THE RELATIONSHIP AMONG SELF-ESTEEM, HEALTH LOCUS OF CONTROL,
AND HEALTH-PROMOTING BEHAVIOURS OF MIDLIFE WOMEN

By

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Abstract

This descriptive correlational study was designed to increase the knowledge needed to understand the relationship among health-related variables that facilitate or sustain health-promoting behaviours of midlife women. Specifically, this study investigated the relationship among self-esteem, health locus of control, and health-promoting behaviours of women in this age group. Pender's (1982) original Health Promotion Model provided the theoretical framework to structure this study. The sample included 84 midlife women volunteers who were current or prospective members of a Vancouver-based social networking group for mature women. Data were collected using the Rosenberg (1965) Self-Esteem Scale, the Multidimensional Health Locus of Control Scale - Form A, and the Health-Promoting Lifestyle Profile. Data were analyzed using descriptive statistics, Pearson's product-moment correlations, and stepwise multiple regression. Three significant predictors, self-esteem, chance health locus of control, and powerful others health locus of control, explained 24.5% of the variance for engaging in health-promoting behaviours. The study findings supported Pender's Model which postulated that individual perceptions of self-esteem and health locus of control, among other personal factors, influence one's likelihood of engaging in health-promoting behaviours. The findings also supported Pender's contention that selected demographic variables, as modifying variables, have an impact on health-promoting behaviours.
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There are many people responsible for the successful completion of this thesis. First, my family whom I owe a very special debt. Specifically, my parents whose love and support helped me make my dream a reality. My daughters, Shannon and Kylie, for their tolerance, humour, and belief in me. May their futures be filled with dreams they desire to accomplish. My sister for providing me with enthusiasm and understanding, usually via long distance phone calls.

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Chapter One

Introduction

Background to the Problem

Increasing evidence suggests that the personal behaviours and life-style choices of individuals influence both their health status and their longevity (Berkman & Breslow, 1983). Indeed, a large proportion of the deaths in Canada each year are attributable to unhealthy behaviours and inappropriate life styles. The major life-style habits dangerous to health are "alcohol and drug abuse, repeated use of psychotropic drugs, smoking, overeating, malnutrition, overconsumption of carbohydrates and fat, a lack of recreation and exercise, careless driving and sexual promiscuity" (Statistics Canada, 1984, p. 15). It would be expected that significant improvements in the health status of Canadians could be made through health promotion and illness prevention efforts.

The current health status of Canadians is considered a dilemma. While Canadians are living longer, their longer lives do not appear to be healthier. Furthermore, mortality and morbidity rates are unevenly distributed by sex, class, region, and community size (Clarke, 1987). To Clarke, "economic, racial and sex inequality are at the heart of much of this inequity" (p. 5).

Specifically, health statistics during the past 15 years reflect changes in the health status of women. Statistics Canada (1986) reports that Canadian women have a life expectancy at birth of 79.78 years which is 6.8 years longer than that of Canadian men. Despite their lower
mortality rates, women suffer more health problems and thus, have higher morbidity rates than men. As Woods (1981) points out: "Although mortality rates for most causes of death are lower for women than for men, and women in the Western world live longer than men, women report more physical and mental morbidity and utilize health services at higher rates than their male counterparts" (p. 3).

Clearly, health and health behaviours are of increasing concern as Canada's population grows older, as male and female mortality and morbidity rates remain unevenly distributed, and as evidence accumulates that supports the interrelationship between health behaviours and health status. During the past 15 years, health promotion and illness prevention have received increasing attention in the nursing research literature. This investigative trend parallels the growing public interest in decreasing the costs of health care, extending longevity, and enhancing the quality of life through health-promoting behaviours (Pender, 1984).

Recently, a number of nurse researchers have focused their efforts on exploring health-related variables that facilitate or sustain health-promoting behaviours. Health-related variables such as self-esteem, health beliefs, health locus of control, health status, and social support have been studied in relation to their utility in influencing health-promoting behaviours (Hallal, 1982; Muhlenkamp & Sayles, 1986; Rutledge, 1987).

Results from these and other related studies have been mixed due to the fact that the health-related variables have been operationalized differently thus making it difficult for the studies to build upon one another. Also, although many of these studies included women in the
midlife period, only one study was found which specifically focused on this age group (Duffy, 1988). Indeed, until recently, there has been a relative dearth of available research concerning the health or health care of midlife women even though women continue to outlive men and comprise a large proportion of the elderly population. Furthermore, the research that has been done on women’s health at midlife is “clinically oriented and assumes that menopause is the most important aspect of women’s lives and health” (DeLorey, 1984, p. 277).

Finally, a number of theorists and researchers suggest that a strong relationship exists between self-esteem and locus of control, that individuals who regard themselves highly are more likely to be involved in health-promoting behaviours, and that individuals who believe they have a high level of personal control over their health are likely to engage in health-promoting behaviours (Brown, Muhlenkamp, Fox, & Obsorn, 1983; Crouch & Straub, 1983; Pender, 1982). However, with the exception of Duffy’s (1988) work, no other studies were found which investigated the specific relationship among self-esteem, health locus of control, and health-promoting behaviours of midlife women.

Problem Statement

As the population grows older and as evidence accumulates regarding the impact of personal behaviours on health, there is a growing need to understand the determinants of health-promoting behaviours. While the study of health-promoting behaviours has assumed increasing importance over the past 15 years, at present, very little is known about the health-promoting behaviours of midlife women. More knowledge is needed
to understand the relationship among health-related variables such as self-esteem and health locus of control, and health-promoting behaviours among women in this age group.

**Purpose**

The purpose of this study is to investigate the relationship among self-esteem, health locus of control, and health-promoting behaviours of midlife women by addressing the following questions:

1) What is the level of self-esteem of midlife women?
2) What is the level of health locus of control of midlife women?
3) What is the level of health-promoting behaviours of midlife women?
4) What is the relationship among self-esteem, health locus of control, and health-promoting behaviours of midlife women?

**Definition of Terms**

**Midlife.** A distinctive period in the life cycle between 35 and 65 years of age (Neugarten, 1968).

**Self-Esteem.** A personal judgment of worthiness that is expressed in the attitudes an individual customarily holds towards him/herself (Coopersmith, 1967). Self-esteem was measured by the score obtained on the Rosenberg (1965) Self-Esteem Scale.

**Health Locus of Control.** An individual's perceptions of whether his/her health situations are primarily controlled by internal factors such as personal efforts, skills, or abilities or external factors such as fate, luck, chance, or powerful others (Rotter,
Health locus of control was measured by the scores obtained on the internal health, the chance health, and the powerful others health locus of control subscales of the Multidimensional Health Locus of Control (MHLC) Scale (Wallston, Wallston, & DeVellis, 1978).

**Health-Promoting Behaviours.** Those activities undertaken by an individual which are directed toward sustaining or increasing his/her level of well-being, self-actualization, and personal fulfillment (Pender, 1982). Health-promoting behaviours were measured by the total score and by the scores obtained on the self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management subscales of the Health-Promoting Lifestyle Profile (Walker, Sechrist, & Pender, 1987).

**Demographic Characteristics.** These included: age, marital status, race, ethnicity, education, occupation, employment, income level of household, and number of persons living in household. Demographic characteristics were elicited by use of the Demographic Information Sheet.

**Assumptions**

1) The participants reported health-promoting behaviours as actually practiced.

2) The participants were able to identify and record their perceptions regarding health-related issues and their personal judgments of worthiness.
Limitations

1) The participants are volunteers.
2) The measurement tools to be used in this study may not be valid and reliable with individuals from different cultural groups.
3) Mailed questionnaires may have a poor return rate.

Overview

Chapter One has introduced the study by discussing both the importance of the problem and what the study involves. Chapter Two will consist of a selective review of relevant literature and explain the conceptual framework. Chapter Three will describe the research methodology while Chapter Four will present and discuss the study findings. Finally, Chapter Five will present the summary, conclusions, and implications.
Chapter Two

Literature Review and Conceptual Framework

Overview

The purpose of this chapter is to present a selective review of relevant literature and to describe the conceptual framework used in this study. The review of literature is reported in three sections. The first and second sections contain a brief overview of literature pertinent to the concepts of self-esteem and health locus of control, respectively. The third section presents a discussion of selected studies that have investigated health-related variables in relation to their utility in determining health-promoting behaviours. Next, the conceptual framework chosen for this study is presented. Finally, a summary of the literature concludes this chapter.

Self-Esteem

Almost any theory which is even remotely cognitive in nature includes some description of processes by which individuals evaluate themselves and by which such evaluations influence consequent behaviour. The label most frequently attached to self-evaluation and self-evaluative behaviours is self-esteem (Wells & Marwell, 1976).

Rosenberg (1979) describes self-esteem as a fairly unidimensional phenomenon - "a positive or negative orientation toward an object" (p. 54). Coopersmith (1967) defines self-esteem as "a personal judgment of worthiness that is expressed in the attitudes the individual holds
towards himself" (p. 5).

Crouch and Straub (1983) delineate self-esteem into basic self-esteem, the relatively enduring foundation formed through early life experiences, and functional self-esteem which develops later in life and "stems from an ongoing evaluation of interactions with people and things" (p. 65). Functional self-esteem is considered changeable, it may substantially exceed or fall below basic levels, and it is influenced by significant others, social and cultural role expectations, developmental crises, and communication and coping styles.

Although there is lack of consensus among theorists regarding a precise definition of self-esteem, there are common threads, or points of agreement, running throughout the self-esteem literature. First, self-esteem is viewed by all theorists as a vital and relevant conceptual tool. How an individual thinks of and evaluates him/herself is an essential behavioural concept for interpreting human conduct. Second, self-esteem is viewed as a learned phenomenon involving a lifelong process. From the moment of birth, experiences create the conditions that influence self-esteem. The learning process revolves around an individual's interactions with his/her social environment primarily with his/her family of origin and including significant others as they vary across the individual's life span. Third, there is general consensus among theorists that an individual's self-esteem cannot endure for long if it is not nurtured by the esteem of others. Finally, many theorists assert that it is possible to enhance or diminish an individual's self-esteem at any stage across his/her life span (Coopersmith, 1967; Crouch & Straub, 1983; Reasoner, 1983;

**Health Locus of Control**

The concept of locus of control is derived from Rotter's (1954) social learning theory. Rotter asserts that the potential for a behaviour to occur in any given situation is a function of the expectancy that the behaviour will lead to a specific outcome in that situation, together with the value that the individual gives that outcome. Stated another way, "internal-external locus of control refers to the extent to which persons perceive contingency relationships between their actions and their outcomes" (MacDonald, Jr., 1973, p. 169). "Health locus of control" refers to the concept of locus of control applied to health situations.

Individuals characterized by an internal locus of control (internals) believe they have some control over their destinies, that is, they expect that outcomes are within their control and are related to their efforts, skills, and/or abilities. Thus, internals perceive reinforcement to be contingent upon their behaviour.

By contrast, individuals characterized by an external locus of control (externals) believe that their outcomes are determined "by agents or factors extrinsic to themselves, for example, by fate, luck, chance, powerful others, or the unpredictable" (MacDonald, Jr., 1973, p. 169). Thus, externals perceive reinforcement to be controlled by outside forces. Knowledge of individuals' locus of control orientation together with the knowledge of the value of the particular
reinforcement contributes to the prediction of behaviour in any given situation (Wallston & Wallston, 1978).

Locus of control theory bears ample testimony that internals and externals occupy different positions on the instrumental-expressive behaviour dimension. While internals engage in more instrumental goal-directed activity, externals more often manifest emotional non-goal-directed responses (MacDonald, Jr., 1973).

**Studies of Health-Related Variables**

Strickland (1978), in an extensive review of Rotter's (1954) Internal-External (I-E) Scale in relation to health, reported that individuals who have internal expectancies are more likely to take responsibility for their health. Wallston, Wallston, Kaplan, and Maides (1976), developers of the Health Locus of Control (HLC) Scale, demonstrated that internals who valued health highly sought more health-related information than did externals. The Multidimensional Health Locus of Control (MHLC) Scale was developed by Wallston et al. (1978) when factor analytic studies on the I-E Scales and the HLC Scale suggested that locus of control was multidimensional, that is, externality could be differentiated into two subcategories: fate or chance, and powerful others.

Brown et al. (1983) sought to determine the predictive validity of the combined MHLC subscales and health value for a broad range of health-promotion activities. Twenty percent of the variance in the self-reported health-promotion activities of the sample of 63 middle class, healthy adults was accounted for by the MHLC and the level at
which health was valued. The MHLC chance subscale accounted for most of the variance (14%) in a negative direction, that is, individuals who believed that they had little personal control over their health engaged in the least amount of health promotion activity.

In a study grounded in the Health Belief Model (Becker, 1974), Muhlenkamp, Brown, and Sands (1985) analyzed 175 nursing clinic clients' health beliefs, values, and demographic characteristics for their impact on health promotion activities. The sample was predominantly Caucasian (87%) and female (81%) with a mean age of 27.8 years. The chance MHLC subscale emerged again as a negative predictor of health promotion activities in conjunction with the demographic variables of education, sex, general health, and age. Although the correlation coefficient was significant, the magnitude of the relationship was small thereby mandating a cautious interpretation of the results. The combination of health beliefs, values, age, general health, internal health locus of control, powerful others health locus of control, and income accounted for almost 19% of the variance in the type of health care sought at the clinic.

Stillman (1977) developed a questionnaire based on the Health Belief Model to investigate the relationship between factual knowledge about cancer, health beliefs, and the extent of breast self-examination (BSE) in a convenience sample of 122 women between the ages of 20 and 59. Of those women who perceived themselves to be highly susceptible to breast cancer, only 41% examined their breasts regularly while only 15% of those women who rated benefits of BSE as high reported performing monthly BSE. Thus,
the findings failed to support Becker's (1974) Health Belief Model. It is important to note that while content validity of Stillman's health beliefs instrument was established by a panel of experts, reliability of the instrument was not determined.

Hallal (1982), building on Stillman's (1977) work and using the health beliefs instrument developed by Stillman, investigated the relationship between health beliefs, health locus of control, and self-concept to the practice of BSE in 207 adult women, 18 years of age or older. Hallal found that monthly BSE was positively related to belief in cancer susceptibility ($r=.15$), self-esteem ($r=.35$), perceived benefits ($r=.29$), and negatively related to beliefs in control of health by powerful others ($r=-.17$).

Rutledge (1987), using the Breast Self-Examination Practice Model which combines major portions of the Health Belief Model, investigated factors related to 93 upper middle class women's practice of BSE. Ages ranged from 25 to 85. Similar to Hallal's (1982) findings, Rutledge found a significant positive relationship between self-esteem and frequency of BSE ($r=.24$). These findings are similar to those of Herold, Goodwin, and Lero (1979) who reported that young women with higher self-esteem held more positive attitudes regarding birth control and were more likely to obtain and use contraception effectively. By contrast, Andreoli (1981) found no statistical difference in self-concept between male hypertensive patients who complied with prescribed therapy and those who did not.

In a cross-sectional survey of 388 middle class adults, Pender and Pender (1980) explored the relationship between psychosocial and
behavioural characteristics of the population and intentions to use illness prevention and health promotion services provided by nurse practitioners. The best predictors of use of the services were expressed interest in use of prevention and health promotion services for direct pay, education beyond high school, and low level of life stress.

Pender and Pender (1986), using the theory of reasoned action (Ajzen & Fishbein, 1980), analyzed the relationships among attitudes, subjective norms, and intentions to exercise regularly, attain or maintain recommended weight, and avoid highly stressful life situations. The sample consisted of 377 adults between the ages of 18 and 66 living in two midwestern communities. While attitudes were useful in explaining all three of the health behaviours studied, only subjective norms contributed to the explanation of intentions to engage in regular exercise. Together, attitudes, subjective norms, and weight affected intentions to engage in regular exercise. Attitudes, weight, and perceived health status were the primary determinants of intention to eat a diet consistent with weight control while only attitude was associated with intention to manage stress. Limitations of this study include measurement of intentions as opposed to actual behaviour and the use of single-item versus multi-item measures of behavioural intention.

Christiansen (1981), using a national probability sample of 378 adults to determine factors which differentiated those who were engaged in preventative and health-promoting activities from those who were not, found that importance of health (health value),
perceived health status, comparative health status (in relation to
others), occupation, and household size accounted for the most
variance in reported incidents of health behaviours. Perceived health
status and importance of health are components of Pender's (1982)
original Health Promotion Model. When interpreting Christiansen's
results, it is important to note that the volunteer sample may have
been atypical due to the respondents' repetitive participation in
surveys.

Studies by Hanner (1986) and Muhlenkamp and Sayles (1986)
partially supported the findings of Pender and Pender (1980) and
Christiansen (1981). Hanner found low but significant correlations
between education, perceived health status, self-esteem, and the
subjects' reported practice of health-promoting life-style activities.
In a study to identify relationships among perceived social support,
self-esteem, and positive health practices of 98 predominantly
Caucasian (86%) adults with a mean age of 29 years, Muhlenkamp and
Sayles found that both self-esteem and social support were positive
indicators of life style with social support exerting its influence
indirectly through its direct effect on self-esteem.

In a study of 262 women between the ages of 35 and 65 years,
Duffy (1988) investigated the relationship among health locus of
control, self-esteem, and health status and the degree to which they
explained midlife women's current practice of health-promoting
life-style activities. Chance health locus of control, self-esteem,
current health, health worry/concerns, post high school education, and
internal health locus of control explained 25% of the variance of
likely to engage in health-promoting life-style activities.

Pender's (1982) original Health Promotion Model provided the theoretical framework for Duffy's (1988) study. The results partially supported Pender's model which posits that individual perceptions of health locus of control, self-esteem, and health status influence health-promotion behaviours. However, Duffy's study did not support Pender's view or Christiansen's (1981) findings that demographic variables have an impact on health-promoting behaviours. This discrepancy is likely related to the relative homogeneity of Duffy's sample: mostly white, highly educated, working full-time in a public university, and financially very comfortable. Christiansen's sample, by contrast, was more heterogeneous in age, employment, income, and geographic region of residence.

Walker, Volkan, Sechrist, and Pender (1988), using a convenience sample of 452 adults aged 18 to 88, compared older adults with young and middle-aged adults in terms of their overall health-promoting life styles and six life-style dimensions. In addition, the extent to which age and other sociodemographic variables explained the variance found in adults' health-promoting life styles and differing life-style patterns among older adults were identified and examined. The results indicated that older adults had higher scores in overall health-promoting life style and in the dimensions of health responsibility, nutrition, and stress management than did young and middle-aged adults. Sociodemographic variables accounted for only 13.4% of the variance in health-promoting life styles and between 5.2% and 18.6% of the variance in the six dimensions of a
health-promoting life style. The investigators identified five major health-promoting life-style patterns among the older adults, indicating a heterogeneous group with varying needs for health promotion programming.

In summary, while health has always been valued in our society, recently, it has assumed growing importance as evidenced, in part, by the increasing number of nursing studies focusing specifically on health, health behaviours, and the fundamental mechanisms underlying human health processes. The studies previously cited clearly demonstrate evidence of this investigative focus. There is general agreement that such attention is urgently needed given the paucity of information currently available regarding health functioning of individuals across the life span (Pender, 1987). Health-related variables that have been studied include, among others, health attitudes, health locus of control, health values, health perceptions, general health, and sociodemographic characteristics. These variables have been studied in relation to their utility in determining health-promoting behaviours.

**Conceptual Framework**

Pender's (1982) original Health Promotion Model, derived from the Health Belief Model (Becker, 1974), provides the theoretical framework for this study. The Health Belief Model was developed early in the 1950s by Rosenstock, Hochbaum, and Kegeles (Pender, 1982). Important dimensions of the Health Belief Model include goal setting based on perceived consequences, subjective estimates of
desired outcomes, and decision-making under uncertainty. While the Health Belief Model focuses on health-protecting behaviours directed toward decreasing the probability of encountering illness, the Health Promotion Model focuses on health-promoting behaviours directed toward sustaining or increasing a level of well-being, self-actualization, and personal fulfillment. "Health promotion focuses on movement of the individual toward a positively valenced state of increased health and well-being...Growth, maturation, and expression of inherent and acquired human potential are some of the goals toward which health promotive behaviors are directed" (Pender, 1982, p. 65).

According to Pender (1982), determinants of health-promoting behaviours are categorized into individual perceptions and modifying factors both of which comprise the decision-making phase of the Model, and variables affecting the likelihood of action which comprise the action phase of the Model. Pender emphasizes the cyclical process by which individuals move back and forth between the decision-making and action phases. Figure 1 presents Pender's Health Promotion Model as originally proposed.

Individual perceptions that facilitate or sustain health-promoting behaviours include importance of health, perceived control, desire for competence, self-awareness, self-esteem, definition of health, perceived health status, and perceived benefits. Pender (1982) hypothesizes that each of these individual perceptions or personal factors have motivational significance, that is, they influence an individual's readiness to engage in health-promoting behaviours. The
Individual Perceptions

- Importance of health
- Perceived control
- Desire for competence
- Self-awareness
- Self-esteem
- Definition of health (actualization versus stabilization)
- Perceived health status
- Perceived benefits of health-promoting behaviors

Modifying Factors

- Demographic variables (age, sex, race, ethnicity, education, income)
- Interpersonal variables (expectations of significant others, family patterns of health care, interactions with health professionals)
- Situational variables (health promoting options available, prior experience with health-promoting actions)

Likelihood of Action

- Perceived barriers to action (unavailability, cost, inconvenience, extent of life change required)
- Likelihood of taking health-promoting action
- Cues to action (awareness of potential for growth, advice from others, mass media)

DECISION-MAKING PHASE

ACTION PHASE

Figure 1. Health Promotion Model as originally proposed (Pender, 1982, p. 66).
present study specifically focuses on two of these individual perceptions that facilitate or sustain health-promoting behaviours: self-esteem and perceived control or health locus of control.

According to the Pender (1982) Model, modifying factors that affect individuals' dispositions to engage in health-promoting behaviours are demographic, interpersonal, and situational. Demographic factors include age, sex, race, ethnicity, education, and income. Interpersonal factors include expectations of significant others, family patterns of health care, and interactions with health professionals. Situational factors include health-promoting options available and prior experience with health-promoting actions.

Finally, the two salient variables affecting the likelihood of action are perceived barriers to action, imagined or real, and cues, internal or external, that trigger activity. Barriers include individual perceptions regarding unavailability, inconvenience, or difficulty of a particular health-promoting option. Examples of internal cues that may trigger activity are personal awareness of the potential for growth and "feeling good" as a result of initial experiences with health activities. External cues may include either conversations with others regarding their health practices or the mass media through programs regarding personal health, family health, and environmental concerns. Pender (1982) points out that "the intensity of the cue needed to trigger action will depend on the level of readiness of the individual to engage in health-promoting activity" (p. 74).

In summary, because the research problem for this study is concerned with understanding the relationship among health-related
variables, specifically self-esteem and health locus of control, and health-promoting behaviours of midlife women, Pender's (1982) original Health Promotion Model is an appropriate organizing framework. As Hilton (1986) points out: “Through a holistic approach, it...systematically [identifies] relevant components in a significant area where study is needed....The model stimulates thinking and provides direction for research” (p. 62).

Summary

The literature reviewed in this chapter indicates that a number of researchers have recently focused their efforts on exploring health-related variables that facilitate or sustain health-promoting behaviours. The Health Belief Model (Becker, 1974), Pender's (1982) original Health Promotion Model, and components of the Health Belief Model and Pender's Model have provided the theoretical framework for many of these studies. Although many of them included women in the midlife period, only one study was found which specifically focused on this age group (Duffy, 1988). It was noted that very little is known about the health and health-promoting behaviours of midlife women. It was further noted that the health-related variables in many of the studies reviewed have been operationalized differently thus making it difficult to reach any definitive conclusions regarding the study findings, particularly in relation to self-esteem, health locus of control, and health-promoting behaviours. For these reasons, this study helps fill the void noted in the reviewed literature by specifically investigating the relationship among self-esteem,
health locus of control, and health-promoting behaviours of midlife women.
Chapter Three

Methodology

Overview

This chapter describes the methodology used in this descriptive correlational study including: the sample, ethics and human rights, the data collection procedure, the instruments used, and the analysis procedure.

Sample

The sample consisted of the current members of a Vancouver-based social networking group for mature women. This group was created in 1983 for mature women who felt isolated from society through divorce, widowhood, or other reasons. Selection criteria for inclusion in the study included being between the ages of 35 and 65 years and able to read and write English. Also, prospective members who met the selection criteria and attended the group's November, 1989 monthly networking meeting were included. All participants were volunteers.

Ethics and Human Rights

Verbal explanation by the investigator of the purpose of the study, the procedures for data collection, and the intended analysis of the data was given to all current and prospective members who attended the group's November, 1989 monthly networking meeting. In addition,
each of these participants and the group's current members who were not in attendance at this November meeting received written explanation of the study in the research packets. All participants were informed that they could withdraw from the study at any time or refuse to participate without prejudicing their current or prospective membership in the group. Responses remained anonymous. Informed consent was inferred by the completion and return of the research packets. A copy of the letter to participants is presented in Appendix A.

The instruments, cover letter, the social networking group's consent letter, and an outline of the proposed study were submitted for ethical review to the University of British Columbia Screening Committee For Research Involving Human Subjects. The study procedure, handling of data to ensure confidentiality, and the potential benefits, costs, and risks to participants were critiqued and found not to violate the rights of human subjects. The study was implemented following approval by this Committee.

Procedure for Data Collection

Volunteer staff at the group's office addressed envelopes to each current member of the group prior to the November monthly meeting. Each envelope contained a copy of the group's monthly newsletter and the investigator's research packet. Each packet contained six items: a cover letter, three instruments, a Demographic Information Sheet, and a pre-addressed stamped return envelope. The group included a brief description of the investigator's study in its December newsletter.
The group also included a follow-up reminder to nonrespondents in its January newsletter, noting that replacement research packets were available as necessary by either phoning the group's office or the investigator.

The addressed envelopes were distributed to the current members in attendance at the November meeting by the group's secretary. The remaining addressed envelopes to those current members not in attendance at the meeting were mailed two days later. Additional envelopes containing the group's newsletter and the research packet were available from the group's secretary upon request to interested prospective members attending the meeting. The completed packets were returned by mail to the investigator.

Instrumentation

The instruments used included the Rosenberg (1965) Self-Esteem Scale to measure self-esteem, the Multidimensional Health Locus of Control (MHLC) Scale - Form A (Wallston et al., 1978) to measure internal/external health locus of control orientations, the Health-Promoting Lifestyle Profile (Walker et al., 1987) to measure health behaviours, and the Demographic Information Sheet to describe the sample.

Self-Esteem Scale

The Rosenberg (1965) Self-Esteem Scale measures the self-acceptance dimension of self-esteem. This Scale was chosen because it is self-administered, brief, and considered "thorough in measuring the self-acceptance factor of self-esteem" (Crandall, 1973).
The instrument is a 10-item Guttman scale in which participants are asked to strongly agree (1), agree (2), disagree (3), or strongly disagree (4). Scoring is based on "contrived items" and yields a 7-point scale (0 to 6). Low esteem is indicated by scores of 3 to 6, medium esteem by a score of 2, and high esteem by scores of 0 or 1. Positively and negatively worded statements are alternately presented to reduce response set bias (Davis, 1984).

Rosenberg (1979) notes that the Scale is often scored according to a Likert format and that it seems to yield results similar to those used with the Guttman procedure. Crandall (1973) asserts that the Scale can be used without the grouping of items necessary for the Guttman format. In the current study, the Scale was scored according to the Likert format. When scored in this manner, the scores can range from a high of 40 to a low of 10. Higher scores reflect lower self-esteem.

Rosenberg (1965) reported a reproducibility coefficient of 92% and an item scalability of 72% based on a sample of 5,024 high school students. Silber and Tippett (1965) reported a test-retest reliability of \( r = 0.85 \) following a two week interval in their study on the clinical assessment and validation of self-esteem (\( N = 28 \)). Correlations ranged between .56 and .83 with similar measures and clinical judgments. Crandall (1973) reported an interscale correlation of .60 with Coopersmith's (1967) Self-Esteem Inventory. Kaplan and Pokorny (1969) factor analyzed the responses of 500 adults and reported factor-item correlations from .37 to .77. Ward (1977) reported a Cronbach's alpha of .74 for 323 noninstitutionalized elderly adults,
while Duffy (1988) reported a coefficient alpha of .88 for her study of 262 midlife women. Kenworthy (1989) reported a Cronbach's alpha of .79 for her study of 150 adult back and neck patients. The coefficient alpha for the present study was .86.

Several studies have reported validity of this instrument (Rosenberg, 1965; Silber & Tippett, 1965). Davis (1984) reported that the major strengths of this instrument are "the high degree of reliability and strong support of validity (criterion-related and construct) as a measure of global self-esteem" (p. 14).

The Scale is considered appropriate for use with adults; however, it is not appropriate for young children who may not understand all of the words, such as "positive attitude." The Scale may be used without explicit permission of its author. A copy of the Scale is presented in Appendix B.

Multidimensional Health Locus of Control (MHLC) Scale - Form A

This Scale was chosen because it has established reliability and validity, and has been used extensively with adults completing either Form A or Form B, or both. This 18-item instrument, a copy of which is presented in Appendix C, consists of three subscales that measure the extent to which an individual believes his/her health outcomes are under his/her own control, under the control of chance occurrences, or under the control of powerful others (Wallston et al., 1978). Each subscale is a Likert-type scale of six statements to which the participant responds along a continuum ranging from strongly disagree (1) to strongly agree (6). The scores can range from a high of 36 to a low of 6 for each subscale. Higher scores reflect a higher level of
"internality" on the internal subscale and a higher level of "externality" on the chance and powerful others subscales.

Wallston et al. (1978) reported internal consistency reliability coefficients using Cronbach's alpha ranging from .67 to .77 for the subscales as well as evidence for construct validity. Cronbach's alpha coefficients for Duffy's (1988) study were .77 for the internal health locus of control, .69 for chance, and .73 for powerful others. Cronbach's alpha coefficients for the current study were .75 for the internal health locus of control, .67 for chance, and .58 for powerful others. Hallal (1982) reported that the instrument has predictive validity in that there is "a positive correlation between a high score on the Internal subscale and good health status" (p. 139). This instrument may also be used without explicit permission of its authors.

Health-Promoting Lifestyle Profile.

This 48-item instrument measures an individual's current practice of behaviours that maintain or increase levels of wellness, self-actualization, and fulfillment (Walker et al., 1987). A copy is presented in Appendix D. This instrument was chosen because it has sufficient reliability and validity to describe the health-promoting component of life style in various populations. This summated rating scale employs a 4-point response format (1=never to 4=routinely). The scale contains six subscales: self-actualization (13 items), health responsibility (10 items), exercise (5 items), nutrition (6 items), interpersonal support (7 items), and stress management (7 items). The range of scores for each subscale varies depending on the
number of items. For example, the scores on the self-actualization subscale (13 items) would range from a low of 13 to a high of 52. The scores for the total scale range from a low of 48 to a high of 192. Higher scores indicate a more health-promoting level of behaviour in all instances.

The six subscales were derived from the responses of 952 adults through item and factor analysis (Walker et al., 1987). To evaluate stability, Walker et al. administered the instrument twice to a sample of 63 adults at an interval of two weeks. Pearson r was .926 for the total scale and ranged from .808 to .905 for the subscales. The authors found the total instrument to have high internal consistency with an alpha coefficient of .922. Alpha coefficients for the subscales were .90 for self-actualization, .81 for health responsibility, .81 for exercise, .76 for nutrition, .80 for interpersonal support, and .70 for stress management. Coefficient alphas for subscale scores in Duffy's (1988) study were .89 for self-actualization, .80 for health responsibility, .77 for exercise, .74 for nutrition, .78 for interpersonal support, and .73 for stress management. The alpha coefficient for the total health promotion score was .91. Coefficient alphas for subscale scores in the current study were .91 for self-actualization, .81 for health responsibility, .72 for exercise, .69 for nutrition, .86 for interpersonal support, and .70 for stress management. The alpha coefficient for the total health promotion score was .93. According to Nunnally (1978), modest reliability (.70 or higher) is acceptable in the early stages of research and a reliability of .80 is acceptable for instruments used in basic research. Written permission to use this
instrument was obtained from Dr. Walker.

Demographic Information Sheet.

Demographic and descriptive data including age, marital status, race, ethnicity, education, occupation, employment status, income of household, and number of persons living in the household were collected on a form developed by the investigator. These modifying factors were identified in Pender's (1982) original Health Promotion Model and in related research as being correlated with health behaviours. A copy of this form is presented in Appendix E.

Data Analysis

Descriptive statistics of frequency and percentages were used to analyze the demographic variables, for example, marital status, race, and education. Means, ranges, and standard deviations (SD), measures of central tendency and dispersion, were used to analyze the continuous demographic variables of age, monthly and annual income, and number of persons currently living in the household.

Means, ranges, and SD were used to analyze research questions one, two, and three. This included both total scores (except the MHLC which only yields three subscale scores), and subscale scores (except the Self-Esteem Scale which only yields one total score). The Health-Promoting Lifestyle Profile yields one total score and six subscale scores for each participant. Also, to address research question three, a Z test was used to analyze differences between means of the study sample and Duffy's (1988) sample of midlife women. A two-tailed test was used to determine significance at the
.05 level. To address research question four, Pearson's product-moment correlations were initially computed to examine both the relationship among the study variables and to determine independence among the predictor variables.

According to Burns and Grove (1987), r-values that are between .10 and .30 can be considered weak; between .30 and .50 moderate; and above .50 strong. Most social science correlations are between .30 and .70 (Freedman, Pisani, & Purves, 1980). In nursing research, there is a tendency to disregard weak correlations. This may result in ignoring a relationship that may have meaning within nursing knowledge when examined within the context of other variables. Therefore, "although one should not overreact to small Pearson's coefficients, the information must be recorded for future reference. If the relationship is intuitively important, one may have to plan better designed studies and reexamine the relationship" (Burns & Grove, 1987, p. 510).

Also, to address research question four, a stepwise multiple regression analysis was done on the total health promotion score using the MHLC subscale scores and the total self-esteem score. As Woods (1988) points out, the purpose of multiple regression analysis is to describe the extent, strength, and direction of the relationship among several independent variables (self-esteem and health locus of control) and a single dependent variable (health-promoting behaviours).

All data were analyzed using the computer program Statistical Package for the Social Sciences (SPSS Inc., 1988). A significance level was set at .05. When responses to 5% or fewer of the items on
each of the three instruments were omitted, missing values for each item were replaced by mean sample values. If more than 5% of the items on any one of the instruments were unanswered, that complete instrument was discarded.
Chapter Four

Presentation and Discussion of Findings

Overview

The findings of this study are presented in three sections. The first section provides a description of the sample of individuals who participated in the study based on demographic variables. Section two presents a comparison of the study sample to Duffy's (1988) sample of midlife women between 35 and 65 years of age. Finally, the third section describes and discusses the study findings relative to the four research questions concerning the levels of self-esteem, health locus of control, and health-promoting behaviours, and the relationship among these variables.

A total of 190 questionnaire packets were distributed to current and prospective members of the social networking group for mature women. Of those 190, 93 (48.9%) were returned. Of those 93, nine were excluded either because data were not sufficiently complete or because respondents did not meet the selection criteria for inclusion in the study. Thus, the study findings are based on 84 completed questionnaires yielding a response rate of 44.2%.

A sample size of 84 falls well beyond the desired number of 68 which was computed using the software program SampleCalc (Anderson, 1982). SampleCalc, based on Cohen's (1977) statistical power analysis, used the following criteria: an alpha level of .05, an effect size of .30, and a power of .80.
Demographic and Descriptive Information

The following information was collected about the participants: age, marital status, race, ethnicity, education, occupation, employment status, income of household, and number of persons living in the household.

Age.

The participants ranged in age from 42 to 65, with an average age of 56.98 years (SD=5.65). The majority (86.9%) of the participants were between the ages of 51 and 65. Only 13.1% were 50 years of age or younger. The age distribution of the participants is presented in Table 1.

Table 1
Age Distribution of Participants

<table>
<thead>
<tr>
<th>Age Range</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>35-40</td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>41-45</td>
<td>6</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>46-50</td>
<td>5</td>
<td>6.0</td>
<td>13.1</td>
</tr>
<tr>
<td>51-55</td>
<td>17</td>
<td>20.3</td>
<td>33.4</td>
</tr>
<tr>
<td>56-60</td>
<td>33</td>
<td>39.3</td>
<td>72.7</td>
</tr>
<tr>
<td>61-65</td>
<td>23</td>
<td>27.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Marital status.

Marital status was described using five categories: married, never married, separated, divorced, and widowed. The majority of the participants were divorced (n=36, 42.9%). The next most frequently occurring category was married (n=22, 26.2%), followed by the 14 (16.7%) participants who were widowed. Ten (11.9%) participants had never married and two (2.4%) participants were separated.

Race.

Race was described using five categories: white, oriental, native Indian, black, and other. By far the majority of participants were white (n=80, 95.2%), two (2.4%) participants were oriental, one (1.2%) participant was black, and one (1.2%) participant classified herself as "other."

Ethnicity.

The participants were asked to indicate their ethnic backgrounds. This resulted in 34 different ethnic backgrounds being listed. Specifically, the majority of participants were of English background (n=25, 29.8%). This was followed by Scottish-English (n=9, 10.7%), German (n=5, 6.0%), Scandinavian (n=5, 6.0%), and Irish (n=4, 4.8%). Each of the remaining 29 classifications of ethnic background listed contained one to three participants in each category. Two (2.4%) participants did not complete this question.

With respect to both race and ethnicity, given the multi-cultural nature of Vancouver, the overwhelming number of white participants was unanticipated. On the other hand, the fact that 34 different ethnic backgrounds were listed was what one might have expected.
Level of education.

By far the majority of participants had an education level beyond Grade 12 (n=65, 77.4%). Only 19 (22.6%) participants had Grade 12 education or less. The levels of education of the participants are presented in Table 2.

Table 2
Levels of Education of Participants

<table>
<thead>
<tr>
<th>Education Level</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=Grade 7</td>
<td>1</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Grades 8-11</td>
<td>8</td>
<td>9.5</td>
<td>10.7</td>
</tr>
<tr>
<td>Grade 12</td>
<td>10</td>
<td>11.9</td>
<td>22.6</td>
</tr>
<tr>
<td>Technical training</td>
<td>22</td>
<td>26.2</td>
<td>48.8</td>
</tr>
<tr>
<td>College diploma</td>
<td>26</td>
<td>31.0</td>
<td>79.8</td>
</tr>
<tr>
<td>University degree</td>
<td>10</td>
<td>11.9</td>
<td>91.7</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>6</td>
<td>7.1</td>
<td>98.8</td>
</tr>
<tr>
<td>Doctorate degree</td>
<td>1</td>
<td>1.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Occupation.

Participants were asked to specify their occupation. This resulted in seven general categories of occupation being listed with "secretary/clerical" being the most frequently cited (n=21, 25.6%).
Two (2.4%) participants did not complete this question. The occupations of participants are presented in Table 3.

Table 3
Occupations of Participants

<table>
<thead>
<tr>
<th>Occupation</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secretary/clerical</td>
<td>21</td>
<td>25.6</td>
<td>25.6</td>
</tr>
<tr>
<td>Retired</td>
<td>15</td>
<td>18.3</td>
<td>43.9</td>
</tr>
<tr>
<td>Business/accounting/bookkeeping</td>
<td>15</td>
<td>18.3</td>
<td>62.2</td>
</tr>
<tr>
<td>Unemployed</td>
<td>10</td>
<td>12.2</td>
<td>74.4</td>
</tr>
<tr>
<td>Nurse/health care</td>
<td>10</td>
<td>12.2</td>
<td>86.6</td>
</tr>
<tr>
<td>Teacher/instructor</td>
<td>6</td>
<td>7.3</td>
<td>93.9</td>
</tr>
<tr>
<td>Housekeeper/daycare</td>
<td>5</td>
<td>6.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Employment status.

Fifty (59.5%) respondents indicated that they were currently employed. Of these 50, 34 (68%) worked full time and 16 (32%) worked part time.

Income of household.

The monthly gross household income of the participants ranged from $500 to $8,333 with a mean of $2,231.32 (SD=$1,318.35). The
annual gross household income of the participants ranged from $6,000 to $100,000 with a mean of $27,419.77 (SD=$15,953.91). Seventeen (20.2%) participants did not complete the questions on income levels. The annual gross household incomes of participants are presented in Table 4.

Table 4
Annual Gross Household Incomes of Participants

<table>
<thead>
<tr>
<th>Income</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - $9,999</td>
<td>6</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>$10,000 - $19,999</td>
<td>14</td>
<td>21.0</td>
<td>30.0</td>
</tr>
<tr>
<td>$20,000 - $29,999</td>
<td>27</td>
<td>40.3</td>
<td>70.3</td>
</tr>
<tr>
<td>$30,000 - $39,999</td>
<td>6</td>
<td>8.9</td>
<td>79.2</td>
</tr>
<tr>
<td>$40,000 - $49,999</td>
<td>6</td>
<td>8.9</td>
<td>88.1</td>
</tr>
<tr>
<td>&gt;$50,000</td>
<td>8</td>
<td>11.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Persons living in household.

Exactly one-half of the participants lived alone (n=42, 50%). Thirty-one (36.9%) participants had one other person living in their household, six (7.1%) participants had two other persons living in their household, four (4.8%) participants had three other persons living in their household, and one (1.2%) participant had four other persons
living in her household. Overall, there was a mean number of 1.70 persons (SD=.88) living in the same household. Eighteen (21.4%) participants lived with their spouse, 11 (13.1%) lived with their children, and the remaining 13 (15.5%) participants lived with various others including parents, inlaws, grandchildren, and/or renters.

Comparison of the Study Sample to Duffy's (1988) Sample

As previously noted, a number of studies exploring health-related variables have included women in the midlife period; however, Duffy's study was the only one which focused specifically on this age group.

The study sample varied quite markedly from Duffy's (1988) sample of midlife women. As can be seen in Table 5, Duffy's sample was relatively homogeneous: financially well-off, mostly white, highly educated, and working full time in a public university. By contrast, the study sample was more heterogeneous in marital status, education, occupation, and income.

In the current study, married women constituted only 26.2% compared to Duffy's (1988) 60.1%. The fact that the majority of women in the current study were divorced, widowed, or never married may well explain why they joined the social networking group in the first place. After all, as stated earlier, the group was created for mature women who felt socially isolated from society through divorce, widowhood, or other reasons.

Also, because marital status is a prime determinant of living arrangements, it is not surprising that 50% of the study population lived alone. While Duffy's (1988) study does not specify the number of
<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Study Sample (N=84)</th>
<th>Duffy's Sample (N=262)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>M=56.9</td>
<td>M=45.5</td>
</tr>
<tr>
<td>Annual gross income</td>
<td>M=$27,419</td>
<td>M=$50,290</td>
</tr>
<tr>
<td>Number of persons living in household</td>
<td>M=1.70</td>
<td>M=2.54</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>married</td>
<td>26.2%</td>
<td>60.1%</td>
</tr>
<tr>
<td>never married</td>
<td>11.9%</td>
<td>16.0%</td>
</tr>
<tr>
<td>divorced</td>
<td>42.9%</td>
<td>19.8%</td>
</tr>
<tr>
<td>separated</td>
<td>2.4%</td>
<td>1.9%</td>
</tr>
<tr>
<td>widowed</td>
<td>16.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>white</td>
<td>95.3%</td>
<td>93.5%</td>
</tr>
<tr>
<td>oriental</td>
<td>2.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>black</td>
<td>1.2%</td>
<td>1.5%</td>
</tr>
<tr>
<td>other</td>
<td>1.2%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;grade 12</td>
<td>10.7%</td>
<td>2.3%</td>
</tr>
<tr>
<td>grade 12</td>
<td>11.9%</td>
<td>2.7%</td>
</tr>
<tr>
<td>technical training</td>
<td>26.2%</td>
<td>not reported</td>
</tr>
<tr>
<td>partial college or college diploma</td>
<td>31.0%</td>
<td>13.7%</td>
</tr>
<tr>
<td>university degree</td>
<td>11.9%</td>
<td>8.4%</td>
</tr>
<tr>
<td>master's degree</td>
<td>7.1%</td>
<td>19.8%</td>
</tr>
<tr>
<td>doctorate degree</td>
<td>1.2%</td>
<td>52.9%</td>
</tr>
</tbody>
</table>
Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>25.6%</th>
<th>13.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>secretary/clerical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>retired</td>
<td>18.3%</td>
<td>0</td>
</tr>
<tr>
<td>business/accounting/bookkeeping</td>
<td>18.3%</td>
<td>0</td>
</tr>
<tr>
<td>unemployed</td>
<td>12.2%</td>
<td>0</td>
</tr>
<tr>
<td>teacher/instructor/lecturer</td>
<td>7.3%</td>
<td>20.9%</td>
</tr>
<tr>
<td>professional/administrative staff</td>
<td>0</td>
<td>19.7%</td>
</tr>
<tr>
<td>professor</td>
<td>0</td>
<td>45.6%</td>
</tr>
<tr>
<td>other</td>
<td>18.3%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

Persons living in household

<table>
<thead>
<tr>
<th>Living in Household</th>
<th>50.0%</th>
<th>not reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>self only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>spouse</td>
<td>21.4%</td>
<td>64.6%</td>
</tr>
<tr>
<td>children</td>
<td>13.1%</td>
<td>43.3%</td>
</tr>
<tr>
<td>parents/inlaws</td>
<td>2.4%</td>
<td>5.3%</td>
</tr>
<tr>
<td>other</td>
<td>13.1%</td>
<td>7.2%</td>
</tr>
</tbody>
</table>

respondents who lived alone, it seems logical to conclude that there were very few, if any, given that the mean number of persons living in the same household was 2.54 and the majority of the women lived with their spouses (64.6%) and/or children (43.3%).

According to Statistics Canada (1984), six of 10 persons living alone are women, and it is after the age of 55 that more women than men live alone. This reflects both an escalating divorce rate and women's tendency to outlive their husbands. This seems to hold true with the study population where the mean age was 56.9, 42.9% were divorced, and 16.7% were widowed.

Although both Duffy's (1988) population and the study population were almost identical in relation to race, there were wide
discrepancies regarding annual gross income, education level, and occupation. The annual gross income of Duffy's population was almost double that of the study population which one might have expected given that Duffy's population was more highly educated, most holding university faculty positions.

In summary, with the exception of race, Duffy's (1988) sample and the study sample of midlife women were markedly different on all the sociodemographic variables reported. The study sample was definitely more heterogenous. Thus, one might speculate that the study population, with the exception of race, was more representative than Duffy's population in relation to the variables explored in this study.

Research Question One: What is the Level of Self-Esteem of Midlife Women?

The level of self-esteem was computed from the total score on the Rosenberg (1965) Self-Esteem Scale. While participants' scores on this Scale covered the possible range from 10 to 40, when scored according to a Likert format, the mean score was 16.13 (SD=5.31) where lower scores reflected higher self-esteem. Thus, the midlife women in this study appear to have fairly high self-esteem levels.

In discussing the level of self-esteem, direct comparisons will be made with other studies that used the same self-esteem instrument. Duffy (1988), in her study of 262 midlife women, stated that she reversed scoring the Scale so that higher scores represented higher self-esteem levels; however, when describing the Scale, she reported that lower scores reflected higher self-esteem. It is pertinent to note
that the mean self-esteem score reported in her study was 15.42 (SD=4.86) which strongly suggests that scoring was not reversed. This is further supported by Duffy's finding that self-esteem was one of six significant predictors in explaining the likelihood of engaging in health-promoting behaviours.

In Kenworthy's (1989) study of 150 male and female back and neck patients (M=52.9 years of age) which examined the differences in beliefs of self-esteem, self-confidence, control, faith in therapy, optimism, and the will to live between "poor," "moderate," and "good" recovery groups, she found the patient group having a good recovery had greater self-esteem (M=15.7, SD=4.0), compared with the moderate recovery group (M=16.4, SD=3.9), followed by the group with poor recovery (M=18.0, SD=4.7). The differences among the groups were statistically significant.

In summary, midlife women in the current study have fairly high self-esteem levels. When compared to Duffy's (1988) sample and Kenworthy's (1989) "good" and "moderate" recovery groups, self-esteem levels are almost identical. This lends support to Stanwyck's (1983) view that the middle-adult years, if no major stresses are experienced, are a time of relatively strong and stable self-esteem. "Many see themselves as having made some progress toward achievement of long-range goals that by now have been realistically revised from the vague ideals of the late teens" (p. 24). Also, Pender (1982), in her initial Health Promotion Model which provides the theoretical framework for this study, included self-esteem as a motivational factor in health promotion. Thus, one
might speculate that because the participants in the current study regarded themselves relatively highly, they would be more likely than individuals with low self-esteem to engage in health-promoting behaviours.

Research Question Two: What is the Level of Health Locus of Control of Midlife Women?

The level of health locus of control was computed from the three subscale scores on the MHLC Scale - Form A (Wallston et al., 1978). The possible range on each subscale was from 6 to 36 with higher scores reflecting a higher level of “internality” on the internal subscale and a higher level of “externality” on the chance and powerful others subscales. As previously noted, “internals” expect that outcomes are within their control and are related to their efforts, skills, and/or abilities. By contrast, “externals” believe that outcomes are determined by outside forces, for example, fate, luck, chance, powerful others, or the unpredictable.

In the current study, participants' scores on the internal subscale ranged from 14 to 36 with a mean of 27.29 (SD=4.95). The scores on the chance subscale ranged from 6 to 30 with a mean of 15.48 (SD=6.00). The powerful others subscale ranged from a score of 6 to a score of 29 with a mean of 15.75 (SD=5.41). Thus, participants scored in the upper range on the internal subscale and in the lower range on both of the external subscales. The mean scores on each of the external subscales were virtually identical.

In discussing the level of health locus of control, direct
comparisons will be made with earlier nursing studies that used the same MHLC instrument. Also, a direct comparison will be made with normative means of persons engaged in preventative health behaviours established by Wallston and Wallston (1981). Table 6 presents a comparison of the MHLC mean subscale scores between the study sample, earlier nursing study samples, and the normative group.

Table 6
Comparison of MHLC Mean Subscale Scores Among Study Sample, Earlier Nursing Study Samples, and Normative Group

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>Internal Subscale</th>
<th>Chance Subscale</th>
<th>Powerful Others Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>84</td>
<td>27.29</td>
<td>15.48</td>
<td>15.75</td>
</tr>
<tr>
<td>Duffy (1988)</td>
<td>262</td>
<td>25.44</td>
<td>15.29</td>
<td>14.48</td>
</tr>
<tr>
<td>Muhlenkamp et al. (1985)</td>
<td>175</td>
<td>29.5</td>
<td>15.1</td>
<td>19.2</td>
</tr>
<tr>
<td>Brown et al. (1983)</td>
<td>63</td>
<td>28.6</td>
<td>14.0</td>
<td>17.1</td>
</tr>
<tr>
<td>Normative group</td>
<td>720</td>
<td>27.38</td>
<td>15.52</td>
<td>18.44</td>
</tr>
</tbody>
</table>

As reported above, the mean MHLC subscale scores for the current study sample were: internal, 27.29; chance, 15.48; and powerful others, 15.75. In Duffy's (1988) study of 262 healthy midlife women,
the means were 25.44, 15.29, and 14.48, respectively. These are close to the current study means with the exception of the internal score which was slightly higher in the current study.

In a study of 175 nursing clinic clients (Muhlenkamp et al., 1985), the MHLC subscale means were 29.5, 15.1, and 19.2, respectively. When compared with those in the current study, internal and powerful other scores were higher. The higher internal score, as pointed out by the investigators, might have been a result of the client education conducted by the clinic and also, related to the nursing staff's philosophy which emphasized individuals' responsibility for their own health. The higher powerful others score seems logical given that clients with a strong belief in powerful others engaged in a significantly higher proportion of prevention visits, and prevention visits comprised 30% of the total types of clinic visits in this study.

A study of 63 healthy middle-class adults by Brown et al. (1983), resulted in means of 28.6, 14.0, and 17.1, respectively. With the possible exception of the chance subscale score which was fairly low at 14.0, the other two subscale scores are close to the current study means. Given that the three MHLC subscales are relatively independent, and given that the chance subscale is significantly related to social desirability ($r=−0.20$), one questions whether social desirability may have been a factor in the low chance score noted above.

Finally, normative means of 720 persons engaged in preventative health behaviours established by Wallston and Wallston (1981) were 27.38, 15.52, and 18.44, respectively. The internal and chance scores
are virtually identical with those in the current study; however, the powerful others score in the current study is somewhat lower.

In summary, the means on the three MHLC subscales in the current study are fairly consistent with means found in earlier nursing studies and with normative means established by Wallston and Wallston (1981). The current study sample has a relatively high level of "internality" on the internal subscale and fairly low levels of "externality" on the chance and powerful others subscales. Given these findings and consistent with the literature, it seems reasonable to speculate that the participants in the current study would believe they have some control over their destinies, that is, they would expect that health outcomes were within their control and related to their efforts, skills, and/or abilities. Also, congruent with Pender's (1982) view, one might predict that because the participants in the current study are characterized by an internal health locus of control, they would engage in more health-promoting behaviours than individuals characterized by an external health locus of control.

Research Question Three: What is the Level of Health-Promoting Behaviours of Midlife Women?

The level of health-promoting behaviours was computed from the total score and the six subscale scores on the Health-Promoting Lifestyle Profile (Walker et al., 1987). Higher scores indicated a more health-promoting behaviour in all instances.

In the current study, participants' scores for the total Scale ranged from 98 to 182 out of a possible range of 48 to 192 with a mean of
Scores on the self-actualization subscale ranged from 26 to 52 out of a possible range of 13 to 52 with a mean of 40.21 (SD=7.37). Scores on the health responsibility subscale ranged from 13 to 38 out of a possible range of 10 to 40 with a mean of 24.90 (SD=5.76). Scores on the exercise subscale ranged from 5 to 20 out of a possible range of 5 to 20 with a mean of 11.90 (SD=3.52). Scores on the nutrition subscale ranged from 11 to 24 out of a possible range of 6 to 24 with a mean of 19.44 (SD=3.32). Scores on the interpersonal support subscale ranged from 11 to 28 out of a possible range of 7 to 28 with a mean of 21.08 (SD=4.57). Finally, scores on the stress management subscale ranged from 12 to 28 out of a possible range of 7 to 28 with a mean of 19.57 (SD=3.77).

To summarize, the participants' mean scores for the total Scale and for the self-actualization, nutrition, interpersonal support, and stress management subscales fell toward the upper end of the mid-range of possible scores. Mean scores on the health responsibility and exercise subscales fell toward the lower end of the mid-range of possible scores.

In discussing the level of health-promoting behaviours, a direct comparison will be made with Duffy's (1988) sample of midlife women. Duffy's study was one of only two studies found which used the same instrument as in the current study, the Health-Promoting Lifestyle Profile. While Walker et al. (1988) used the same instrument in their study, they did not report the means for the total Scale or for the six subscales. Table 7 presents the means and standard deviations for the total score on the Health-Promoting Lifestyle Profile and its
Table 7
Comparison of Health-Promoting Lifestyle Profile and its Six Subscales Between Study Sample and Duffy's (1988) Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Study Sample (N=84)</th>
<th>Duffy's Sample (N=262)</th>
<th>Difference</th>
<th>Z-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health-Promoting Lifestyle Profile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>137.11 20.83</td>
<td>138.93 19.40</td>
<td>-0.708</td>
<td></td>
</tr>
<tr>
<td>Self-actualization</td>
<td>40.21 7.37</td>
<td>43.69 5.91</td>
<td>-3.940*</td>
<td></td>
</tr>
<tr>
<td>Health responsibility</td>
<td>24.90 5.76</td>
<td>23.91 5.61</td>
<td>1.379</td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>11.90 3.52</td>
<td>12.08 4.05</td>
<td>-0.392</td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td>19.44 3.32</td>
<td>18.74 3.80</td>
<td>1.621</td>
<td></td>
</tr>
<tr>
<td>Interpersonal support</td>
<td>21.08 4.57</td>
<td>23.08 4.05</td>
<td>-3.584*</td>
<td></td>
</tr>
<tr>
<td>Stress management</td>
<td>19.57 3.77</td>
<td>17.71 3.93</td>
<td>3.894*</td>
<td></td>
</tr>
</tbody>
</table>

*p<.05
six subscales for the study sample and for Duffy's sample together with the differences expressed in Z scores.

As reported above, participants' mean score for the total Scale in the current study was 137.11. The mean subscale scores were: self-actualization, 40.21; health responsibility, 24.90; exercise, 11.90; nutrition, 19.44; interpersonal support, 21.08; and stress management, 19.57. In Duffy's (1988) study, the sample's mean score for the total Scale was 138.93. The mean subscale scores were: 43.69, 23.91, 12.08, 18.74, 23.08, and 17.71, respectively.

For two of the seven variables measured, sample means in the current study were significantly lower than those in Duffy's (1988) sample. Those variables were self-actualization and interpersonal support.

Self-actualization refers to having a sense of purpose, seeking personal development, and experiencing self-awareness and satisfaction. Participants in the current study had a mean score ($M=40.21$) that was significantly lower than that in Duffy's (1988) study ($M=43.69$, $Z=-3.94$). The explanation for this result is not immediately obvious. A very tentative explanation is that the study population was, on average, 11 years older than Duffy's population, 62% were divorced, separated, or widowed, and about 30% were retired or unemployed. Given these facts, perhaps the women in the current study felt a reduced sense of purpose in life and experienced fewer feelings of satisfaction and personal development than did those in Duffy's population.

As will be reported in the next section, in the current study, there
was a significant positive relationship between self-actualization and income levels \( r = 0.21, p < 0.05 \) and a significant negative relationship between self-actualization and employment status \( r = -0.24, p < 0.05 \). Thus, unemployed and/or retired women scored lower on the self-actualization subscale which does lend some support to the tentative explanation noted above that these women may have had fewer feelings of satisfaction, personal development, and purpose in life when compared to Duffy's (1988) population. However, it is important to note that, in the current study, the mean self-actualization subscale score was in the upper end of the mid-range of possible scores.

Interpersonal support refers to maintaining relationships involving a sense of intimacy and closeness. Participants in the current study had a mean score \( M = 21.08 \) that was significantly lower than that in Duffy's (1988) study \( M = 23.08, Z = -3.58 \). This may reflect the fact that about 74% of participants in the current study were either divorced, separated, never married, or widowed compared to Duffy's 40%. Also, 50% of participants lived alone whereas, in Duffy's study, as previously discussed, it seemed logical to conclude that very few, if any, of the participants lived alone. Also, as will be reported when addressing the fourth research question, in the current study, there was a significant negative correlation between interpersonal support and marital status \( r = -0.30, p < 0.01 \), which means that the married women scored higher on the interpersonal support subscale. Interpersonal support and number of persons living in the household were also directly related \( r = 0.22, p < 0.05 \), meaning that as the number
of persons in the household increased, so did the score on the interpersonal support subscale.

On the other hand, it must be remembered that the actual mean score on the interpersonal subscale in the current study was toward the upper end of the mid-range: a mean of 21.08 in a possible range of 7 to 28. Perhaps being a member of the social networking group was, among other things, instrumental in helping these women to maintain relationships involving a sense of closeness, belonging, and support.

As noted above, Duffy's (1988) self-actualization and interpersonal support scores were both significantly higher than the scores in the current study. Also, they were proportionately higher which lends support to Pender's (1982) argument that interpersonal interactions tend to nourish the self-actualization tendency. This is consistent with the findings of Berkman and Syme (1979) and Kaplan, Cassel, and Gore (1977).

For one of the seven variables measured, the sample mean in the current study was significantly higher than that in Duffy's (1988) sample. This variable was stress management which refers to recognizing sources of stress and acting to control stress and achieve relaxation. A plausible explanation is that, in the current study, about 30% of the participants were unemployed or retired whereas, in Duffy's study, none of the respondents were unemployed or retired. As a matter of fact, more than 65% of Duffy's respondents were employed in what may well be considered "high stress" occupations. Furthermore, because Duffy's entire sample of midlife women were employed full-time and lived primarily with their spouses and/or
children, perhaps, even though they may have recognized their sources of stress, they may have had less time to act in controlling their stress and achieving relaxation than participants in the current study.

Finally, although the health responsibility and exercise mean subscale scores in the current and Duffy's (1988) study were not statistically different at a significant level, it is of practical significance to note that both samples scored toward the lower end of the mid-range of possible scores. Health responsibility refers to attending to and accepting responsibility for one's own health, being educated about health, and seeking professional assistance when necessary. Exercise refers to adhering to regular exercise patterns. Given the contemporary trend toward extensive advertising for fitness programs, the multitude of articles attesting to the effectiveness of exercise in reducing stress and promoting a sense of health and well-being, the growing public support for accepting responsibility for one's own health, and the public's increasing knowledge regarding health, the finding that both samples scored at the lower end of the mid-range of possible scores on the health responsibility and exercise subscales is puzzling. It is perhaps even more puzzling given that the mean nutrition subscale scores in both studies were toward the upper end of the mid-range of possible scores. The literature supports the fact that valuing nutrition, that is, establishing meal patterns and making sensible food choices, goes hand in hand with other health-promoting behaviours such as accepting responsibility for one's own health and adhering to regular exercise patterns (Brown et al., 1983; Duffy, 1988; Pender, 1982; Walker et al.,
1988). Actually, as will be outlined in the following section, in the current study, nutrition was significantly correlated in a positive direction with both health responsibility ($r = 0.39, p < 0.001$) and exercise ($r = 0.28, p < 0.01$), which one would have expected and which is congruent with the literature.

In summary, for three of the seven variables measured, sample means in the current study are significantly different than those in Duffy's (1988) sample: self-actualization and interpersonal support are both significantly lower and stress management is significantly higher. The total mean score on the Health-Promoting Lifestyle Profile and the mean scores on the health responsibility, exercise, and nutrition subscales are not statistically different between the two samples.

In the current study, the participants' mean scores for the total Scale and for the self-actualization, nutrition, interpersonal support, and stress management subscales fell toward the upper end of the mid-range of possible scores. Mean scores on the health responsibility and exercise subscales fell toward the lower end of the mid-range of possible scores. Overall, these findings are consistent with the literature that reports that women are health conscious and generally take an interest in improving their health (Albino & Tedesco, 1984; Langlie, 1977; Mechanic & Cleary, 1980; Woods, 1981). These findings also lend support to the view of Baruch and Brooks-Gunn (1984) that individuals in midlife gather their forces and the assets of health and relationships that they will need for the rigors of old age.
Research Question Four: What is the Relationship Among Self-Esteem, Health Locus of Control, and Health-Promoting Behaviours of Midlife Women?

Prior to regression analysis, a correlation matrix was generated to examine both the relationship among the study variables and to determine independence among the predictor variables. Correlations between the independent or predictor variables (self-esteem and health locus of control) were well below 0.65 which indicated that these variables were not redundant (Tabachnick & Fidell, 1983).

While a number of significant correlations were discovered among the study variables, many were at a low magnitude as shown in Table 8. Self-esteem was moderately correlated in a negative direction with the total health promotion score ($r=-.32$) and self-actualization ($r=-.45$), and weakly correlated in a negative direction with interpersonal support ($r=-.24$) and stress management ($r=-.27$).

Internal health locus of control was weakly and inversely related to chance health locus of control ($r=-.22$) and weakly and directly related to the total health promotion score ($r=.19$), self-actualization ($r=.24$), and stress management ($r=.29$). Chance health locus of control was moderately correlated with powerful others health locus of control ($r=.31$) and weakly correlated in a negative direction with the total health promotion score ($r=-.21$), exercise ($r=-.24$), and interpersonal support ($r=-.22$). Powerful others health locus of control was moderately correlated with health responsibility ($r=.39$) and weakly correlated with the total health promotion score ($r=.19$) and stress management ($r=.18$).
Table 8
Correlation Matrix of Self-Esteem, Health Locus of Control, and Health-Promoting Behaviours

<table>
<thead>
<tr>
<th></th>
<th>SE</th>
<th>Int</th>
<th>Cha</th>
<th>Pow</th>
<th>HPT</th>
<th>Sel</th>
<th>Hea</th>
<th>Exe</th>
<th>Nut</th>
<th>Sup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Int</td>
<td></td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cha</td>
<td>-.10</td>
<td>-.22*</td>
<td></td>
<td></td>
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<tr>
<td>Pow</td>
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<td>.14</td>
<td>.31**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPT</td>
<td>-.32**</td>
<td>.19*</td>
<td>-.21*</td>
<td>.19*</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sel</td>
<td>-.45**</td>
<td>.24*</td>
<td>-.12</td>
<td>.03</td>
<td>.83**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hea</td>
<td>-.06</td>
<td>.07</td>
<td>-.17</td>
<td>.39**</td>
<td>.73**</td>
<td>.41**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exe</td>
<td>-.17</td>
<td>.06</td>
<td>-.24*</td>
<td>.11</td>
<td>.63**</td>
<td>.37**</td>
<td>.46**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nut</td>
<td>-.10</td>
<td>.07</td>
<td>-.05</td>
<td>.04</td>
<td>.56**</td>
<td>.32**</td>
<td>.39**</td>
<td>.28**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sup</td>
<td>-.24*</td>
<td>.05</td>
<td>-.22*</td>
<td>.05</td>
<td>.73**</td>
<td>.64**</td>
<td>.36**</td>
<td>.33**</td>
<td>.30**</td>
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<tr>
<td>Ste</td>
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<td>.77**</td>
<td>.61**</td>
<td>.49**</td>
<td>.47**</td>
<td>.39**</td>
<td>.45**</td>
</tr>
</tbody>
</table>

Note. SE=self-esteem, Int=internal health locus of control, Cha=chance health locus of control, Pow=powerful others health locus of control, HPT=total health promotion score, Sel=self-actualization, Hea=health responsibility, Exe=exercise, Nut=nutrition, Sup=interpersonal support, Str=stress management.

*p<.05. **p<.01.
All correlations between the total score on the Health-Promoting Lifestyle Profile and its six subscales and between the six subscales were in the expected positive direction ranging from $r=0.28$ to $r=0.83$ ($p<0.01$). Specifically, the total score on the Health-Promoting Lifestyle Profile was strongly correlated with each of its six subscales ranging from $r=0.56$ to $r=0.83$. With the exception of two weak correlations, exercise and nutrition ($r=0.28$) and nutrition and interpersonal support ($r=0.30$), and two strong correlations, self-actualization and interpersonal support ($r=0.64$) and self-actualization and stress management ($r=0.61$), the remaining correlations between the six subscales were at a moderate level ranging from $r=0.32$ to $r=0.49$.

The results indicate that, for this sample of midlife women, self-esteem and internal, chance, and powerful others health loci of control are significantly correlated at weak to moderate levels with the total health promotion score. This lends support to Pender's (1982) original Health Promotion Model which postulates that individual perceptions of self-esteem and perceived control or health locus of control, among other personal factors, have motivational significance for engaging in health-promoting behaviours.

Next, a stepwise multiple regression analysis was done on the total health promotion score using the total self-esteem score and the MHLC subscale scores. Table 9 displays the step number, the variable entered, multiple $R$, adjusted $R$ square at each step of the regression, and the $F$ value.

At step 1, self-esteem entered the model. Thus, self-esteem was
Table 9
Stepwise Multiple Regression of Self-Esteem and Health Locus of Control on Health-Promoting Behaviours

<table>
<thead>
<tr>
<th>Step *</th>
<th>Variable</th>
<th>Multiple R</th>
<th>Adjusted $R^2$</th>
<th>$F$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>self-esteem</td>
<td>0.32</td>
<td>0.095</td>
<td>9.75**</td>
</tr>
<tr>
<td>2</td>
<td>chance locus of control</td>
<td>0.41</td>
<td>0.148</td>
<td>8.26***</td>
</tr>
<tr>
<td>3</td>
<td>powerful others locus of control</td>
<td>0.52</td>
<td>0.245</td>
<td>9.98***</td>
</tr>
</tbody>
</table>

**p<.01. ***p<.001.

the best single predictor of health-promoting behaviours. Because this variable was negatively correlated with health-promoting behaviours, it indicated that the lower the value of this scale (higher self-esteem), the greater the likelihood of engaging in health-promoting behaviours. This particular predictor accounted for 9.5% of the variance.

At step 2, chance health locus of control entered the model increasing the variance by 5.3%. This means that after self-esteem was taken into account, chance health locus of control explained the
largest portion of the remaining variability. Because this variable was also negatively correlated with health-promoting behaviours, it indicated that the lower the value of this subscale (lower level of "externality"), the greater the likelihood of engaging in health-promoting behaviours. Together, self-esteem and chance health locus of control accounted for 14.8% of the variance.

At level 3, powerful others health locus of control entered the model increasing the variance by 9.7%. This variable was positively correlated with health-promoting behaviours. Therefore, the higher the value of this subscale (higher level of "externality"), the greater the likelihood of engaging in health-promoting behaviours. In summary, the three predictors, self-esteem, chance health locus of control, and powerful others health locus of control, together accounted for 24.5% of the explained variance.

The results of the regression analysis address the fourth research question: What is the relationship among self-esteem, health locus of control, and health-promoting behaviours or midlife women? The finding that self-esteem was the best single predictor of health-promoting behaviours was expected. Because self-esteem is a personal judgment of worthiness, the value one holds towards oneself, it follows that those individuals with higher self-esteem would consider it worthwhile to set aside time for involvement in health-promoting behaviours. Stated another way, it seems reasonable to conclude that individuals who do not need to spend time and energy protecting or defending their low self-esteem will have greater resources available that may be mobilized to enhance their health
Self-esteem, as previously outlined, was included in Pender's (1982) original Health Promotion Model as one personal factor that facilitated or sustained health-promoting behaviour.

The finding of a positive relationship between self-esteem and positive health behaviours is consistent with findings in earlier nursing research (Duffy, 1988; Hallal, 1982; Hanner, 1986; Herold, Goodwin, & Lero, 1979; Muhlenkamp & Sayles, 1986; Rutledge, 1987). Specifically, in the current study, self-esteem was inversely related to the total health promotion score, self-actualization, interpersonal support, and stress management. Each of these relationships is understandable and in the expected negative direction as higher self-esteem was reflected in lower scores. Also, self-esteem, as will be reported later in this section, was weakly correlated with employment status. Thus, being employed was associated with higher levels of self-esteem.

In the current study, self-esteem, as previously stated, accounted for 9.5% of the variance of the likelihood to engage in health-promoting behaviours. This amount of variance is fairly substantial when one considers "the innumerable factors potentially influencing Lifestyle, a multifaceted variable" (Muhlenkamp & Sayles, 1986, p. 337). This 9.5% becomes even more salient when one considers Kenny's (1979) assertion that 50% of the variance is about the most that can be explained in human behaviour because of what he terms "free will."

Together, chance and powerful others health loci of control
accounted for 15% of the variance in the health-promoting behaviours measured. Perceived control or health locus of control was another personal factor within Pender's (1982) original Health Promotion Model that had motivational significance in health-promoting behaviour.

While internal health locus of control did not enter the regression model, it correlated positively with engaging in health-promoting behaviours, a finding which was expected. It makes sense that individuals who are characterized by an internal locus of control would engage in health-promoting behaviours as "internals" believe that outcomes (in this case, health outcomes), are within their control and are related to their efforts, skills, and/or abilities (MacDonald, Jr., 1973). Other investigators have not found a significant association between internal health locus of control and health behaviours (Brown et al., 1983; Hallal, 1982; McCusker & Morrow, 1979; Muhlenkamp et al., 1985). A possible explanation given was what Rotter (1975) terms "defensive externality," that is, individuals may portray themselves on scales as externals thereby allowing them to project blame for possible failures onto chance and/or powerful others and thus to rationalize their failure in achieving goals.

That chance health locus of control was inversely related to engaging in health-promoting behaviours in this study was also expected. It seems logical to conclude that individuals who believe they have little personal control over their destinies would have little reason to engage in health-promoting behaviours. This finding is consistent with others in the health literature (Brown et al., 1983;
Muhlenkamp et al., 1985; Wallston & Wallston, 1981; Zindler-Wernet, 1983) and other literature of a more general orientation (Levenson, 1974).

That powerful others health locus of control was positively correlated with engaging in health-promoting behaviours seems to defy a straightforward, logical explanation especially because the mean sample score on this subscale was low. This finding is not consistent with Hallal's (1982) finding. Although Brown et al. (1983) found a positive relationship between total health promotion activity and powerful others health locus of control, the relationship was not significant. In the current study, the correlation coefficient was significant; however, the magnitude of the relationship was weak ($r=.19$), thus mandating a cautious interpretation of this finding. One very tentative explanation may be that these women, by virtue of their age ($M=56.98$), may have been socialized earlier in their lives into deferring health decisions to health care professionals (powerful others). Today, the trend is towards individuals being informed consumers of health care services and demanding equal partnership in matters concerning their health with health care professionals.

Because selected demographic variables were identified in Pender's (1982) original Health Promotion Model and in related research as being correlated with health behaviours, a second correlation matrix was generated to examine the relationship among the study and demographic variables. Race and ethnicity were not included because, as outlined previously, the majority of the participants were Caucasian with an English background. Marital status, employment
status, and education were dichotomized, using dummy variables, as married/not married, employed/not employed, and <=Grade 12/post high school education, respectively.

Once again, a number of significant correlations emerged; however, most were at a weak level as shown in Table 10. Self-esteem was weakly correlated with employment status ($r=.20$). Powerful others health locus of control was weakly correlated with monthly gross income ($r=.20$). The total health promotion score was weakly correlated with yearly gross income ($r=.24$), monthly gross income ($r=.26$), and education level ($r=.20$). Self-actualization was weakly correlated in a positive direction with yearly gross income ($r=.19$) and monthly gross income ($r=.21$), and weakly correlated in a negative direction with employment status ($r=.24$). Health responsibility was weakly correlated at the same magnitude with both yearly and monthly gross income ($r=.27$). Nutrition was moderately correlated with education level ($r=.33$). Interpersonal support was weakly correlated with number in household ($r=.22$), marital status ($r=-.30$), and employment status ($r=-.21$), and moderately correlated with yearly and monthly gross income ($r=.37$ and $r=.39$, respectively). Finally, stress management was weakly correlated with education level ($r=.23$). No significant correlations were demonstrated between internal and chance health loci of control and exercise, and any of the seven demographic variables reported.

Perhaps the most noteworthy finding, albeit expected, was that interpersonal support correlated significantly with five of the seven demographic variables: number in household, yearly gross income,
Table 10
Correlation Matrix of Self-Esteem, Health Locus of Control, Health-Promoting Behaviours, and Demographic Variables

<table>
<thead>
<tr>
<th></th>
<th>SE</th>
<th>Int</th>
<th>Cha</th>
<th>Pow</th>
<th>HPT</th>
<th>Sel</th>
<th>Hea</th>
<th>Exe</th>
<th>Nut</th>
<th>Sup</th>
<th>Str</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nih</td>
<td>-15</td>
<td>.08</td>
<td>-02</td>
<td>.13</td>
<td>.03</td>
<td>.11</td>
<td>-05</td>
<td>-.13</td>
<td>-.09</td>
<td>.22*</td>
<td>-.05</td>
</tr>
<tr>
<td>Yin</td>
<td>.03</td>
<td>-.10</td>
<td>-.07</td>
<td>.18</td>
<td>.24*</td>
<td>.19*</td>
<td>.27**</td>
<td>.15</td>
<td>.03</td>
<td>.37**</td>
<td>-.08</td>
</tr>
<tr>
<td>Min</td>
<td>-.00</td>
<td>-.10</td>
<td>-.06</td>
<td>.20*</td>
<td>.26**</td>
<td>.21*</td>
<td>.27**</td>
<td>.15</td>
<td>.08</td>
<td>.39**</td>
<td>-.06</td>
</tr>
<tr>
<td>Age</td>
<td>.06</td>
<td>-.13</td>
<td>.06</td>
<td>.02</td>
<td>-.13</td>
<td>-.16</td>
<td>.00</td>
<td>-.17</td>
<td>.06</td>
<td>-.14</td>
<td>-.15</td>
</tr>
<tr>
<td>Edu</td>
<td>-.10</td>
<td>-.07</td>
<td>-.08</td>
<td>-.00</td>
<td>.20*</td>
<td>.12</td>
<td>.09</td>
<td>.06</td>
<td>.33**</td>
<td>.12</td>
<td>.23*</td>
</tr>
<tr>
<td>Mar</td>
<td>-.06</td>
<td>-.06</td>
<td>.02</td>
<td>-.12</td>
<td>-.11</td>
<td>-.13</td>
<td>-.07</td>
<td>.02</td>
<td>-.05</td>
<td>-.30**</td>
<td>.14</td>
</tr>
<tr>
<td>Emp</td>
<td>.20*</td>
<td>-.14</td>
<td>.14</td>
<td>-.00</td>
<td>-.17</td>
<td>-.24*</td>
<td>-.03</td>
<td>-.06</td>
<td>.00</td>
<td>-.21*</td>
<td>-.10</td>
</tr>
</tbody>
</table>

Note. SE=self-esteem, Int=internal health locus of control, Cha=chance health locus of control, Pow=powerful others health locus of control, HPT=total health promotion score, Sel=self-actualization, Hea=health responsibility, Exe=exercise, Nut=nutrition, Sup=interpersonal support, Str=stress management, Nih=number in household, Yin=yearly gross income, Min=monthly gross income, Edu=education level, Mar=marital status, Emp=employment status.

a=(N=67)

*p<.05. **p<.01.
monthly gross income, marital status, and employment status. Further, there is considerable evidence within the literature that interpersonal support is positively associated with positive health practices (Langlie, 1977; Mechanic & Cleary, 1980; Muhlenkamp & Sands, 1986). Perhaps those individuals who consider it worthwhile to set aside time for involvement in health-promoting behaviours are more likely to attract supportive relationships. The converse may also be true. Perhaps individuals with strong supportive relationships are more inclined to engage in health-promoting behaviours.

In summary, the results indicate that, for this sample of midlife women, each of the demographic variables reported, with the exception of age, is significantly correlated at weak to moderate levels with the total health promotion score and/or one or more of the six Health-Promoting Lifestyle Profile subscale scores. Pender (1982), in her original Health Promotion Model, identified the demographic factors of age, sex, race, ethnicity, education, and income as modifying factors for health behaviour. Thus, the results of the correlations are generally supportive of Pender's Model. However, the findings regarding demographic variables further add to the mixed reports in the literature as will be discussed next.

A stepwise multiple regression analysis was carried out with the total health promotion score as the criterion and self-esteem, internal, chance, and powerful others health loci of control, and demographic variables as predictors. Mean sample values for yearly and monthly gross incomes were inserted for the 17 missing values, thereby bringing the total number to 84. As can be seen in Table 11,
Table 11
Stepwise Multiple Regression of Self-Esteem, Health Locus of Control, and Demographic Variables on Health-Promoting Behaviours (N=84)

<table>
<thead>
<tr>
<th>Step*</th>
<th>Variable</th>
<th>Multiple R</th>
<th>Adjusted R²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>self-esteem</td>
<td>.32</td>
<td>.095</td>
<td>9.75**</td>
</tr>
<tr>
<td>2</td>
<td>monthly gross income</td>
<td>.42</td>
<td>.157</td>
<td>8.73***</td>
</tr>
<tr>
<td>3</td>
<td>chance locus of control</td>
<td>.48</td>
<td>.203</td>
<td>8.05***</td>
</tr>
<tr>
<td>4</td>
<td>powerful others locus of control</td>
<td>.55</td>
<td>.268</td>
<td>8.62***</td>
</tr>
</tbody>
</table>

**p<.01. ***p<.001.

self-esteem accounted for most of the variance (9.5%). Monthly gross income, chance health locus of control, and powerful others health locus of control were the other significant predictors, listed in order of importance. Together, these four predictors accounted for 26.8% of the variance.

Another stepwise multiple regression analysis was carried out (N=67) to ascertain whether inserting the mean sample values for the 17 missing values on yearly and monthly gross incomes would have significantly affected the results. As can be seen in Table 12, the
Table 12
Stepwise Multiple Regression of Self-Esteem, Health Locus of Control, and Demographic Variables on Health-Promoting Behaviours (N=67)

<table>
<thead>
<tr>
<th>Step*</th>
<th>Variable</th>
<th>Multiple R</th>
<th>Adjusted $R^2$</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>self-esteem</td>
<td>.30</td>
<td>.076</td>
<td>6.49*</td>
</tr>
<tr>
<td>2</td>
<td>monthly gross income</td>
<td>.42</td>
<td>.154</td>
<td>7.05**</td>
</tr>
<tr>
<td>3</td>
<td>chance locus of control</td>
<td>.48</td>
<td>.202</td>
<td>6.58***</td>
</tr>
<tr>
<td>4</td>
<td>powerful others locus of control</td>
<td>.58</td>
<td>.297</td>
<td>7.97***</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01. ***p<.001.

The same four predictors, self-esteem, monthly gross income, chance health locus of control, and powerful others health locus of control, entered the regression model. These accounted for 29.7% of the explained variance—an increase of 2.9% over the previous regression analysis when mean sample values were inserted.

When these regression analysis findings are compared to those of other nursing studies that included, among other variables, self-esteem, health locus of control, and/or selected demographic variables in relation to predicting health-promoting behaviours, the
results are mixed with one exception—chance health locus of control consistently emerged as a predictor (Brown et al., 1983; Duffy, 1988; Muhlenkamp et al., 1985). This finding very clearly indicates that the participants in these and the current study do not want to leave their health to chance.

Specifically, in the study by Brown et al. (1983), all three MHLC subscales, chance, powerful others, and internal, and health value were predictors of health-promoting behaviours in decreasing order of magnitude. In Duffy’s (1988) study, chance health locus of control, self-esteem, current health, health worry/concern, post high school education, and internal health locus of control were predictors. In the study by Muhlenkamp et al. (1985), education, chance health locus of control, sex, general health, and age emerged as predictors. The finding that subjects with more education had higher total Lifestyle scores is consistent with that of other literature and the current study finding that level of education was significantly correlated in a positive direction with higher total health promotion scores.

Pender’s (1982) original Health Promotion Model included the demographic variables of age, sex, race, ethnicity, education, and income as modifying factors for health behaviour. Thus, the results of the current study and the earlier studies reported above do lend support to Pender’s view that selected demographic variables have an impact on health-promoting behaviours. Specifically, the results of the regression analysis in the current study and the earlier studies reveal that the demographic variables of age, sex, education, and income have emerged as predictors of health-promoting behaviours.
More specifically, education emerged as a predictor of health-promoting behaviours in two of the studies (Duffy, 1988; Muhlenkamp et al., 1985), while race and ethnicity have not emerged as predictors in any studies found to date. However, one must remember that race and ethnicity were not included in the regression analysis in the current study because, as previously reported, the majority of the participants were Caucasian with an English background.

Summary

The findings of this study have been presented in three sections. Section one presented the findings in relation to the sample of individuals who participated in the study based on demographic variables. The sample consisted of 84 midlife women who were current or prospective members of a Vancouver-based social networking group for mature women.

The second section presented a comparison of the study sample to Duffy's (1988) sample of midlife women between 35 and 65 years of age. With the exception of race, the samples were markedly different on all of the sociodemographic variables reported. The study sample was more heterogeneous with respect to marital status, education, occupation, and income than was Duffy's sample.

The third section described and discussed the study findings relative to the four research questions concerning the levels of self-esteem, health locus of control, health-promoting behaviours, and the relationship among these variables. Descriptive, correlational, and multiple regression analysis were employed.
In relation to the first research question, the results indicated that participants in the current study had fairly high self-esteem levels that were very close to levels found in other study samples. With respect to research question two, the study sample was compared to samples in earlier nursing studies and normative data. The results indicated that the mean scores for the study sample on each of the three MHLC subscales were fairly consistent with means in the earlier studies and the normative group means. The study sample was generally characterized by an internal health locus of control.

The study findings relative to the third research question revealed that for two of the seven variables measured in relation to health-promoting behaviours, the study sample means were significantly lower when compared to Duffy's (1988) sample means. These variables were self-actualization and interpersonal support. For one of the seven variables measured, the study sample mean was significantly higher when compared to Duffy's sample mean. This variable was stress management. However, overall, the study sample means were within the mid-range of possible scores for each of the seven variables measured. Thus, the study sample was relatively health conscious.

Finally, correlational and multiple regression analysis, which addressed research question four, supported Pender's (1982) original Health Promotion Model which provided the theoretical framework for this study. Pender posited that individual perceptions of self-esteem and health locus of control, among other personal factors, influenced health-promoting behaviours. Pender also contended that demographic
variables, as modifying factors, impacted on health-promoting behaviours.
Chapter Five

Summary, Conclusions, and Implications

Summary

The impetus for this study came from the fact that, although a number of nurse researchers have focused their efforts on exploring health-related variables that facilitate or sustain health-promoting behaviours, at present, very little is known about the health-promoting behaviours of midlife women. The study was designed to increase the knowledge needed to understand the relationship among health-related variables for women in this age group. Specific questions guiding the study were: (1) What is the level of self-esteem of midlife women?; (2) What is the level of health locus of control of midlife women?; (3) What is the level of health-promoting behaviours of midlife women?; and (4) What is the relationship among self-esteem, health locus of control, and health-promoting behaviours of midlife women?

Pender's (1982) original Health Promotion Model provided the theoretical framework to structure the study. According to Pender, determinants of health-promoting behaviours are categorized into individual perceptions and modifying factors both of which comprise the decision-making phase of the Model, and variables affecting the likelihood of action which comprise the action phase of the Model.

Four instruments were used to gather data for the study: (1) The Rosenberg (1965) Self-Esteem Scale to measure self-esteem; (2) The Multidimensional Health Locus of Control (MHLC) Scale - Form A (Wallston
et al., 1978) to measure internal/external locus of control orientations;
(3) The Health-Promoting Lifestyle Profile (Walker et al., 1987) to
measure health behaviours; and (4) The Demographic Information Sheet
which was developed by the investigator to identify demographic
characteristics of the participants.

Data were collected from a sample of 84 midlife women volunteers
who were current or prospective members of a Vancouver-based social
networking group for mature women, and who met the established criteria
for inclusion in the study. Data were analyzed using the computer
The significance level was set at .05. Specific tests included descriptive
statistics, Pearson's product-moment correlations, and stepwise multiple
regression.

The findings related to the demographic characteristics of the sample
of midlife women revealed information regarding age, marital status,
race, ethnicity, education, occupation, employment status, income of
household, and number of persons living in the household.

Eighty-seven percent of women in the sample were between the ages
of 51 and 65 and the mean age of the sample was 56.98 years. By far the
majority of participants were Caucasian, 95%, with an English
background.

With respect to marital status, 43% of the participants were divorced,
26% were married, 17% were widowed, 12% had never married, and 2%
were separated. Exactly 50% of the sample lived alone. The remaining
50% had from one to four persons living in their household.

In relation to education, 77% had an educational level beyond Grade 12.
Sixty percent of the participants were currently employed with the majority, 26%, working in secretary/clerical positions. The mean annual household income was $27,419.77.

The profile of this group of midlife women was found to be markedly different, with the exception of race, than the sample in Duffy's (1988) study, the only other comparable study of midlife women. The study sample was more heterogeneous with respect to marital status, education, occupation, and income than was Duffy's sample.

The first research question inquired into the participants' level of self-esteem as measured by responses on the Rosenberg (1965) Self-Esteem Scale. The findings indicated that the midlife women in the study had relatively high self-esteem levels that were very close to levels found in other study samples.

Research question two asked about the participants' level of health locus of control as measured by responses on the MHLC Scale - Form A. The findings revealed that the study sample means on each of the three MHLC subscales were fairly consistent with means found in earlier nursing studies and with normative means. The study sample had a relatively high level of "internality" on the internal subscale and fairly low levels of "externality" on the chance and powerful others subscales. Thus, the study sample was generally characterized by an internal health locus of control.

The third research question asked about the participants' level of health-promoting behaviours as measured by responses on the Health-Promoting Lifestyle Profile. The study sample means were within the mid-range of possible scores for each of the seven variables
measured. Study sample means for three of the seven variables measured were significantly different from those of Duffy's (1988) sample. They were: self-actualization and interpersonal support, both of which were significantly lower than Duffy's; and stress management which was significantly higher than Duffy's.

Research question four inquired into the relationship among the participants' self-esteem, health locus of control, and health-promoting behaviours. The findings, based on correlational analysis, revealed that self-esteem and internal, chance, and powerful others health loci of control were significantly correlated at weak to moderate levels with the total health promotion score. The findings, based on multiple regression analysis, indicated that three significant predictors, self-esteem, chance health locus of control, and powerful others health locus of control, explained 24.5% of the variance for engaging in health-promoting behaviours. Thus, the findings provided support for Pender's (1982) original Health Promotion Model which postulated that individual perceptions of self-esteem and health locus of control, among other personal factors, influence one's likelihood of engaging in health-promoting behaviours.

Further, the results of correlational analysis revealed that the number of persons living in the same household, yearly and monthly gross income, education level, marital status, and employment status were significantly correlated at weak to moderate levels with the total health promotion score and/or one or more of the six Health-Promotion Lifestyle Profile subscale scores. The results of multiple regression analysis revealed that monthly gross income emerged as a significant predictor,
behind self-esteem and ahead of chance health locus of control and powerful others health locus of control, for engaging in health-promoting behaviours. Thus, these findings further supported Pender's (1982) Model which also posited that demographic variables, as modifying factors, have an impact on health-promoting behaviours.

Conclusions

Data analysis suggested the following major conclusions:

1) The sample of midlife women was found to have relatively high self-esteem levels.

2) The sample of midlife women was generally characterized by an internal health locus of control.

3) The sample of midlife women was found to be fairly health conscious with respect to the health-promoting behaviours measured.

4) The findings supported Pender's (1982) original Health Promotion Model which postulated that individual perceptions of self-esteem and health locus of control, among other personal factors, influence one's likelihood of engaging in health-promoting behaviours.

5) The results also supported Pender's contention that selected demographic variables, as modifying factors, have an impact on health-promoting behaviours.

Implications

The nursing profession is categorized into four interrelated domains: clinical practice, education, administration, and research.
The implications of this study are most pertinent to the domains of nursing practice and nursing research.

**Implications for nursing practice.**

One of the major findings of this study was that participants' perceptions of self-esteem and health locus of control had motivational significance for engaging in health-promoting behaviours. Thus, it is important that nurses be aware that these personal factors may influence the acquisition and maintenance of health-promoting behaviours.

For example, with respect to health locus of control, it could be valuable for nurses to screen individuals, perhaps using a health locus of control scale, prior to placement into a health education program, thus matching programs to their individual needs. To provide a more specific example, nurses planning an exercise program for midlife women in a community setting could structure the program based on the participants' health locus of control orientations. While externally controlled participants may achieve greater success in a group program which relies on social pressures as motivation, internally controlled individuals may achieve greater success in a more self-directed type program. To Pender (1987), "Perceived control of health appears to influence the effectiveness of differing strategies for inducing or facilitating continued practice of health-promoting behaviors" (p. 61).

Also, even though all of the Health-Promoting Lifestyle Profile scores in the study were within the mid-range of possible scores, scores were lowest on the health responsibility and exercise
dimensions. This finding was consistent with Duffy's (1988) finding also. Therefore, this may suggest the need for nurses to place a higher priority on teaching midlife women about health, encouraging them to attend to and accept responsibility for their health, and encouraging them to increase their participation in regular physical activity. For example, nurses could provide community-based educational programs, such as promoting BSE practice, at women's groups like at the social networking group's monthly meetings. Further, this could provide an excellent forum for nurses to share knowledge of a more general nature with healthy midlife women, such as how personal behaviours and life-style choices influence their health status and longevity. In turn, midlife women could provide valuable information with respect to their health care needs to nurses.

**Implications for nursing research.**

A number of findings in the study have implications for nursing research. For example, by far the majority of participants in the study were Caucasian. Thus, a cross-cultural study could be designed to examine the relationship among self-esteem, health locus of control, and health promoting behaviours of midlife women. Specifically, with respect to health locus of control, the characteristics of varying cultural groups may reveal different control desires and expectancies and thus, lead to different effects of these perceptions on health behaviours.

Also, in the current study and earlier studies, several demographic variables emerged as predictors of health-promoting behaviours. However, race and ethnicity have not emerged as predictors in any of
the studies found. Therefore, designing a cross-cultural study, as described above, could provide important information with respect to the impact of these demographic characteristics on the likelihood of engaging in health-promoting behaviours. Furthermore, a closer look at demographic variables in general would help clarify critical differences that must be considered in structuring health-promotion programs.

Another study finding was that the sample of midlife women were fairly health conscious. This finding is consistent with the literature that suggests that women, in general, actively take an interest in improving their health. Also, the literature suggests that women are more prone to engage in positive health practices than are men. Thus, it would be useful to explore in a future study if, in fact, there were significant differences in relation to health-promoting behaviours between midlife women and midlife men.

As previously noted, the midlife women in the current study were fairly health conscious. Did these women become more health conscious with maturity? Did these women become more health conscious as a result of health-promotion programs? Were these women always relatively health conscious? Designing a longitudinal study to identify patterns of acquisition, maintenance, and/or termination of life-style health behaviours would provide answers to these questions.

Replications of this study would be useful to further the theoretical and empirical knowledge about health-promoting behaviours of midlife women. The study demonstrated empirical
support for several relationships framed within Pender's (1982) original Health Promotion Model. Pender's (1987) revised Health Promotion Model provides an organizing framework for research and theory development with respect to health-promoting behaviours. Continued testing of this revised Model is indicated to further nursing's knowledge of why individuals engage in health actions.

Finally, decreasing the personal, economic, and social costs of illness are of major concern to nursing. In fact, encouraging and facilitating individuals to develop healthy life styles is one area of nursing practice that is growing rapidly. The knowledge base underlying such practice will come from research that focuses on answering questions such as the following: What do individuals do to promote their own health? What differentiates between health-promotion and illness-prevention orientations to health behaviour? Why do some individuals value and practice a healthy life style while others engage in unhealthy behaviours and inappropriate life styles? What nursing interventions would facilitate the acquisition of health-promoting behaviours which, in turn, would decrease the costs of health care, extend longevity, and enhance the quality of life for individuals of all ages? By answering these types of questions, the nursing profession will generate more knowledge about human health processes and will, thus, make valuable contributions to the health-promotion effort.
References


Appendix B

Self-Esteem Scale

Each item is a statement with which you may agree or disagree. Please circle the number that represents the extent to which you agree or disagree with the statement. The more strongly you agree with a statement, then the lower will be the number you circle. The more strongly you disagree with a statement, then the higher will be the number you circle. Please make sure that you answer every item and that you circle only one number per item.

1 = strongly agree; 2 = agree; 3 = disagree; 4 = strongly disagree

1. I feel that I'm a person of worth, at least on an equal basis with others. 1 2 3 4
2. I feel that I have a number of good qualities. 1 2 3 4
3. All in all, I am inclined to feel that I am a failure. 1 2 3 4
4. I am able to do things as well as most other people. 1 2 3 4
5. I feel I do not have much to be proud of. 1 2 3 4
6. I take a positive attitude toward myself. 1 2 3 4
7. On the whole, I am satisfied with myself. 1 2 3 4
8. I wish I would have more respect for myself. 1 2 3 4
9. I certainly feel useless at times. 1 2 3 4
10. At times I think I am no good at all. 1 2 3 4
Appendix C

Multidimensional Health Locus of Control Scale (MHLC) - Form A

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item I would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. Because this is a measure of your personal beliefs, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each item independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think I want you to believe.

1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = slightly agree; 5 = moderately agree; 6 = strongly agree

1. If I get sick, it is my own behavior which determines how soon I get well again. 1 2 3 4 5 6
2. No matter what I do, if I am going to get sick, I will get sick. 1 2 3 4 5 6
3. Having regular contact with my physician is the best way for me to avoid illness. 1 2 3 4 5 6
4. Most things that affect my health happen to me by accident. 1 2 3 4 5 6
5. Whenever I don’t feel well, I should consult a medically trained professional. 1 2 3 4 5 6
6. I am in control of my health. 1 2 3 4 5 6
7. My family has a lot to do with my becoming sick or staying healthy. 1 2 3 4 5 6
8. When I get sick, I am to blame. 1 2 3 4 5 6
1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = slightly agree; 5 = moderately agree; 6 = strongly agree

9. Luck plays a big part in determining how soon I will recover from an illness. 1 2 3 4 5 6
10. Health professionals control my health. 1 2 3 4 5 6
11. My good health is largely a matter of good fortune. 1 2 3 4 5 6
12. The main thing which affects my health is what I myself do. 1 2 3 4 5 6
13. If I take care of myself, I can avoid illness. 1 2 3 4 5 6
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me. 1 2 3 4 5 6
15. No matter what I do, I'm likely to get sick. 1 2 3 4 5 6
16. If it's meant to be, I will stay healthy. 1 2 3 4 5 6
17. If I take the right actions, I can stay healthy. 1 2 3 4 5 6
18. Regarding my health, I can only do what my doctor tells me to do. 1 2 3 4 5 6
Appendix D  
Health-Promoting Lifestyle Profile

This questionnaire contains statements regarding your present way of life or personal habits. Please respond to each item as accurately at possible, and try not to skip any item. Please indicate the regularity with which you engage in each behaviour by circling:

\[ N = \text{Never}; \ S = \text{Sometimes}; \ O = \text{Often}; \ R = \text{Routinely} \]

<p>| | | | | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Eat breakfast</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>2.</td>
<td>Report any unusual signs or symptoms to a physician.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>3.</td>
<td>Like myself.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>4.</td>
<td>Perform stretching exercises at least 3 times per week.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>5.</td>
<td>Choose foods without preservatives or other additives.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.</td>
<td>Take some time for relaxation each day.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>7.</td>
<td>Have my cholesterol level checked and know the results.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>9.</td>
<td>Feel I am growing and changing personally in positive directions.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>10.</td>
<td>Discuss personal problems and concerns with persons close to me.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>12.</td>
<td>Feel happy and content.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>13.</td>
<td>Exercise vigorously for 20–30 minutes at least 3 times per week.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>14.</td>
<td>Eat 3 regular meals a day.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>15.</td>
<td>Read articles or books about promoting health.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>17.</td>
<td>Work toward long-term goals in my life.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>18.</td>
<td>Praise other people easily for their accomplishments.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>19.</td>
<td>Read labels to identify the nutrients in packaged food.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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<tr>
<td>20.</td>
<td>Question my physician or seek a second opinion when I do not agree with recommendations.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>22.</td>
<td>Participate in supervised exercise programs or activities.</td>
<td>N</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>23.</td>
<td>Am aware of what is important to me in life.</td>
<td>N</td>
<td>S</td>
<td>O</td>
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</table>
24. Enjoy touching and being touched by people close to me.  
25. Maintain meaningful and fulfilling interpersonal relationships.  
26. Include roughage/fiber (whole grains, raw fruits, raw vegetables)  
   in my diet.  
27. Practice relaxation or meditation for 15-20 minutes daily.  
28. Discuss my health care concerns with qualified professionals.  
29. Respect my own accomplishments.  
30. Check my pulse rate when exercising.  
31. Spend time with close friends.  
32. Have my blood pressure checked and know what it is.  
33. Attend educational programs on improving the environment in  
   which we live.  
34. Find each day interesting and challenging.  
35. Plan or select meals to include the basic four food groups each day.  
36. Consciously relax muscles before sleep.  
37. Find my living environment pleasant and satisfying.  
38. Engage in recreational physical activities (such as walking,  
   swimming, soccer, bicycling).  
39. Find it easy to express concern, love, and warmth to others.  
40. Concentrate on pleasant thoughts at bedtime.  
41. Find constructive ways to express my feelings.  
42. Seek information from health professionals about how to take good  
   care of myself.  
43. Observe my body at least monthly for physical changes/danger signs.  
44. Am realistic about the goals that I set.  
45. Use specific methods to control my stress.  
46. Attend educational programs on personal health care.  
47. Touch and am touched by people I care about.  
48. Believe that my life has purpose.

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