subscales and Menstrual Cycle Phase

Subscale & Menstrual Cycle Phase	Never	Sometime	Often	Routine	Item to Subscale (r)
Self Actualization Premenses	13.5%	57%	28%	2%	.54 - .80
Self Actualization Postmenses	11%	59%	30%	1%	.56 - .78
Health Responsibility Premenses	30%	55%	15%	0	.20 - .69
Health Responsibility Postmenses	30%	51%	18.5%	0	.26 - .67
Exercise Premenses	39.5%	44%	20%	2%	.38 - .69
Exercise Postmenses	32%	39%	26.5%	2%	.25 - .74
Nutrition Premenses	5%	37%	55%	6%	.27 - .59
Nutrition Postmenses	3%	29%	61%	8%	.29 - .58
Interpersonal Support Premenses	6.5%	47%	40%	7%	.47 - .77
Interpersonal Support Postmenses	3.5%	44.5%	42.5%	9%	.38 - .72
Stress Management Premenses	20.5%	60%	14.5%	0	.38 - .72
Stress Management Postmenses	19%	60%	20.5%	0	.30 - .73

Figure 1

DIRECTIONS:

This questionnaire contains statements regarding your present way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the regularity with which you engage in each behavior by checking the appropriate box.

	NEVER	SOMETIMES	OFTEN	ROUTINELY
1. Eat breakfast (N)				
2. Report any unusual signs or symptoms to a health care professional (HR)				
3. Like myself (SA)				
4. Perform stretching exercises at least 3 times per week (E)				
5. Choose foods without preservatives or other additives (N)				
6. Take some time for relaxation each day (SM)				
7. Have my cholesterol; level checked and know the result (HR)				
8. An enthusiastic and optimistic about life (SA)				
9. Feel I am growing and changing personally in positive directions (SA)				
10. Discuss personal problems and concerns with persons close to me (IS)				
11. Am aware of the sources of stress in my life (SM)				
12. Feel happy and content (SA)				
13. Exercise vigorously for 20-30 minutes at least 3 times per week (E)				
14. Eat 3 regular meals a day (N)				
15. Read articles or books about promoting health (HR)				
16. Am aware of my personal strengths and weaknesses (SA)				
17. Work toward long-term goals in my life (SA)				
18. Praise other people easily for their accomplishments (IS)				
19. Read labels to identify the nutrients in packaged foods (N)				
20. Question my health care provider or seek a second opinion when I do not agree with recommendations (HR)				
21. Look forward to the future (SA)				
22. Participate in supervised exercise programs or activities (E)				
23. Am aware of what is important to me in life (SA)				
24. Enjoy touching and being touched by people close to me (IS)				
25. Maintain meaningful and fulfilling interpersonal relationships (IS)				

	NEVER	SOMETIMES	OFTEN	ROUTINELY
26. Include roughage/fiber (whole grains, raw fruits, raw vegetables) in my diet (N)				
27. Practice relaxation or meditation for 15-20 minutes daily (SM)				
28. Discuss my health care concerns with qualified professionals (HR)				
29. Respect my own accomplishments (SA)				
30. Check my pulse rate when exercising (E)				
31. Spend time with close friends (IS)				
32. Have my blood pressure checked and know what it is (HR)				
33. Attend educational programs on improving the environment in which we live (HR)				
34. Find each day interesting and challenging (SA)				
35. Plan or select meals to include the "basic four" food groups each day (N)				
36. Consciously relax muscles before sleep (SM)				
37. Find my living environment pleasant and satisfying (SA)				
38. Engage in recreational physical activities (such as walking, swimming, soccer, bicycling) (E)				
39. Find it easy to express concern, love and warmth to others (IS)				
40. Concentrate on pleasant thoughts at bedtime (SM)				
41. Find constructive ways to express my feelings (SM)				
42. Seek information from health professionals about how to take good care of myself (HR)				
43. Observe my body at least monthly for physical changes/danger signs (HR)				
44. Am realistic about the goals I set (SA)				
45. Use a specific method to control my stress (SM)				
46. Attend educational programs on personal health care (HR)				
47. Touch and am touched by people I care about (IS)				
48. Believe that my life has purpose (SA)				

SA = Self Actualization = Items 3, 8, 9, 12, 16, 17, 21, 23, 29, 34, 37, 44, 48

HR = Health Responsibility = Items 2, 7, 15, 20, 28, 32, 33, 42, 43, 46

E = Exercise = Items 4, 13, 22, 30, 38

N = Nutrition = Items 1, 5, 14, 19, 26, 35

IS = Interpersonal Support = Items 10, 18, 24, 25, 31, 39, 47

SM = Stress Management = Items 6, 11, 27, 36, 40, 41, 45

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