

THE RELATIONSHIP BETWEEN SELF-ESTEEM AND
HEALTH PROMOTING BEHAVIORS IN WORKING WOMEN

By

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE
(Health Services Planning and Administration)

in

THE FACULTY OF GRADUATE STUDIES
Department of Health Care and Epidemiology

We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

July 1990

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ABSTRACT

To date, the undertaking of health promoting behaviors in working women is an issue which has not been explored in any depth. This issue has become particularly important because of two parallel phenomena - the rapid expansion of the numbers of women in the workforce, and the growing interest in health promotion - which have emerged in Canada in the last twenty years or so. As well, factors which may relate to the undertaking of health promoting behaviors have been hypothesized and investigated to some extent, but have not yet been fully determined.

Self-esteem has been proposed as one motivational factor in the undertaking of health promoting behaviors. The present study has sought to determine the extent to which self-esteem, working conditions, and demographic factors, are related to the undertaking of health promoting behaviors in working women. The conceptual model used is a modified version of Pender's (1982) Health Promotion Model in which a feedback mechanism operates, reinforcing the performance of health promoting behavior as self-esteem levels grow, and equally, reinforcing self-esteem levels according

to the extent to which health promoting behaviors are undertaken.

Subjects of a random sample of 500 female union members working in the greater Vancouver area were mailed a questionnaire package. The questionnaires asked for data on present levels of self-esteem, health promoting behaviors presently undertaken, and demographic and working condition factors. Following a repeat mailing, the final number of responses available for analysis was 229 (46%).

Simple linear regression analysis revealed that self-esteem was predictive of health promoting behaviors in a global sense, and, in particular, of self-actualization, health responsibility, exercise, and nutrition. However, neither demographic variables, nor the number of hours worked per week, were found to be predictive of health promoting behaviors.

Although the study suffered from a limitation due to a low response rate, the sample was determined to be broadly representative of the union population. Therefore, these study results may be generalized to other urban, unionized females sharing similar demographic characteristics.

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ACKNOWLEDGEMENT

I am grateful to Larry Stoffman, Director of Occupational Health and Safety, United Food and Commercial Workers Union of B.C., and his staff members, Karen and Kay, for their cooperation in the data collection phase of this research. My husband is appreciated for his moral support throughout, and his assistance with data entry. For their assistance in packaging questionnaires, I thank Alan and Margery Hargrove. To the women who responded to my questionnaire package, I also extend my appreciation.

I acknowledge the generous contribution of my thesis committee members, Dr. John Milsum, Dr. Sam Sheps, and Dr. Clyde Hertzman, for consistently providing me with valuable feedback and support throughout the research process. Dr. Milsum also contributed essential editing skills. Lastly, I am especially grateful to Sandra Wiggins for her advice and guidance with the statistical analysis.

CHAPTER ONE

INTRODUCTION

I.1 Overview

Traditionally, health has been defined in terms of absence of illness, using a medical model. In the last ten to fifteen years, increasing importance has been placed on defining health so that it includes preventive and promotive activities. The Lalonde report (1974) introduced some of these concepts to Canadians, and outlined a linkage between mortality rates and lifestyles. That report served to usher in a new era of thought about health and its determinants. Emphasis was placed on what individuals could do for themselves, not only to prevent illness, but to promote wellness within themselves.

Modern efforts to describe and conceptualize a health model, as distinct from a medical one, may be dated roughly from the 1950's (Rosenstock, 1974). A health belief model of preventive health care was formulated by Rosenstock, Hochblaum, Leventhal, and Kegeles by the end of the 1960's (Maiman and Becker, 1974). Travis (1977) developed the illness/wellness

continuum in 1973. Pender (1982) saw a distinction between protective or preventive behaviors and health promoting behaviors. She describes preventive behaviors as being "directed toward decreasing the probability of encountering illness by active protection of the body against unnecessary stressors or detection of illness at an early stage" (Pender, 1982, p.16). Health promoting behaviors are described as being "directed toward sustaining or increasing the level of well-being, self-actualization, and fulfillment of a given individual or group" (Pender, 1982, p.16). Dunn (1977) described the goal of health promoting behavior as going beyond prevention to high level wellness.

Little research has been done on the factors associated with health promoting behaviors. Self-esteem has been proposed as a variable which is a motivating factor in health promoting behaviors (Pender, 1982). Pender's theory incorporated the view that "belief in personal worth allows individuals to spend time on self-improvement" (1982, p.69). Maslow (1954, 1968) felt that all people have a need to esteem or value themselves. He placed self-esteem second only

to self-actualization on the top of the hierarchial pyramid of basic human needs in this motivational theory.

Today, health promotion has become a buzzword. Health literature is replete with information on the subject. The Federal Government has taken initiatives in the area of health promotion by: 1) establishing a Health Promotion Directorate; 2) sponsoring international conferences on the subject; 3) developing strategies for Canadian implementation; 4) publishing periodicals; 5) commissioning research projects. Other Canadian organizations such as the Canadian Public Health Association have supported health promotion concepts by forming a health promotion division and sponsoring projects such as the Strengthening Community Health project (Bhatti, 1989).

Another parallel phenomenon, has been the growing numbers of women who have recently joined the paid workforce. Working women now represent a large part of the labor force in Canada. Approximately, 1,754,000 women entered the labor force between 1974 and 1984, representing a fifty percent increase (Labour Canada, 1985-86). It can be posited that the dramatic

increases in women working outside the home probably have had or will have some kind of impact on the health of these women. Although there is conflicting opinion over whether womens' health is affected by employment outside the home, on the whole, it appears that women who are employed have good health (Verbrugge, 1984; Jennings, Mazark, and McKinlay, 1984). Only one study has described the relationship between self-esteem and health promoting behaviors in working women. This topic will therefore be explored in this study.

1.2 Research Questions

The objective of this research is to explore the relationship between self-esteem and the undertaking of health promoting behaviors in working women, using a descriptive, cross-sectional design.

Two questions will be addressed. The main question is:

1. What is the relationship between self-esteem, demographic variables, working conditions, and the extent to which working women undertake health promoting behaviors?

A secondary question is:

2. To what extent do women who work outside the home undertake health promoting behaviors?

I.3 Organization

Chapter Two will provide a conceptual framework to be used for the study. A review of the literature concerning self-esteem, its definition and formation, as well as health promoting behaviors and their linkage with self-esteem, will be undertaken in Chapter Three. Chapter Four will focus on working women and their health, and will review any previous research done in connection with working women and self-esteem, and working women and health promoting behaviors. The data collection process, including the research design, sample, procedure, and instruments used, will be described in Chapter Five. Chapter Six will present the results of the data analysis, and a discussion of these will be presented in Chapter Seven. Finally, Chapter Eight, will summarize the study, presenting recommendations, implications, and study conclusions.

CHAPTER TWO

THEORETICAL FRAMEWORK

II.1. A MODIFIED VERSION OF PENDER'S HEALTH PROMOTION MODEL

A number of models which describe the determinants of health behaviors have been developed (Becker, 1974; Pender, 1982; Kersell & Milsum, 1985; Pender, 1987). The theoretical framework for this study is based on Pender's Health Promotion Model (1982). A schematic representation of it appears below, Fig 2.1.

In developing this model, Pender incorporated structural elements of the Health Belief Model (Becker, 1974) together with a model known as the Modified Health Belief Model which she had developed in 1982.

The model in Figure 2.1 suggests that motivation plays a key role in initiating and sustaining health promoting behaviors. The major sources of motivation for human behavior are either actualizing or stabilizing tendencies (Pender, 1982). Stabilizing tendencies maintain homeostasis within the individual, whereas actualizing tendencies aim at achieving change,

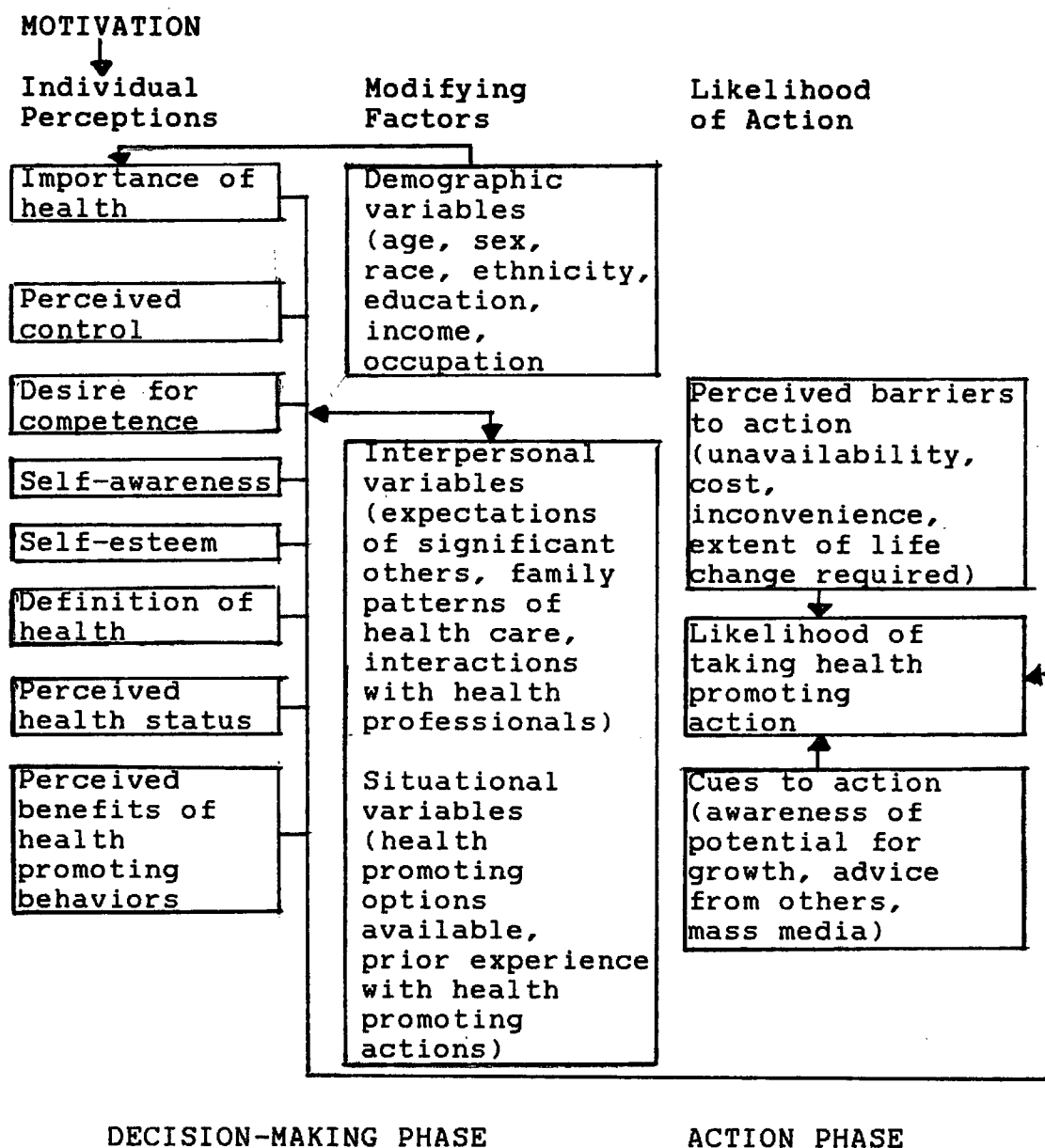


Figure 2.1
An Adaptation of Pender's Health Promotion Model
(Pender, 1982)

growth and maturation. Health promoting behaviors are manifestations of actualizing tendencies, because it is these that drive the individual towards specific activities resulting in well being.

The reader is referred to the model in Figure 2.1 as a visual aid for the following discussion of the framework for the study. The four main determinants of health promoting behavior are described as: individual perceptions, modifying factors of individual perceptions, perceived barriers and cues to action. The first two determinants are part of a decision-making phase, and the second two of an action phase.

The decision-making phase involves the interaction of individual perceptions and modifying factors. Individual perceptions that facilitate or sustain health promoting behavior are: the importance of health, perceived control, desire for competence, self-awareness, self-esteem, health from the perspective of actualization, perceived health status, and perceived benefits of health promoting behaviors.

Demographic variables, interpersonal variables and situational variables are the modifying factors that

modify the individual's likelihood of undertaking health promoting behaviors by influencing the individual perceptions. Equally however, the eight individual perceptions just described and illustrated in Fig. 2.1, operate in the reverse direction so as to influence the interpersonal variables, and situational variables.

The interaction of individual perceptions with modifying factors may be seen in the following example. A young woman perceives her health status (individual perception) to be poor due to obesity and inactivity. Her aunt, who also believes this to be the case, influences the young woman to engage in a regular exercise program as well as a weight loss program (expectations of significant others). The niece's level of income (demographic factor) allows her to proceed with the exercise and weight loss programs, assuming that fees and costs are involved in these programs. After engaging in the two programs for several months, the niece is successful in achieving 50% of her goals for weight loss and exercise. Although originally, her aunt thinks she should continue until the 100% targets are achieved, the niece

convinces the aunt that her perceived health status has improved significantly by pointing out how much better she feels, and the programs are subsequently dropped. Thus, an individual perception has, in turn, influenced the expectation of a significant other.

Determinants of whether an individual takes health promoting action in the action phase of the model include the perceived barriers to action and cues to action. Perceived barriers are described as unavailability, cost, inconvenience, and the extent of life change required. Cues to action include an awareness of the potential for growth, advice from others, and mass media.

As the original model in Figure 2.1 shows, there is an implicit expectation that matters proceed unidirectionally from left to right. In its simplest interpretation, this model indicates that perceived health status (as an example of an individual perception) would determine whether an individual undertakes exercise (as an example of a health promoting behavior).

Pender states, however, that the action phase can precede the decision-making phase. In other words, an

individual could exercise and subsequently feel that their health status has improved as a result of the exercise. This concept is not included in the schema of Pender's model. Other health behavior models have indicated a feedback loop which provides an explanation of the motivation of an individual to continue to undertake health-promoting behaviors (Kersell & Milsum, 1985). In the version of Pender's model below (Figure 2.2), which has been modified by this writer, just such a feedback mechanism is illustrated. This modified version may be a more accurate version of reality.

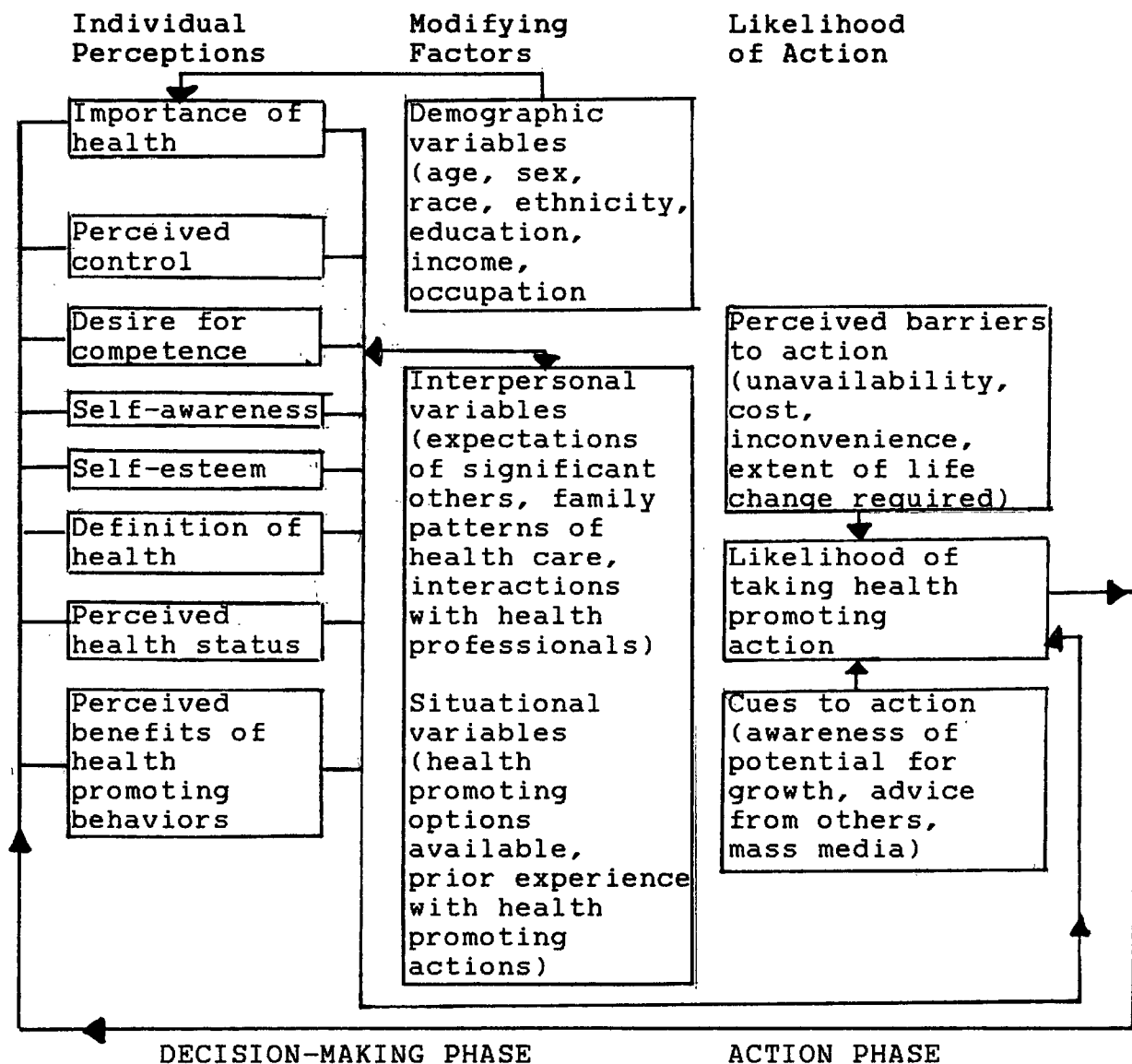


Figure 2.2
A Modified Version of Pender's Health Promotion Model
(Stone, 1990)

II.2 SELF-ESTEEM AS IT RELATES TO THE CONCEPTUAL MODEL

Self-esteem is seen as one of the eight motivational factors affecting the decision-making phase of health promoting behavior. Three main categories of factors modify the individual's self-esteem: demographic, interpersonal, and situational (see Figure 2.2). The demographic factors include age, sex race, ethnicity, education, income, and occupation. The interpersonal factors include expectations of significant others, family patterns of health care, and interactions with health professionals. The situational factors include available health promoting options, and prior experience with health promoting actions. As an example, an individual who has access to worksite health promotion programs sponsored by her employer, and who has friends who tend to invite her to participate with them in activities such as yoga classes (both being interpersonal variables), may feel better about herself, recognizing that she is fortunate to have many opportunities for health promotion

participation.

According to the model depicted in Figure 2.2, an individual's self-esteem has an impact on family patterns of health care, interactions with health professionals, and on the expectations of significant others (the interpersonal factors described previously). The individual's view of the health promoting options available to her, as well as any prior experience which she has had with health promoting actions (the situational factors described above) are also influenced by her level of self-esteem. For example, if an individual thought highly of herself, she would be more likely to believe that she could undertake health promoting behaviors in a variety of ways - through exercise, stress management techniques, positive nutritional strategies etc. In contrast, an individual who did not have a very high opinion of herself, might have 'tunnel vision' when considering health promotion opportunities. She might rule out most options, feeling that it is only possible for her to carry out one type of activity.

It is interesting to note that, while the model asserts a two-way directional flow between

interpersonal variables and self-esteem and equally so between situational variables and self-esteem, the flow is unidirectional only in the case of demographic variables. That is, the model in Figure 2.2 identifies demographic factors or variables as predictors of the likelihood of taking health promoting action through their intermediary influence on self-esteem and other of the eight individual perceptions. Stated differently, the self-esteem of an individual, having been influenced by demographic factors associated with that individual, is then predictive of whether the individual will undertake health promoting behaviors. The model does not assert, however, that the self-esteem of an individual has an impact on demographic factors. This may be a shortcoming of Pender's model. Intuitively, it would seem as though the self-esteem of an individual might influence that individual's choice of occupation, level of education, and level of income, to some extent. Other demographic factors such as age, sex, race, ethnicity would not, of course, be alterable by self-esteem. However, how an individual feels about herself with regard to these four factors, would be related to her self-esteem.

As previously mentioned, self-esteem is one of the eight possible determinants (envisioned by Pender, 1982) of the likelihood of taking health promoting action. The underlying assumption is that individuals who value themselves will be more likely to take the time necessary for self-improvement, expressed as health promoting behaviors. Once the individual has made the decision to take health promoting action (to perform a health promoting behavior), that individual may be rewarded with feelings of increased self-esteem which may, in turn, influence a decision to repeat the health promoting behavior. This is illustrated in the feedback loop between the action phase and the decision-making phase in the modified version of Pender's model (Figure 2.2).

CHAPTER THREE

SELF-ESTEEM AND THE UNDERTAKING OF HEALTH PROMOTING BEHAVIORS

SELF-ESTEEM

III.1 Definition Arising From Empirical Studies

Rosenberg, Coopersmith and Ziller made important early contributions to theories on self-esteem which were based on empirical studies. Rosenberg (1965) studied the dynamics of the development of a positive self-image during adolescence. He saw self-esteem as "the evaluation which the individual makes and customarily maintains with regard to himself." (1965, p.64) This attitude expresses approval or disapproval.

Coopersmith also saw self-esteem in the same light - as a "personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself". (1967, p.5) Coopersmith performed a longitudinal study of normal boys and found that they could be categorized in three groups, as possessing high, medium or low levels of self-esteem.

Ziller saw self-esteem as a social construct, that is self-evaluation emerges largely within a social frame of reference. However, Ziller, Rosenberg and Coopersmith all agreed that high levels of self-esteem are important for personality integration (Wells & Marwell, 1976).

Wells and Marwell (1976) summarized Rosenberg and Coopersmith's approach to self-esteem as "if self is thought of as a set of reflexive attitudes, self-esteem can be described as the evaluative component of each of these attitudes, or as the totality of all such evaluations" (p. 18).

III.2 Relationship Between Self-Esteem and Self-Concept

Self-concept is a much broader notion than self-esteem (Gergen, 1971; Gecas, 1972; Coopersmith, 1967; Rosenberg, 1979; Buck in Roy, 1984; Driever in Roy, 1984). Driever sees self-concept divided into various components which can generally be classified as the physical self, the intellectual self, the moral-ethical self, the emotional self, and the social self. The evaluative dimension of each of these components is

called self-esteem. "Self-concept, (then) is how individuals see themselves, whereas self-esteem is how individuals feel about what they see within the components of their self-concept" (Taft, 1985, p.78-79).

III.3 Formation of Self-Esteem

Rosenberg (1981) clearly states that self-concept is "not present at birth but arises out of social experience and interaction..." (p. 593). He further describes two different social approaches to self-concept: 1) the biographical approach, which describes self-concept as a "stable, enduring feature of personality" (p.593), and 2) the situational approach, which describes self-concept as a "shifting, adjustive process of self-presentation in social interaction" (p.594). Rosenberg subscribes to the former approach, although he states that fundamental changes in self-concept occur through middle childhood as well as early and late adolescence (1979).

Because self-esteem is part of the broader notion of self-concept, it may be deduced that self-esteem also develops out of social experience and interaction.

Further, Rosenberg (1981) describes three principles of self-esteem formulation which clearly indicate that self-esteem is not present at birth. These three principles are: reflected appraisals - meaning that if we perceive that others respect us then we will have high self-esteem, and our self-esteem will be low if we perceive that others do not respect us; social comparison - we learn about ourselves by comparison with others, and this leads us to rate ourselves in relation to others; self-attribution - we observe our overt behavior as a means of drawing conclusions about our inner motives, states or traits i.e. I get high marks in school; therefore I am a good student.

Other authors seem to concur with the conclusion that self-esteem arises out of social experience and interaction. Franks and Marolla (1976) identify two processes which are necessary to the development of self-esteem: 1) the looking-glass self or reflected appraisals of others which the authors term "outer self-esteem"; and 2) feelings of efficacy and competence derived from self-perceptions of one's own actions on the environment or "inner self-esteem". This first process, the "looking-glass self", was first

identified by Cooley in 1902, and had been the basis of belief of the formation of self-esteem until the 1970's when other elements believed to contribute to the development of self-esteem were theorized (Franks & Marolla, 1976). Gecas and Schwalbe (1983) supported Franks and Marolla's theory of the dual way of development of self-esteem. They were particularly interested in inner self-esteem, and proposed that efficacy-based self-esteem was a result of the individual acting on the environment as a causal agent, transforming the environment, and deriving self-esteem from the experience.

III.4 Alterations in Levels of Self-Esteem

There is some disagreement as to the time frame of the formation of self-esteem. Coopersmith (1967) believed that an individual arrived at a general appraisal of self-worth that remains fairly stable sometime before middle childhood. Crouch and Straub (1983), on the other hand, see adulthood as the point in time when "the basic level of self-esteem appears to be firmly established and relatively unchangeable" (p.65). They do, however, distinguish between a

fundamental level of self-esteem which they call "basic self-esteem" - the self-esteem which is laid down in early life, and self-esteem which is functional - this latter is over and above the fundamental level and may change "markedly from moment to moment and day to day" (p.65). According to these authors, functional self-esteem can, at some times, substantially exceed basic self-esteem, although in times of stress, it can regress so that functional self-esteem is lower than basic self-esteem. It is hypothesized that "functional" self-esteem can be altered through life events and education.

In summarizing the use of instruments to measure self-esteem, Wells and Marwell (1976) point out that most clinical measurement to date has been a measure of "chronic or characteristic levels of self-esteem" (p.246). The concept of self-esteem has thus been seen as an enduring concept. However, some experimental manipulations have been carried out, and are presumably based on the assumption that self-esteem is dynamic and has "acute or temporally variable levels". Wells and Marwell do not agree with treating self-esteem as a dynamic concept for several reasons. Perhaps the most

important is that "the conceptual specifications underlying self-esteem manipulation are not available" (p.249). Thus, researchers have not been able to link the operationalization of self-esteem with the theoretical concept of self-esteem as a temporally variable, dynamic concept. As well, ethical issues regarding the manipulation of self-esteem are seen by Wells and Marwell as almost insurmountable. In summary, Wells and Marwell believe that "there is a potentially developing consensus that the theoretically most meaningful use of the concept 'self-esteem' applies to a global, persistent, if not immutable characteristic of the individual" (p.251).

Epstein (1973) has proposed a theory to explain the relative stability of self-esteem levels. He believes that there are two fundamental opposing tendencies within the individual which result in overall balance and stability. These tendencies are based on the fact that the individual acts so that he will feel good. The first tendency induces the individual to raise his self-esteem so that he feels good. The second tendency acts on the individual so that he attempts to avoid a drop in self-esteem which

would result in feeling bad. Thus, the individual when evaluating himself, avoids unrealistically high expectations so that he will neither sink low nor rise high in his evaluation of himself. The result is a relative stability in his self-esteem.

III.5 Self-Esteem in the Recent Literature

In the medical and nursing literature, Avillion (1986) found that no significant correlation between client perceived barriers and self-esteem when looking at the self-esteem levels of wheelchair-bound individuals. Brillhart (1986) explored the predictors of self-acceptance for physically disabled adults. Her conclusions were that knowledge of disability and perceived physical reality (the realistic self-image) were found to be predictors of self-acceptance for physically disabled adults.

Given that self-esteem has been identified as perhaps the most important item of information regarding self-concept (Rosenberg, 1965), and that the evaluative dimension of each of the five components of self-concept is called self-esteem (Drieuer in Roy, 1976), the literature on self-concept is also explored

in this chapter.

In a sample of 103 upper-middle class women, Rutledge (1987) found that self-concept was positively and significantly associated with frequency of breast self-examination. The Total P¹* of the Tennessee Self-Concept Scale (TSCS), which measures the self-esteem component of self-concept, was used to measure self-concept.

Many studies have explored the relationship between self-concept and the health promoting behavior of exercise. For example, Vincent (1976) sought to determine if differences existed in self-concept scores among 460 college women grouped as athletes, nonathletes, physical education majors, general college students, participants in high school competitive athletic programs, and nonparticipants in these programs. Women who were physical education majors, and women who were participants in competitive high school athletic programs, had significantly higher scores than other groups. Most studies support the notion that physical fitness and self-concept are

*For footnote, refer to the end of Chapter Three

correlated. (Hanson & Nedde 1974; Leonardson & Gargiulo, 1978; Massie & Shephard 1971; Morgan, Roberts, Brand & Feinerman 1970; Brown, Morrow & Livingston, 1982).

In contrast, Eickhoff, Thorland and Ansorge (1983) found that there was no psychological improvement after training in young adult women except for those with low initial fitness status. Psychological improvement was measured using the Tennessee Self-Concept scale in many of these studies, including the one which did not find a correlation. In some cases, (Brown, Morrow & Livingston, 1982; and Eickhoff, Thorland & Ansorge, 1983) two psychological aspects of the Tennessee Self-Concept Scale were used - The Total Positive (Total P), and the Physical Self (Phyself). The Total P reflects the level of general positive self-esteem, while the Phyself reflects how individuals view their body, state of health, physical appearance, physical skills, and sexuality. Thus, there appears to be a relationship between self-esteem and exercise as measured by the Total Positive aspect of the Tennessee Self-Concept Scale. It is not clear whether the Total P test instrument measures the fundamental level of

self-esteem (basic self-esteem), or the dynamic/functional level of self-esteem.

The issue of whether self-esteem is a static or dynamic concept remains unresolved in the literature. Wells and Marwell (1976) have concluded that the concept is basically static. However, some authors (Eickoff et al., 1983; Brown et al., 1982; Hanson et al., 1974), in conducting pre and post testing of 'the total positive self' (Total P of the Tennessee Self-Concept Scale) or self-esteem, appear to hold the belief that the concept is modifiable.

III.6 Health Promoting Behaviors

Various researchers have explored the relationship between health promoting behaviors and motivational factors other than self-esteem. For example, Brown, Muhlenkamp, Fox and Osborn (1983) sought to identify the relationship among health beliefs, health values and health promotion activity. Health-promoting behaviors were measured by the Personal Lifestyle Activities Questionnaire (developed by the authors) which focused on safety, nutrition, prevention, substance use, relaxation, and exercise.

Health beliefs were measured using the Multidimensional Health Locus of Control Scale (MHLC). While the MHLC scale was not predictive for health information seeking activities such as taking classes, reading or gathering information from watching T.V., it was predictive for broadly focused health promotion activities i.e. exercising regularly, and eating foods from each food group daily. These results must be interpreted cautiously due to the nonrandom sampling methods used.

These findings were supported when Yoder, Jones and Jones (1985) found that individuals who expressed belief in health promotion behavior were more likely to practice them than were those who did not express such a belief.

Muhlenkamp, Brown and Sands (1985) found that self-reported health promotion activities were not related to health value. The 175 study participants were clients of a nursing clinic which focused on health promotion located in the southwestern U.S. Although participants were not selected randomly, they constituted approximately 20% of the clinic clientele. Health value was measured with a modified version of Rokeach's Value Survey. Participants were asked to

rank order health and five other values (happiness, respect, harmony, freedom, accomplishment). Health promotion activities were measured using the Personal Lifestyle Activities Questionnaire (Brown et al, 1983). Self-reporting revealed that women were more likely than men to engage in health promotion activities. However, when objective measures of number of health promotion visits to the clinic were used, the reverse was true.

Laffrey (1986) studied perceived weight, perceived health status, health conception, and health behavior choices in normal and overweight adults. Health promotion reasons were given as the rationale for choosing health behaviors just as often in overweight participants as in normal weight participants. In a study of 179 blue collar workers, Weitzel (1989) determined that importance of health, perceived health-locus-of-control, health status, and self-efficacy were predictive of health-promoting behaviors. In particular, "subjects who perceived themselves to be in better health, and who held a stronger belief in their own abilities to successfully perform behaviors, engaged in more health-promoting behaviors than their

counterparts." Health-promoting behaviors were measured using the Health Promoting Lifestyle Profile (HPLP) (Walker, Sechrist & Pender, 1987).

III.7 Self-Esteem and Health Promoting Behaviors

Only two studies have been found which deal specifically with the relationship between self-esteem and health promoting behaviors. Muhlenkamp and Sayles (1986), in attempting to identify relationships among perceived social support, self-esteem, and positive health practices, found that both self-esteem and social support are positive indicators of life-style. They studied 55 men and 43 women with an age range of 18 to 67. Life-style was measured with the Personal Lifestyle Questionnaire (Muhlenkamp & Brown, 1983) which measures six areas of health practices - nutrition, exercise, relaxation, safety, substance use, and health promotion. (Health promotion referred to activities such as yearly physical and dental examinations, breast self-examinations, and maintenance of appropriate weight). These six areas are somewhat different than the areas tested in the Health Promotion Lifestyle Profile developed by Walker, Sechrist and

Pender (1987).

It should also be noted that the activities defined by Muhlenkamp and Brown's scale as health promotion activities (yearly physical and dental examinations and breast self-examinations) would be classified by Pender as behaviors associated with disease prevention, rather than health promotion. Pender's definition of health promoting behavior is more useful than Mulenkamp and Browns' because it differentiates between behaviors associated with health promotion and those associated with illness prevention.

A recent study by Duffy (1988) explored the relationships among perceived health locus of control, self-esteem, and perceived health status and their degree of predictability vis à vis health-promoting lifestyle activities. The population surveyed comprised 600 middle-aged female employees of a large southwestern U.S. university.

The Rosenberg Self-Esteem Scale (RSE) was used to measure self-esteem, and the HPLP was used to measure six major categories of health promoting activities—self-actualization, health responsibility, nutrition, exercise, interpersonal support, and stress management.

Subjects whose subscale scores were high for self-actualization, nutrition, exercise and interpersonal support, also scored high on self-esteem, internal health-locus-of-control, and health status. Those subjects whose subscale scores were high for health responsibility, nutrition and stress management, were older in age, reported poor past health status, scored low in belief in chance as a determinant of health, and had high health concern scores.

In summary, self-esteem has been demonstrated to be predictive of lifestyle behaviors in two studies. However, in Duffy's study, it is predictive only for certain health promoting behaviors - self-actualization, nutrition, exercise, and interpersonal support. In Mulenkamp and Sayles' study, it was demonstrated to be predictive of nutrition, exercise, relaxation, safety, substance abuse, and activities such as yearly physical and dental examinations, breast self-examinations, and appropriate weight maintenance.

III.8 Self-Esteem and Other Sub-variables of Health Promoting Behaviors

A significant amount of research has focussed on

the relationship between self-actualization and self-esteem as well as the relationship between interpersonal support and self-esteem. Maslow defines self-actualization as:

"an episode, or a spurt in which the powers of the person come together in a particularly efficient and intensely enjoyable way, and in which he is more integrated and less split, more open for experience, more idiosyncratic, more perfectly expressive or spontaneous, or fully functioning, more creative, more humorous, more ego-transcending, more independent of his lower needs, etc. He becomes in these episodes more truly himself, more perfectly actualizing his potentialities, closer to the core of his Being, more fully human." (Maslow, 1968, p.97)

The association between self-esteem and exercise as noted in the literature has been described previously (see Self-Esteem).

Most of the research in the area of social support (interpersonal relationships) indicates support for a linkage with self-esteem (Caplan, 1974; Cobb, 1976; Andrews et al, 1978; Henderson et al, 1978; Henderson, 1980; Miller & Ingham, 1976; Williams et al, 1981; Swann & Predmore, 1985; Hobfoll, Nadler & Leiberhan, 1986; and Vinokur, Caplan & Schul, 1987). Only one study located did not support this association. In this, Held (1981) studied teenage pregnancy, self-

esteem and social networks in White, Black and Mexican-Americans. She found that self-esteem scores were highest among Black women keeping babies and attending school. However, the social network for these women was not as strong as it had been before the pregnancy. The author does not draw any clear conclusions from this study.

The literature on the relationship between self-esteem and self-actualization is less clear cut. Reddy and Beers (1977) determined that the higher the self-concept, the greater the self-actualization in a study on self-actualization through sensitivity training. Ibrahim and Morrison (1976) studied athletes from both high school and college and compared them to non-athletes to determine self-concept and self-actualizing traits. No significant differences were seen between female athletes and female non-athletes at the high school level in self-concept and self-actualization, nor was there a significant difference between male athletes and male non-athletes at the college level in the two traits.

In a study which investigated the relationship between self-actualization and health conception, and

their ability to predict health behavior choice, Laffrey (1985) found that there was no relationship between the promotiveness²* of health behavior choice and self-actualization. Study participants were adults (95 men and women) randomly selected from Midwestern suburban households in the U.S. Health behavior choice was measured by an instrument (Health Behavior Choice Scale) which distinguished among reasons for choices. Reasons for choices were categorized as either preventive, maintenance, or promotive according to their association with illness-preventing, health-maintaining, or health-promoting behaviors.

In summary, there is some support for an association between exercise and self-esteem, and interpersonal support and self-esteem. These are two of the possible six health promoting behaviors described by Pender in her Health Promoting Lifestyle Profile (HPLP). As noted above however, only two studies could be found which actually deal with the relationship between self-esteem and general health promoting behaviors (Muhlenkamp & Sayles, 1986; Duffy, 1988). Here, self-esteem has been shown to be predictive of certain health promoting activities.

*For footnote, refer to the end of Chapter Three

Footnotes

¹ The TSCS consists of 100 items, 90 of which contribute to the self-concept scores. Self-concept measurement is broken into five categories (subselves): 1) Physical Self; 2) Moral-Ethical Self; 3) Personal Self; 4) Family Self; 5) Social Self. The P or Positive scores measure self-esteem levels for each of these five subselves. When the five scores are summed, the total represents the Total P score or the general level of self-esteem.

² The promotiveness of health behavior choice refers to the reason behind the choice of health behavior being associated with health promotion, rather than maintenance or prevention. For example, the respondent was asked to choose one of the following:

I try to get enough sleep to

a) achieve a higher level of well-being

b) resist illness

If the respondent chose a), this was an indication that the reason for selecting that particular health behavior was for health promotiveness, while a b) choice indicated an illness preventive rationale.

CHAPTER FOUR
WORKING WOMEN AND THEIR HEALTH

IV.1 WOMEN AT RISK

Some documentation is available regarding the health risks to which women are exposed. In particular, the Health Promotion Survey, the Canada Fitness Survey, and the Canada Health Survey, all of which have been conducted within the last fifteen years, provide valuable insight regarding the health risks of Canadian women.

Stevens (1985), in reviewing the data from the Canada Health Survey of 1978-79, and the Canada Fitness Survey of 1981, noted that women were disproportionately exposed to the risk of inadequate exercise and to inadequate breakfast. Statistics Canada's Health Promotion Survey of 1985 pointed to the major health risks to women as being their high consumption of sleeping pills and tranquillizers, and potential alcohol abuse. The consumption of sleeping pills and tranquillizers among women is higher than among men.

The various health problems which were self-reported by women in the Canada Health Survey (Lapierre, 1984) were anemia, thyroid disorders, headache, arthritis, rheumatism, mental disorders and other unspecified problems. Thirteen percent of the 'other unspecified problems' consist of pregnancy and its related problems, contraception, and diseases of the reproductive system, all of which required either medical consultations or drug use.

There is conflicting opinion among researchers regarding whether smoking among teenage girls has risen disproportionately to that among teenage boys (Gritz, 1984; Collishaw, 1985). In contrast, there has been no such dispute in older age groups. Collishaw (1985) notes that the percentage of young women in their twenties who smoke on a daily basis has risen disproportionately to young males of the same age during the years between 1982 and 1985.

Women attempt suicide more frequently than men, although they are less successful at it (Lapierre, 1984).

Waldron (1983) determined that behaviors due to sex differences led to differences in morbidity and

mortality. Males tend towards physical daring and illegal behavior which result in more health risks. Waldron noted however, that cultural orientation plays a role in risky health behaviors. Waldron's comment on culture is a reminder that sex differences may not be the only factor which contribute to risky health behavior.

IV.2 WOMEN IN THE WORKFORCE

A recent phenomenon which has arisen within the same timeframe as the blossoming public interest in healthy lifestyles is the large number of women who have left home to join the Canadian labor force. Approximately 1,754,000 women entered the labor force between 1974 and 1984, representing a fifty percent increase (Labour Canada, 1985-86). Today, 44.4% of all those employed in Canada are women (Statistics Canada, Nov. 1989). As of November, 1989, 645,000 women were employed in B.C. This figure represents 44.9% of all employed workers in the same year (Statistics Canada, Nov. 1989).

Women have gravitated towards the service industries. In 1985, the majority of working women

(59.5%) in Canada were found in clerical, sales or service occupations. In British Columbia, the corresponding proportion was 64 percent in the same year. This percentage has remained relatively stable. In 1989, 61.8% of the female B.C. labor force was employed in clerical, sales or service oriented occupations.

It is clear that women have entered the Canadian workforce to the extent that their numbers almost equal those of men working in Canada. The same is true for women in British Columbia. Moreover, the numbers of women relative to men are expected to be on the increase in the 21st century (Bezold et al, 1986). One can assume on the basis of past trends that this means an ever increasing expansion of women in the workplace. The implications for this phenomenon with regard to women's health are dealt with in the next section.

IV.3 WORKING WOMENS' HEALTH

The trends outlined above represent an important social and economic phenomenon. These trends may also represent a potential for a substantial health status change. It can be posited that the dramatic increases

in women working outside the home probably have had or will have some kind of impact on the health of these women. Therefore, the literature was searched to determine the state of health of working women.

Verbrugge (1984) examined data from four periods (1977-1978, 1975-1976, 1972-1973, 1961-1963) of the National Health Interview Survey which has been conducted annually in the U.S. since 1957. This survey looked at the physical health of clerical workers. Verbrugge noted that currently employed clerical workers had better health than nonemployed people. This may be a manifestation of the 'healthy worker effect'. Overall, gender had no impact on the health status of working individuals. Health, however, differed dramatically according to job classes. White collar workers had the best health profile (ie. low injury rates, and few major chronic limitations). Blue collar women had the highest restricted activity and hospital rates of all classes. Clerical womens' health was found to be good relative to all employed women, with Detroit being the exception (Health in Detroit study of 1978). Moreover, marriage seemed to confer some additional degree of happiness to female clerical

workers. This finding is consistent with other research (Baruch, 1984).

Waldron (1983) notes that womens' jobs are less directly hazardous to their health than mens' jobs. However, gender differences aside, Waldron reports that employment had neither harmful nor beneficial effects on the general health of women in a national sample of married, middle-aged women.

Labor force participation was shown to have beneficial effects on health for unmarried white women, and for black women with children in a longitudinal study of middle-aged female subjects. (Waldron & Jacobs, 1989). The purpose of the study was to analyze the relationships between roles (labor force participant, spouse, parent) and health trends. Data were obtained from a previously completed national sample of noninstitutionalized women (National Longitudinal Surveys of Labor Market Experience), using data from the 1977-1982 period. The study concluded that the "health effects of specific roles varied depending on the woman's race and other roles she held" (Waldron & Jacobs, 1989, p. 18).

In a study investigating the association between

health and employment status, Jennings, Mazark, and McKinlay (1984) found that employed women had the fewest health problems and reported the fewest illness behaviors while the unemployed group reported the most health problems and the most illness behavior. Homemakers reported intermediate levels. This study included a random sample of 8114 women aged 45 -54 in Massachusetts. The authors recognized that a healthy worker effect may have confounded the results of the study. In other words, ill health may explain why women leave and do not return to the labor force. Thus, it would not be surprising to find that women who work at home are not as healthy as women who are employed outside the home. This comment is true of many studies cited.

Jougla et al. (1983) explored the effect of employment on health status in a group of women from a college town in the south of France. The sample consisted of married women aged 25-50 years who were subsequently divided into two groups according to their employment status. Only minor differences due to the effect of employment on health status, such as reported fatigue, overwork and nervousness, were noted in the

group of employed women.

Nathanson (1980) demonstrated that employed women have higher overall levels of perceived health than housewives. They are also "less likely to engage in illness behavior, as indexed by restricted activity days and physician visits". (p. 467)

Giele (1982) summarizes the available research on the relationship of employment outside the home to women's health status as follows: "Employed women experience higher levels of subjective health status than housewives and engage in less illness behavior, although the former benefit is confined primarily to women who are less well educated and/or unmarried" (p. 68).

In restudying the data from the Canada Health Survey of 1978-79, and data from the Health Division of Statistics Canada, Lapierre (1984) concluded that "for most of the variables studied, especially those related to mental health, work outside the home seems to have a positive effect on women's well-being" (p. 1).

McDaniel (1987) states that it is incorrect to assume that working women face fewer health risks than men. Thus their occupational hazards include: exposure of

clerical workers to hazardous level of ozone and methanol from copying machines, exposure of healthcare workers to back injuries and AIDS, and exposure of operating room personnel to miscarriage and cancer from anaesthesia. On the other hand, Bryant (1986) found that there was no association between employment and abortion risk in a case control study of 334 women.

Women who work may also face sexual harassment. This job risk has obviously been recognized as real and continuing, since the Province of Quebec has declared that sexual harassment is a compensable work injury (McDaniel, 1987).

In summary, although there is some conflicting opinion over whether womens' health is adversely or positively affected by employment outside the home, aside from the 'healthy worker effect', on the whole it appears that women who are employed have good health. While their degree of risk associated with their employment has yet to be determined, some authors, such as McDaniel, believe it to be relatively high.

IV.4 WORKING WOMEN AND HEALTH PROMOTION

Much interest has been demonstrated in the

development of worksite health promotion programs in the last ten years (Christenson & Kiefhaber, 1988, Bezold et al., 1986). "Most major U.S. corporations either have developed health promotion programs or have them seriously under consideration" (Bezold et al., 1986).

The National Survey of Worksite Health Promotion Activities was carried out in the U.S. in 1985, and demonstrated that worksites of 50 or more employees had an 'abundance' of health promotion activities (Christenson et al., 1988). Participation in worksite health promotion programs has been largely a function of workplace socio-economic stratification (Blozois et al., 1988); in particular, white collar or management/office employees have generally been involved in worksite health promotion activities while blue collar or factory/production employees have not.

Blozois et al (1988) found that gender was related to fitness membership in a study of blue collar workers (22% male vs. 14% female). The types of activities offered at the fitness centre may have a bearing on the association between gender and membership. Activities offered at the center included stationary bicycling,

aerobics, weight training, rowing machine, walking and jogging, and it is only in the last seven years or so that these activities have been embraced by females.

As a result of worksite health promotion surveys, it is known that working women do participate in health promotion activities. Spilman (1988) tested a model of intentional health-related behaviors to determine if participation of white-collar men and women in worksite health promotion programs could be predicted. He found that women participated in more worksite health promotion programs than men, and that they participated more actively than men in 'health treatment' programs. Health treatment programs in this study were defined as weight loss, smoking, low back pain, and stress control management programs. Spilman suggests that the reason for more female participation in 'health treatment' programs is because women monitor their health more closely than men.

In summary, the relationship of working women and health promoting behaviors is an issue which has not been explored in any depth - particularly with regard to those women whose health promotion activities are performed at a site other than work. It is known,

however, that women who work do participate in worksite health promotion activities; in fact, they participate more actively in some types of programs and in more programs than do working men.

IV.5 WORKING WOMEN AND SELF-ESTEEM

Studies regarding the impact of employment on womens' self-esteem carried out in the last decade support the notion that employment enhances womens' self-esteem (Nathanson, 1980; Mackie, 1983; Meddin, 1986; Pugliesi, 1989). In the case of Meddin, only a single indicator of depression and of satisfaction with self was used to measure these concepts. However, satisfaction with self and the tool used to measure it, may not be an appropriate expression of self-esteem. In the tool, respondents were asked to rate their degree of satisfaction with self, on a scale ranging from 0 to 100, the highest number (100) indicating complete satisfaction.

Pugliesi (1989) states: "Research provides strong evidence that employed women (married and unmarried) have, in fact, lower rates of psychological distress and/or depression than married women who are not

employed outside the home". She explored the impact of employment as a social role on womens' well being using self-esteem and social support as intervening variables. Using a sample size of 1299, and controlling for age, education, and income, Pugliesi determined that employment increases the level of self-esteem, and therefore, well-being. No distinction was made between full time and part time job participation. In this study, Pugliesi used an index composed from Rosenberg's Self-Esteem scale to measure self-esteem.

Baruch (1984) reviewed the role of employment and womens' well-being, particularly with regard to self-concept. The relationship of self-esteem to self-concept has already been described (see Self-Esteem), that is, self-esteem is the evaluative dimension of the various components which make up the concept of self-concept.

Baruch distinguishes between the happiness, satisfaction and self-concept components of well-being in her review of the literature. She notes that marriage is linked with only two of the components of well-being - happiness and satisfaction. She concludes that "...as a source of self-esteem and protection

against anxiety and depression, marriage is of little help; here, a good job is the key" (1984, p. 175). Employment, then, positively affects self-concept, and therefore well-being. It is to be expected that working women will have higher levels of self-esteem than women who do not work outside the home.

Paid employment has been found to have a beneficial effect on divorced and separated women's well-being for Mexican-American women (Krause & Markides, 1985). This finding may not be generalizable, however, given the sampling limitation of the study. The authors used a three generation research design and sampled Mexican Americans living in San Antonio, Texas. They specified that there was reason to believe that three generation family members who resided in the same urban area were 'more traditional' than those family members who did not live geographically as close.

CHAPTER FIVE

METHODOLOGY

V.1 Research Questions

This study addresses the following research questions:

1. What is the relationship between self-esteem, demographic variables, working conditions, and the extent to which working women undertake health promoting behaviors?
2. To what extent do women who work outside the home undertake health promoting behaviors?

V.2 Research Design

The study design is a descriptive, cross-sectional survey and is able to demonstrate association only. This method was chosen as there was no consistent evidence in the literature of an association between the major independent variable, self-esteem, and the major dependent variable, the undertaking of health promoting behaviors. Thus, this basic hypothesis-generating step was necessary. Otherwise, a design with the potential to demonstrate causality,

would have been selected.

V.3 Sample

The sample for this study was selected randomly from a membership list of the United Food and Commercial Workers' Union of British Columbia. This particular union was chosen because of its large female membership, geographic suitability, and its ability to provide a relatively homogeneous sample of non-professional women with a mid to low socio-economic status in their own right, living in an urban area. Thus, at least some extraneous variability factors could be controlled for ex ante.

The criteria for inclusion in the pool of target population was that subjects be females residing in the Greater Vancouver area. A random list of 500 subjects conforming to these requirements was then computer-generated by the staff at the local Vancouver Union Office.¹ * The United Food and Commercial Workers' Union represents 15,000-16,000 workers in British Columbia and is a provincial branch of a national and international union. Approximately sixty per cent of the B.C. membership are female, and most female members

*For footnote, refer to the end of Chapter Five

in B.C. are cashiers by occupation. The sample was designed to represent a relatively homogeneous group with the major proportion of the group having an occupation of cashier from grocery store chains, and a very minor proportion being home support workers.

V.4 Data Collection

The initial mailout to the 500 subjects was posted mid-November, 1989. The mailout package consisted of a letter of introduction requesting subjects' participation in the study, a supporting letter from the Union signed by the Director of Occupational Health and Safety,²* a questionnaire package for data collection purposes, and a self-addressed and stamped envelope for return purposes (see Appendix A for samples).

A second mailout, which included all of the previously contents plus a red reminder note, was sent to the same subjects at the end of the first week in January, 1990. The reminder note (see Appendix B) asked subjects to complete and return only one of the two questionnaire packages, either the original mailed in November, or the followup mailed in January. As a poor response was anticipated around the Christmas

*For footnote, refer to the end of Chapter Five

season, the second mailout was not sent until early in the new year.

Response from the first mailout indicated that some subjects were not completing the flip side of one of the test instruments, presumably, because they were not explicitly told to do so. This questionnaire was modified for the second mailout, so that it alerted subjects to the requirement for turning to the flipside of the page. Eighteen unopened packages were returned from the first mailout by Canada Post due to incorrect addresses. Since updated addresses were not available, eighteen new subjects were randomly selected and information packages sent to them.

V.5 Instruments

The questionnaire package of the mailout consisted of two test instruments - the Rosenberg Self-Esteem Scale (RSE), and the Health Promoting Lifestyles Profile (HPLP), as well as a three page questionnaire on demographics and working conditions (see Appendix A). Respondents were asked to answer the two test instruments prior to responding to the ten item questionnaire on demographics and working conditions.

The rationale for this request was that if subjects grew tired of responding and consequently returned incomplete questionnaire packages, the most important information on the major variables would nevertheless have been collected.

A. Rosenberg Self-Esteem Scale

This scale measures self-esteem and consists of ten measures answered on a five point Likert scale with responses ranging from "strongly agree" to "strongly disagree". Potential scores range from 10 to 40, higher scores being indicative of higher levels of self-esteem when reverse scoring is used. In the Rosenberg scale, the self-acceptance aspect of self-esteem is measured. Rosenberg (1965) used this scale to measure levels of self-esteem in adolescents (5,077 high school juniors and seniors from New York state). The reproducibility coefficient was .92 and the scaleability coefficient was .72. Duffy (1988) used Rosenberg's scale to measure self-esteem in a study of 262 adult women between the ages of 35 and 65 years. This study reported a coefficient alpha of .88.

B. Health Promoting Lifestyles Profile

This 48 item instrument measures six positive

health behaviors - self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management. Each of the items has a potential maximal score of four with a minimal score of one. The possible range of scores is 48 to 192. Higher scores indicate a higher frequency of health behavior activity. Although this is a recently developed instrument, it has been shown to have a high internal consistency ($\alpha = .922$ for total, $.702$ to $.904$ for subscales) and reliability ($r = .926$ for total, $.808$ to $.905$ for the subscales) (Walker, Sechrist and Pender, 1987).

C. Demographic and Working Conditions Questionnaire

The demographic and working conditions questionnaire is composed of nine questions designed to elicit responses on variables other than self-esteem which may predict the undertaking of health promoting behaviors. A tenth question on current smoking status, a negative health behavior, is asked as a check on the validity of the responses to the Health Promoting Lifestyle Profile. Items asked in the HPLP are reflective of positive health behaviors. It is anticipated that the results of the HPLP will be

inversely related with the response to the question on current smoking status.

The other nine questions concern: occupation, hours of work/week, level of education completed, number of children in the immediate family, children living at home, ages of children living at home, living situation (alone, or with children or other adult), ethnic background, health related programs in the workplace, and current injury, physical disability or chronic disease which would prevent exercising.

In order to prevent bias on the part of the researcher, the R.S.E. test instrument was scored by a different individual than was the H.P.L.P. test instrument.

V.6 Data Analysis and Statistical Methods

The main research question to be answered in this study was: What is the relationship between self-esteem, demographic variables, working conditions, and the extent to which working women undertake health promoting behaviors? In order to answer this correlational question, it was necessary to determine whether an association existed among the dependent and

independent variables. The statistical method used was regression analysis.

Because association among the independent variables could confound the results of a regression analysis between the dependent and the independent variables, the independent variables were first examined for associations. A t test was used, as the data met the three conditions of: 1) interval level data of the variable on which the groups were being compared; 2) normal distribution of the variable, self-esteem; 3) equal group variances. An alpha level of .01 rather than .05 was set to compensate for the large number of t tests being carried out.

One-way analysis of variance (ANOVA) was conducted to measure the differences between the means of the self-esteem scores for those variables with more than two groups. ANOVA testing was carried out as the three basic assumptions of: 1) mutually exclusive groups; 2) normal distribution of the dependent variable; 3) homogeneity of variances of the groups, were met. The further requirement that continuous data for the dependent variable be used, was also satisfied before one-way analysis of variance was conducted.

Where results from parametric testing indicated that the variances for the groups being tested were unequal, a non-parametric method, the Wilcoxon-Rank-Sum was used.

A Pearson r correlation was determined for the minor continuous independent variable, age, and the major continuous independent variable, self-esteem as the following four assumptions were met: 1) sample was representative of the population to which the inference was made; 2) age and self-esteem were normally distributed; 3) homoscedasticity; 4) the relationship between age and self-esteem was linear.

Pearson r correlations were also conducted on the major independent variable, self-esteem, and the major dependent variable, health promoting behaviors, as well as the six subscales of health promoting behaviors. Once a determination of potential interaction effects among independent variables was made, and any association among the independent variables and the major dependent variable had been determined, the regression model was formulated based on any variables which were significantly associated.

Footnotes

¹No demographic data were available on union membership prior to selection for study inclusion. Therefore, it was not possible to stratify the women into categories and then randomly select from within these categories with the idea that, should a poor response rate be realized, further checks on non-respondents could be made to determine if the sample was biased.

²Direct contact with union members was not permitted. A letter of support for the research, signed by the Director of Occupational Health and Safety, was therefore, considered to be a key factor which would contribute to the success of the data collection.

CHAPTER SIX

RESULTS

VI.1 Introduction

A total of 235 completed questionnaire packages were returned. Six of these were deemed to be unusable as more than 20% of the information in either the Rosenberg Self-Esteem Scale or the Health Promoting Lifestyles Profile had not been completed by the subject. Therefore, the sample size for the data analysis was 229, representing a response rate of 45.8%. Generally, the demographic and working condition questionnaire was fully completed by the subjects. The statistical analysis performed on the collected data used the SAS statistical package (SAS/STAT guide for personal computers, 1987).

VI.1 Descriptive Statistics

The demographic characteristics of the sample are described in Table VI.1 (categorical variables), and Table VI.2 (continuous variables). Wherever missing values were found in the R.S.E. or H.P.L.P. instruments, the mean of the group for that particular

item was substituted. The R.S.E. instrument was reverse scored so that high scores would be an indicator of high self-esteem. This ensured consistency with the direction of the H.P.L.P. scoring.

TABLE VI.1

Demographic Characteristics of Sample (N=229)		
Variables	Frequency	Percent
Occupation		
cashier	155	67.7
clerk	18	7.9
home support worker	4	1.7
other	41	17.9
more than one occupation	11	4.8
Hours of work/week		
0-32	89	38.9
33-40	140	61.1
Education		
high school or less	125	54.6
more than high school	104	45.4
Children Living at Home		
Yes	53	23.2
No	175	76.8
Living Situation		
at least 1 other adult, no children	138	60.8
at least 1 other adult, with children	58	25.6
live alone (no other adult), no children	24	10.6
live alone (no other adult), with children	7	3.1

(continuing)

TABLE VI.1 (continued)

Demographic Characteristics of Sample (N=229)		
Variables	Frequency	Percent
Health Related Programs		
Yes	3	1.3
No	225	98.7
Injury		
yes	28	12.4
no	198	87.6
Smoking		
never	122	53.5
ex	57	25.0
current	49	21.5

Most of the respondents were young (mean age of 27.8 years) cashiers (67.7%) who worked full time (61.1% worked 33-40 hours per week), lived with another adult and were childless (60.8%). Only 45.4% of the group were educated beyond high school. Of those who had children who were living at home with them (23.2%), the children tended to have high mean ages (8.6 to 15 years). Respondents had relatively high self-esteem levels (mean of 32, with a potential range being 10-40), and all some undertook health promoting behaviors¹ (range of 72-177 with a potential range of 48-192).

TABLE VI.2

Means, Standard Deviations, and Range of Values for
Continuous Variables
(N=229)

Variable	Mean	SD	Med	Min	Max	Range
Age	27.8	7.6	26	17	59	42
Year Quit Smoking	84.9*	5.0	86*	69	90	21
Children in Imed. Family						
Age of Child1 (n=55)	9.7	7.1	9	0	26	26
Age of Child2 (n=28)	10.1	5.2	10	0	21	21
Age of Child3 (n=8)	8.6	3.4	8	5	16	11
Age of Child4 (n=1)	15.0	0.0	15	15	15	0
Age of Child5 (n=1)	13.0	0.0	13	13	13	0
Self-Esteem	32.0	4.5	32	19	40	21
Health Promoting Behavior	126.6	18.7	125	72	177	105
Self-Actualization	39.4	6.5	40	21	52	31
Health Responsibility	20.5	5.0	20	10	35	25
Exercise	11.5	4.2	11	5	20	15
Nutrition	15.9	4.1	16	7	24	17
Interpersonal Support	22.6	3.6	22	13	28	15
Stress Management	16.8	3.5	17	10	28	18

*refers to the years, 1984, 1986

Table VI.3 compares 1982 Union data on two demographic characteristics with the results from this study. The percentages for each of the categories of the variable, hour of work/week are very similar. There are some differences in the age categories, with the women in the present study being generally younger than the 1982 union population.

TABLE VI.3

Comparison of Age, and Hours of Work per Week for 1982 Union Data and Present Study				
Variables	1982	Present Study		
	%	Frequency	%	Cum. %
Age	*			
under 20 yrs	5	14	6.1	6.1
20-29 yrs	41	145	63.6	69.7
30-39 yrs	36	45	19.8	89.5
40-49 yrs	16	22	9.6	99.1
50+ yrs	6	2	.8	100.0
Hours Work/Wk	**			
0-16	14	24	10.5	10.5
17-32	28	65	28.4	38.9
33-40	55	139	60.7	99.6
two categ.***		1	.4	100.0

*approximate percentages only

**1982 categories were 0-19, 20-30, 31-40

***more than one category of hours was indicated by the respondent

After viewing the frequency tables based on the originally measured categories, certain variables were collapsed into more logical and compact categories for ease of subsequent analysis. Specifically, the two categories of 0-16, and 17-32, within the variable, hours of work/work, were combined into a single category, 0-32. The variable education was re-categorized from its original six divisions to form just two categories: high school or less (including elementary school, some high school, and high school),

and more than high school (including community college, some university, and university).

Close to 68% of the subjects responded that their occupation was cashier. Because of this high proportion, this variable was not included in further analysis. Almost 99% of the sample did not have health related programs at the worksite. This variable was, therefore, not included in further data analysis. Only 12.4% of the sample responded affirmatively to the question "are you currently suffering from an injury, or do you have a physical disability or chronic disease which would prevent you from exercising?" (shown as injury in Table VI.4). Consequently, only a descriptive analysis of the type of injury, as shown in Table VI.4., rather than analysis according to injury type, was pursued.

Several of the subjects reported more than one injury which prevented them from exercising. For example, one subject reported a neck injury and lupus, another reported torn ankle ligaments as well as broken toes, and a third reported carpal tunnel syndrome and fibrocystitis. Others were vague regarding their injury i.e. surgery.

TABLE VI.4

Descriptors of Injury/Disability/Chronic Disease
Preventing Exercise as Reported by Subjects
(N=28)

car accident
back problems
neck problems
shoulder problems
leg injury
checkers elbow
broken toes
torn ankle ligament or past sprained ankles
tendonitis in wrists
carpal tunnel syndrome
lupus
fibrocystis
degenerating disc
asthma
surgery
baby due imminently
rheumatoid arthritis

The ethnic variable was eliminated from the study. Poor design of the ethnic question in the questionnaire generated confusing responses which proved too difficult to categorize with any kind of certainty.

6.3 Inferential Statistical Results

Table VI.5 illustrates the relationship among the minor independent variables and the major independent variable, self-esteem.

TABLE VI.5

Relationship Among Minor Independent Variables and
Major Independent Variable (Self-Esteem)
(N=229)

Variables	Test Statistic	Result
Self-esteem, education	t=-0.48	p=.63
Self-esteem, hours of work/wk	t=0.35	p=.73
Self-esteem, injury	t=-1.41	p=.16
Self-esteem, age	Pearson r r=.0041	p>.05
Self-esteem, time of response*	ANOVA F =1.25 (2,226)**	p=.29
Self-esteem, living situation	ANOVA F =.46 (3,223)**	p=.71

*the three periods of time during which the subjects returned the questionnaires (1= Nov.20- Dec.4/89, 2= Dec.5/89 - Jan.5/90, 3= after second mailout, Jan.6/90 on)

**degrees of freedom

T tests were used as the statistical method for comparing differences in mean self-esteem scores for the two education groups, the hours of work/week groups, and the injury groups. Table VI.5 shows that there was no difference between the means of any of

these three groups. An alpha level of .01 rather than .05 was set to compensate for the large number of t tests being carried out.

One-way analysis of variance (ANOVA) was the statistical test conducted to measure the differences between the means of the self-esteem scores for the three time groups, and the four living situation groups. The three time groups related to the periods during which the subjects returned the questionnaires: 1) Nov. 20 - Dec. 4/89; 2) Dec. 5/89 - Jan. 5/90; 3) after the second mailout, Jan. 6/90 on. The four living situation groups were: 1) living with at least one other adult, no children; 2) living with at least one other adult, with children; 3) living alone (no other adult), no children; 4) living alone (no other adult), with children. No differences were found among any of the group means.

A Pearson r correlation was determined for the minor continuous independent variable, age, and the major continuous independent variable, self-esteem. As noted in Table VI.5, there was no relationship between age and self-esteem.

As no differences had been detected in these

results, further investigation was done to determine if other variability existed among independent variables. The variable, living situation, was re-categorized so that two new groups were formed: living with significant others, and living with kids. Each of these new groups contained two subgroups (see Table VI.6). Subsequently, Wilcoxon-Rank-Sum testing was carried out on these two variables and self-esteem. This non-parametric methodology was chosen because the assumption of homogeneity of variances necessary for parametric methods was violated.

The results in Table VI.6 indicate that each of the two random samples has been drawn from populations having similar self-esteem distributions. Further breakdown of the living situation variable, then, did not indicate a significant difference between the ranked means of self-esteem in the 'living with significant others' (with children, or without children) groups. Nor was there a significant difference between the ranked means of self-esteem in the 'living with kids' (with significant other, or without significant other) groups.

TABLE VI.6

Relationship Among Minor Independent Variable, Living Situation (by sub-group), and Major Independent Variable, Self-Esteem.

Variables	Statistical Test	Result	Alpha Level
Self-esteem, Living with Significant Others (with and without kids)	Wilcoxon-Rank-Sum	p=.58	.05*
Self-esteem, Living with Kids (with and without signif. others)	Wilcoxon-Rank-Sum	p=.41	.05*

*two sided

The next step was an exploration of the possible association among the minor independent variables and the major dependent variable, health promoting behaviors, Table VI.7. Any of the variables which appeared to be significantly associated, would then be included in the regression model. Health promoting behaviors were measured using the H.P.L.P.

TABLE VI.7

Relationship Among Minor Independent Variables and
Major Dependent Variable (Health Promoting Behaviors)
(N=229)

Variables	Test Statistic	Result
Health promoting behaviors, education	$t = -0.62$	$p = .54$
Health promoting behaviors, hours of work/wk	$t = 1.17$	$p = .24$
Health promoting behaviors, injury	$t = -0.41$	$p = .68$
Health promoting behaviors, age	Pearson r $r = -0.087$	$p = .19$
Health promoting behaviors, time of response*	ANOVA $F = 1.47$ (2,226)**	$p = .23$
Health promoting behaviors, living situation	ANOVA $F = .47$ (3,223)**	$p = .71$

*the three periods of time during which the subjects returned the questionnaires (1= Nov.20- Dec.4/89, 2= Dec.5/89 - Jan.5/90, 3= after second mailout, Jan.6/90 on)

**degrees of freedom

Once again, none of the above statistical tests proved significant, indicating that there was no

relationship between any of the minor independent variables and the global H.P.L.P. score for this particular sample. As a further check on potential associations between the major dependent variable and the minor independent variables, Wilcoxon-Rank-Sum testing was conducted on the re-categorized living situation variable, Table VI.8. This non-parametric statistical method was necessary because the variances of each of the two groups, living with significant other, and living with kids, were unequal.

TABLE VI.8

Relationship Among Minor Independent Variable, Living Situation (by sub-group) and Major Dependent Variable, Health Promoting Behaviors (H.P.B.)
(N=229)

Variables	Statistical Test	Result	Alpha Level
H.P.B., Living with Significant Others (with and without kids)	Wilcoxon-Rank-Sum	p=.46	.05*
H.P.B., Living with Kids (with and without signif. others)	Wilcoxon-Rank-Sum	p=.40	.05*

*two sided

Both Wilcoxon-Rank-Sum results, Table VI.8, indicate that the two random samples had been drawn from populations with similar H.P.B. distributions. There was no significant difference between the ranked means of the health promoting behavior variables in the living with significant others' groups, or the living with kids' groups.

The next major step in the data analysis was the actual simple linear regression analysis which was done to determine the relationship between the major independent variable, self-esteem, and the major dependent variable, global health promoting behaviors. As well, each of the six health promoting behavior subscales was tested for association with self-esteem. A Pearson r coefficient was determined first, to ensure that there was a linear component to the relationship between variables.

Prior to the regression analysis, the nominal level variables were dummy coded to allow for meaningful interpretation. The same assumptions required for correlational analysis were applied to the regression analysis.

TABLE VI.9

Relationship Between Major Independent Variable (Self-esteem), and Major Dependent Variable (Health Promoting Behaviors) Overall, and its Six Subscales

Variables	r	R ²	p
Self-esteem, Health promoting behaviors	.52	.27	<.001
Self-esteem, Self-actualization	.68	.47	<.001
Self-esteem, Health responsibility	.22	.04	<.001
Self-esteem, Exercise	.21	.04	<.001
Self-esteem, Nutrition	.17	.03	<.007
Self-esteem, Interpersonal support	.33	.10	<.001
Self-esteem, Stress management	.35	.12	<.001

As shown in Table VI.9, there was an association between self-esteem and health promoting behaviors. A Coefficient of determination R^2 , of .27 indicated that 27 percent of the total variability in global health promoting behaviors had been accounted for by self-esteem. Within the six subscales of global health promoting behaviors, self-esteem accounted for 47 percent of the total variability of self-

actualization, 12 percent of stress management, 10 percent of interpersonal support, 4 percent of health responsibility, 4 percent of exercise, and 3 percent of nutrition.

Scatter plots were used to investigate any possible interaction between variables. The six variables which were examined for their interaction with self-esteem and health promoting behaviors were: education group, hours of work/week group, injury group, time of response group, significant other group, kids group. No interaction was found. Therefore, no further regression modelling or analysis was pursued.

VI.4 Other Results

A number of side issues were pursued. An earlier examination of the differences between the means in global health promoting behaviors and injury resulted in no significant difference. However, a difference in the means between injury and the exercise subscale of health promoting behaviors would be expected intuitively, and so a t test was conducted to determine if this was actually so.

TABLE VI.10

Relationship Between Independent Variable, Injury, and
Exercise subscale of Health Promoting Lifestyles
Profile

Variables	Test Statistic	Result
Injury, Exercise	$t = -1.94$	$p = .05$

Table VI.10 shows that there was, indeed, a significant difference, with those individuals who claim injury doing less exercise than those who do not claim to have an injury. Subsequently, a scatter plot was created to determine whether there were any interaction effects between exercise and self-esteem according to injury or non-injury. The results demonstrated that, of the individuals who have an injury, there is no association between exercise and self-esteem ($r = .08$). Of the individuals who do not have an injury, there is an association between exercise and self-esteem ($r = .23$). As exercise and self-esteem explain only four percent of the variance (Table VI.9), and as the above analysis was in pursuit of a side issue only, no further analysis was done with the variable, injury group.

Information on a key negative health behavior, smoking, had been gathered in the questionnaire for the purpose of determining if there was a relationship between a negative health behavior, and the H.P.L.P. results which tested for positive health behaviors. It was anticipated that the results of the H.P.L.P. questionnaire would be inversely related with the response to the negative health behavior. The result of a one-way analysis of variance is presented in Table VI.11.

TABLE VI.11

Relationship between Smoking Status and Health Promoting Behaviors		
Variables	Test Statistic	Result
Smoking*, Health promoting behaviors	ANOVA F = 2.36 (2,225)**	p=.09
*smoking is subdivided into 3 categories: never, ex, present		
**degrees of freedom		
Group	n	Mean
1. never	122	128.45
2. ex	57	126.61
3. present	49	121.63

As Table VI.11 indicates, whether or not an individual has never smoked, is a current smoker, or is an ex-smoker, does not reach significance as an effect on the undertaking of health promoting behaviors in this study. To explore the issue further, the ex smokers were split into those who had quit prior to 1989, and those who quit in 1989 or later. The recency of quitting smoking and health promoting behaviors was examined using a Wilcoxon-Rank-Sum test, as the groups had unequal variances, Table VI.12.

TABLE VI.12

Relationship between the Recency of Quitting Smoking,
and Health Promoting Behaviors

Variables	Statistical Test	Result	Alpha Level
Recency of quitting smoking*, Health promoting behaviors	Wilcoxon-Rank-Sum	p=.0036	.05

*two groups: 1) prior to 1989 (n=40) 2) 1989 or later (n=15)

The p value of .0036 indicates that those who quit before 1989 tend to engage in more health promoting behaviors as reported in the H.P.L.P. test instrument.

Footnotes

¹ a score of 48 indicates no health promoting behaviors were undertaken.

CHAPTER SEVEN

DISCUSSION

VII.1 Main Research Question

The main research question which was addressed in this study was: "What is the relationship between self-esteem, demographic variables, working conditions, and the extent to which working women undertake health promoting behaviors?". The results obtained from the study suggest that self-esteem is predictive of health promoting behaviors, which is consistent with the motivational theory proposed by Pender (1982), and the modified version of the model shown in Figure 2.2.

Self-esteem is also predictive of specific health promoting behaviors, listed in ranked order of association: self-actualization, stress management, interpersonal support, health responsibility, exercise, and nutrition. The latter results are consistent with Duffy's (1988) findings. In her study of 262 working women, using the same test instruments as in this study, Duffy determined that self-esteem was predictive for self-actualization, nutrition, exercise, and interpersonal support. Duffy's results may not be generalizable because of her low response rate of 44

percent. This problem also exists in the present study, and is addressed further under VII.3.1.

Self-actualization was the health promoting behavior which shared the greatest variance with self-esteem. As stated earlier (V.2), no attempt was made in the design of the study to demonstrate causality. Thus, only an association, and not its direction, could be determined between self-esteem and self-actualization. The self-actualization variable warrants discussion because of its relatively high degree of predictability. The following items in the Health Promoting Lifestyle Profile tested for self-actualization:

1. Like myself
2. Am enthusiastic and optimistic about life
3. Feel I am growing and changing personally in positive directions
4. Feel happy and content
5. Am aware of my personal strengths and weaknesses
6. Work toward long-term goals in my life
7. Look forward to the future
8. Am aware of what is important to me in life
9. Respect my own accomplishments
10. Find each day interesting and challenging
11. Find my living environment pleasing and satisfying
12. Am realistic about the goals that I set
13. Believe that my life has purpose

The authors of the Health Promoting Lifestyle Profile (Walker, Sechrist, & Pender, 1987) have not defined self-actualization, or any of the other five

health promoting behaviors measured by the H.P.L.P. The questions in the H.P.L.P. however, presumably reflect their notion of self-actualization. Maslow states that healthy people are motivated "primarily by trends towards self-actualization" (1962, p.25), and their observed clinical characteristics are:

- "1. Superior perception of reality.
2. Increased acceptance of self, of others and of nature.
3. Increased spontaneity.
4. Increase in problem-centering.
5. Increased detachment and desire for privacy.
6. Increased autonomy, and resistance to enculturation.
7. Greater freshness of appreciation, and richness of emotional reaction.
8. Higher frequency of peak experience.
9. Increased identification with human species.
10. Changed ... interpersonal relations.
11. More democratic character structure.
12. Greatly increased creativeness.
13. Certain changes in the value system." (p. 26, 1962)

The questions identified in the the H.P.L.P. as being representative of self-actualization, appear to be consistent with Maslow's description of observable self-actualization characteristics of an individual. The findings in this study are also consistent with Maslow's motivational theory (1962), which places self-actualization hierarchially above the need for self-esteem. According to Maslow, individuals will meet the more basic survival needs prior to being able to devote

energy to meeting the more sophisticated needs such as love and belonging, self-esteem, and finally self-actualization. Generally, Maslow sees individuals meeting their needs in this pyramidal fashion. Individuals would necessarily first possess self-esteem before their self-actualization needs could be met.

Respondents of this particular study generally had high levels of self-esteem. It is not surprising then, that self-esteem was predictive of self-actualization.

The evidence in this study also suggests that the demographic variables of age, education, and living situation, including living with significant others and living with kids, are not predictive of health promoting behaviors; neither is the working condition variable, number of hours worked per week. These findings are neither supportive of Pender's model of motivation in undertaking health promoting behaviors (Pender, 1982), nor of the modified version of Pender's model (Figure 2.2). They are, however, consistent with Duffy's results (1988). Duffy found that demographic variables do not influence health promoting behaviors. The subjects in Duffy's study represented a relatively homogeneous group: mostly married (60.1%), white

(93.5%), very well educated (72.7% had a Master's or Doctoral degree), with an age range of 35-65 years, and a mean age of 45.5 years. 64.6% had a spouse living with them, 43.3% had children living with them, and all respondents were employed by the same university. The resulting homogeneity may have restricted the range of the values in the study sample.

The present study may suffer from the same limitation. Although the strategies of random selection, the inclusion of extraneous variables as part of the study, and planning for homogeneity of research subjects, were employed in an attempt to provide maximum assurance of internal validity, the homogeneity which was achieved may have masked the potential variability of the minor independent variables.

The question arises as to whether there was enough power to detect health promoting behavior differences, in that no significant differences were determined in any of the independent variables, except for self-esteem. Power, as the ability to detect relationships among variables, depends strongly on the sample size, being increased when a large sample size is used.

Streiner (1986), referring to linear regression, suggests that "a good rule of thumb is that the sample size, or number of data points, should be at least five times the number of independent variables" to ensure adequate power (p.63). In this study, nine minor independent variables (age, education, hours of work/week, living situation, living with significant others, living with kids, injury, smoking, and time of response), and one major independent variable, (self-esteem) were tested. Therefore, 45 subjects were needed, and the sample size meets this requirement.

The power available for the statistical tests, was also determined using tables for tests of differences of two independent means, and bivariate correlations (Polit & Hungler, 1987) (see Appendix C). Since no other estimate of effect size could be found in the literature, a conservative value of .50 was used (Polit & Hungler, 1987) for the bivariate correlations. According to the bivariate correlation tables in Appendix C, using a sample size of 75, an effect size of .5, and an alpha of .05, 99% power will be achieved. Because a sample size of 229 was actually used, the available power for the correlational testing (self-

esteem and health promoting behaviors, self-esteem and age) was greater than 99%.

The power that was available for the t tests conducted on the major independent variable, self-esteem, and the minor independent variables, was determined using 1/2 a standard deviation of self-esteem (1/2 of 4.51) in the calculations for the effect size, giving an effect size of .5¹*. From the tables for t tests (Appendix C), it was determined that, using an alpha of .01, and a sample size of 94, a power of 80% was achieved. Thus, the available power for all t test variables, except living situation and injury, was 80%. However, if one standard deviation were used in the calculations for the effect size, only 37 subjects would be required to achieve a power of .80. Since more than 37 were used in the living situation variable, the power achieved was at least 80%. Power for the variable, injury, however, was somewhere between 60 and 70 percent. These results were also true for the t tests conducted on the major dependent variable, health promoting behaviors, and the minor independent variables.

Thus an adequate amount of power was available for

*For footnote, refer to the end of Chapter Seven

all tests conducted on the data in this study, with the exception of the variables, self-esteem and injury, and health promoting behaviors and injury. It is therefore, unlikely that a true difference was missed. It should also be noted, that although no significant difference was found between health promoting behaviors and injury, there was one between exercise and injury.

As might be expected, a relationship was found to exist between injury and exercise. The anticipated direction of the results was also supported: women who reported injuries or chronic illnesses which might prevent them from exercising, also reported doing less exercise than those who did not claim injury. The evidence of this association was reassuring in light of the lack of association between health promoting behaviors and any of the other demographic and working condition variables.

It was anticipated that respondents who had never smoked, or who were ex-smokers would have a positive association with health promoting behaviors. The results did not confirm that this was the case. However, there was a relationship between recency of

quitting smoking and health promoting behaviors. Those who had claimed to have quit a longer time ago, claimed to be undertaking more health promoting behaviors than more recent ex-smokers.

The time frame in which the subjects responded in returning the completed questionnaire, was not found to have influenced the scores of either the self-esteem or health promoting behavior test instruments. There was very little variance among responses, whether answered in November, 1989 or in April, 1990, or anytime in between. From this result, one might assume that if a third mailout would have been conducted with a view to increasing the response rate, its results would have been similar to those collected earlier. Therefore, the results reported in this study may be representative of the population from which the sample was drawn, despite the low response rate.

VII.2 Secondary Research Question

The secondary research question addressed in this study is: "To what extent do women who work outside the home undertake health promoting behaviors?" The mean score for global health promoting behaviors of the

women in this study is 126.6; the range is 72-177, while the potential range is 48-192. A score of 48 indicates that no health promoting behaviors are undertaken. The mean values for each of the six subscales are shown in Table VI.2. However, other than stating that the urban working women who participated in this study did report undertaking some health promoting behaviors, no other conclusion can be drawn. This point is elaborated in section VII.3.3.

VII.3 Limitations

VII.3.1 Low Response Rate

The most serious limitation of the study is the low response rate of 45.8%. Because the study results were generally not significant, this is of particular concern, although this concern is somewhat mitigated as an adequate amount of power was available. Results which are marginal or near marginal in conjunction with a low response rate, are cause for concern as to whether the results reflect the sampling frame; if not, the results will not be generalizable. On the other hand, generally it appears as though enough power was available. Thus, the marginal results found in this

study, probably reflect the fact that true differences were not missed.

At least two quite different interpretations may be placed on the volunteer bias associated with the low response rate in this study. First, if the respondents were 'complainers' and believed that the study might demonstrate their tough working conditions, or stress on the job, they would be committed to responding so that their viewpoints could be heard. In this case, it is possible that the subjects who responded were those with low self-esteem.

A number of anecdotal observations on the author's part, however, support the notion that this interpretation is incorrect. First, those respondents who sent in unsolicited comments along with their questionnaires, appeared, from their remarks, to be confident individuals. Second, the mean score for self-esteem in the sample was 32, from a potential range of 10-40. This suggests that the subjects who participated in the study had fairly high levels of self-esteem. Third, the introductory letter (Appendix A1) clearly states that the study is not designed to have direct benefits for the respondents.

A second interpretation of the poor response rate stems from volunteerism due to high levels of self-esteem. That is, individuals who regard themselves highly, are more likely to respond to the questionnaire package. This explanation is probably more applicable. A third explanation, which cannot be ruled out, may be that there is a bipolar distribution due to the sample, featuring both complainers and those with high self-esteem levels. However, the histogram from the study results did not indicate this to be the case.

There is also the possibility that, if there is an association between self-esteem and health promoting behaviors, and the volunteer bias described above (volunteerism due to high levels of self-esteem) is present, then the mean scores for health promoting behaviors in the sample will also be artificially high. If the results from the sample could be compared with the sampling frame, then a determination of the existence/non-existence of a bias due to the low response rate could be made. Unfortunately, except for a few sketchy demographics regarding age, and hours of work/week of Union members, this information was not available from the Union. In 1982, a survey had been

carried out on 1800 male and female union members (L. Stoffman, personal communication, November 1, 1989). Seventy percent of the members were women. Table VI.3 compares the information obtained in the 1982 survey, and that obtained in this study.

From Table VI.3 it can be seen that the percentages associated with hours of work per week are quite similar in the 1982 and 1990 survey results, despite slightly different categories. The age variable presents only one major dissimilarity, the 40+ range being 22% in 1982, and 10.4% in 1990. The percentage of subjects under age twenty is similar. In both surveys, the greatest percentage is found in the age range of 20-29 years, and the second highest percentage in the 30-39 year range. The percentage of respondents in the 20-39 year range is very similar, 77% in 1982, and 83.4% in the present study.

Although the information from the 1982 Union survey covers only two demographic characteristics, it appears to match closely with those same characteristics sampled in the present study. The data suggest that the sample drawn for this study is not radically different from the union population. This

finding somewhat mitigates the concern about the low response rate, and supports the notion of generalizability of the findings in this study to other urban, working, female populations with similar demographic characteristics.

VII.3.2 Range Restrictions of Independent Variables

Age, educational level, hours of work per week, living situation, injury, and time of response did not demonstrate an association with health promoting behaviors. As sufficient power was available to conduct the statistical testing, another explanation must be found for the lack of effect of these independent variables if, indeed, they are significant factors. Restricted range would be another cause; the more limited the range, the greater the difficulty in determining differences which are actually present. This may be due to the limited sample size, or it may be reflective of reality in that the sample is, indeed, representative of the population from which it was drawn. This would mean that the population really is, on the whole, young, being employed as cashiers, most of whom work at least 31 hours per week. The range of

each variable would be naturally limited due to the homogeneity of the population. The only other study which tested for similar variables (Duffy, 1988), did not report the range of values for self-esteem and health promoting behaviors. Therefore, a comparison to determine similarity of range of values, is not possible. However, Duffy did describe the demographic characteristics of the respondents in her study (see section VII.1), and it appears that the sample studied was homogeneous, with a limited range of values. It seems likely that the range of values in the present study is also naturally restricted due to the homogeneity of the sample.

VII.3.3 Secondary Research Question

Only limited conclusions can be drawn with regard to the secondary research question for two reasons. First, the study design did not take into consideration the need for comparison of working womens' responses with those of women who work at home. Consequently, no relevant data was collected. Second, no literature could be found which provided information regarding the undertaking of health promoting behaviors measured by

the Health Promoting Profile Lifestyle in women who work at home. The answer to the question; "To what extent do women who work outside the home undertake health promoting behaviors?" will therefore be limited to observations derived from descriptive statistics. These are described in VII.2.

Footnotes

1 Calculation of Estimated Effect:

$$\frac{\text{estimated population group differences}}{\text{estimated population SD}}$$

For t tests involving Self-esteem as a variable:

$$\text{estimated effect} = \frac{2.255}{4.51} = .5$$

CHAPTER EIGHT

SUMMARYVIII.1 Introduction

The objective of this study has been to explore the relationship between self-esteem and the undertaking of health promoting behaviors in working women. Two research questions have been explored:

1. What is the relationship between self-esteem, demographic variables, working conditions, and the extent to which working women undertake health promoting behaviors?
2. To what extent do women who work outside the home undertake health promoting behaviors?

The conceptual framework used for this study is a modified version of Pender's Proposed Health Promotion Model (Figure 2.2). In this model, health promoting behaviors are viewed as manifestations of human actualizing tendencies. Motivation plays a critical role in initiating and sustaining health promoting behaviors. Self-esteem is seen as one of the eight motivational factors affecting the decision-making phase of health promoting behavior. The underlying assumption is that individuals who value themselves,

will be more likely to take the time necessary for self-improvement expressed as health promoting behaviors. A positive, reinforcing cyclical pattern may also be established, as the individual is rewarded with feelings of increased self-esteem which, in turn, influence the decision to repeat the health promoting behavior. Equally, a negative reinforcing cycle may be initiated. Demographic, interpersonal, and situational factors also influence the decision to undertake health promoting behavior.

8.2 Conclusions

The undertaking of health promoting behaviors in working women is an issue which has only been explored in a limited fashion. This is particularly true of those women who engage in health promoting behaviors in a location other than their worksite. It is known that women in the United States actively participate in worksite health promotion programs, where programs are available. In the Canadian study undertaken by the author, only 1.3% of the respondents indicated that there were health related programs available at the worksite, yet all women in this study reported that

they engaged in health promoting behaviors. These positive health behaviors were obviously undertaken outside the worksite milieu. The extent to which the women undertook them, the second research question of this study, could not be clarified, other than to note that the mean score for health promoting behaviors for these women was 126.6 out of a potential range of 48 to 192. Unfortunately, no literature was found on non-working womens' health promoting behaviors which could be used for comparison. The most that can be said is that the women who responded to this particular study do engage in health promoting behaviors.

Employment has been reported in the literature to enhance womens' self-esteem. The women in this study have relatively high levels of self-esteem, but whether this is due to their employment status could not be determined in this study. (Indeed, it was not a part of the research question.)

The results of this study suggest that self-esteem in the urban working women participating in this study, is predictive of their global health promoting behaviors, as well as of their specific health promoting behaviors of: 1) self-actualization, 2)

health responsibility, 3) exercise, 4) nutrition, 5) stress management, and 6) interpersonal support. In contrast, the demographic and working condition factors of age, education, living situation (with and without kids, with or without significant others), and number of hours worked per week, do not appear to influence the undertaking of health promoting behaviors.

Since it has been determined that the sample obtained in this study is broadly representative of the sampling frame (section VII.3.1), the study results may be generalized to other unionized females working in an urban environment, sharing similar demographic characteristics.

8.3 Recommendations

A number of recommendations are suggested for future studies. The first two address technical problems which were anticipated by the author, but not able to be resolved prior to the initiation of the study. The last two address the need for further investigation of the relationship between self-esteem, demographic factors, and the undertaking of health promoting behaviors:

1. In future study populations, as many demographic characteristics as possible should be known.
This would enable the researcher to comprehensively compare the sample with the sampling frame to determine if sample characteristics were typical of the population from which the sample was drawn.
2. At least three mailouts of study questionnaires should be carried out to ensure an adequate response rate. This recommendation assumes that adequate funding would be available.
3. Future studies should be designed to include less homogeneous groups of working women so that the effect of demographic factors on health promoting behaviors could be determined.
4. Future studies should be conducted to compare the relationship between self-esteem and the undertaking of health promoting behaviors, on women in two separate populations, namely those who work outside the home, and those who are not in the workforce.

8.4 Implications

The concept of self-esteem as a modifiable variable has not been clarified in the literature. Its conceptualization as either 'basic' (static), or as 'functional' (dynamic), is an important issue for future research. As a static concept, self-esteem would be viewed as an independent variable which could influence health promoting behaviors. As a dynamic concept, self-esteem would be viewed as a dependent variable, influenceable by other variables.

In this study, self-esteem has been viewed theoretically as having the potential both to modify, and be modified by behavior (Figure 2.2); although operationally, it was identified as independent. Because this study is cross-sectional in design, a determination of whether self-esteem is a static or dynamic concept, could not be addressed. This issue will be left to other researchers.

There is no evidence to show that the sample of women in this study is different than the study population. Therefore, if the sample of working women is representative of the other female union members who

work in the Greater Vancouver area, then it can be said that this group of women is fairly healthy from a self-esteem point of view. This is a good group to target for continued growth in the area of self-actualization. If ways could be found to enhance their levels of self-esteem even more, achievement of self-actualization could then be targeted as well. Equally, an enhancement of self-actualization levels could positively influence self-esteem.

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Appendix A1

#89- 10764 Guildford Dr.,
Surrey, B.C., V3R 1W6
November 15, 1989.

Dear Working Woman,

My name is Sharon Stone. I am doing research about womens' health promoting behaviors and how women feel about themselves, as part of the Master's of Science program at the University of British Columbia. I need volunteers to take part in this study. Participation involves reading this letter, which explains the project, and filling out three brief questionnaires. You should be able to complete all three in no more than thirty minutes. The questionnaires are not a test, but rather a survey of how you feel about yourself and what kinds of health promoting behaviors you do. The questionnaire on health promoting behaviors is called the Health Promoting Lifestyle Profile, and the one on how you feel about yourself is the Rosenberg Self-Esteem Scale. The third, "Questionnaire Number 3", asks for some important background information on you.

I ask you then to assist me in my research by filling out these questionnaires. However, you are under no obligation to participate, and there is no possible penalty for not doing so. If you do decide to participate and then change your mind while you are filling out the questionnaires, you may withdraw by simply not sending me your responses. Please do not place your name on the questionnaires. This means that you cannot be identified and thus your responses will be totally anonymous. As well, I will be treating all information which is sent to me in a confidential manner. Once I have used the information which you have sent me, I will destroy it.

Upon completing the questionnaires, will you please mail them to me in the stamped self-addressed envelope with which you will be provided. Please fill out the form entitled Questionnaire Number 3 AFTER you have completed the other two.

You may be wondering how I was able to get in contact with you. I asked your Union for assistance, and because it believes that this research may be helpful for working women, it provided me with a randomly selected list from its computer. The Union has given permission for me to contact you and ask you to participate in this study with the understanding that your participation is voluntary, anonymous, and that all information obtained from the study will be kept confidential. Although the study is not designed to have direct benefits for you personally, you may be interested in knowing the results. Copies will be available through your Union, or you may call me at 581-5006 should you wish.

Thank you for your time and cooperation.

Sincerely,

Sharon Stone
Sharon Stone

Appendix A2

6 November, 1989

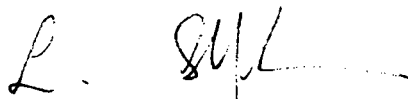
Dear member:

Your union approved a request from the University of British Columbia to ask randomly selected women from the lower mainland area if they would like to be part of the attached health promotion survey.

In return for this assistance, the University of British Columbia will share any general findings with us which may of interest to our general membership. Of course, it is our understanding that your participation is totally voluntary and anonymous.

We are pleased to assist in this research which may be of benefit to all working women and look forward to the results of the survey.

Yours sincerely,

A handwritten signature in dark ink, appearing to read 'L. Stoffman', with a horizontal line extending to the right.

Larry Stoffman
Director, Occupational
Health & Safety

Appendix A3**QUESTIONNAIRE PACKAGE**

This is the three part questionnaire package which you are asked to complete in the study on the relationship between self-esteem and health promoting behaviors in working women. Part One is the Rosenberg Self-Esteem Scale. Part Two is the Health Promoting Lifestyle Questionnaire. Please fill out these two before completing the third part which is entitled Questionnaire Number Three. It should take you no more than thirty minutes to fill out all three parts. If you complete this questionnaire package, it will be assumed that you have given your consent to participate in this project.

DO NOT PUT YOUR NAME ON THE QUESTIONNAIRES.

Your responses will be kept confidential, but, in any case you cannot be identified. Only members of the research team will be reading the information in the three questionnaires. All the information collected from this study will be destroyed upon completion of the project. Once you have completed all three questionnaires, please forward them in the envelope provided to:

Sharon Stone
#89 - 10764 Guildford Drive
Surrey. B.C. V3R 1W6

Thank you for your assistance.

Appendix A4

ROSENBERG SELF-ESTEEM SCALE

Please check the answer which describes how you feel now:

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

Appendix A5

LIFESTYLE PROFILE

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

N for never, S for sometimes, O for often, or R for routinely.

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

Please turn over

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

Appendix A6

QUESTIONNAIRE NUMBER THREE

This is the third and final part of the questionnaire package which you are asked to complete in the study on the relationship between self-esteem and health promoting behaviors in working women. Please fill out the Rosenberg Self-Esteem Scale and the Health Promoting Lifestyle Profile before answering the questions on this form.

PLEASE CHECK THE MOST APPROPRIATE ANSWER AND FILL IN THE BLANKS WHERE INDICATED.

Study Number

1	2	3

DO NOT MARK
IN THIS COLUMN

1. What is your occupation? (Check one)

CASHIER

☐

CLERK

☐

HOME SUPPORT WORKER

☐

SERVICE CLERK

☐

OTHER

☐

2. On average, how many hours do you work at your job per week? (Check one)

0-16 HOURS

☐

17-32 HOURS

☐

32-40 HOURS

☐

3. What educational level have you completed? (Check one)

ELEMENTARY SCHOOL

☐

SOME HIGH SCHOOL

☐

HIGH SCHOOL

☐

COMMUNITY COLLEGE

☐

SOME UNIVERSITY

☐

UNIVERSITY

☐

4

5

6

Appendix A6

DO NOT MARK
IN THIS COLUMN

4. How many children do you have in your immediate family?
(Put 0 if you have none) _____

7	8
---	---

If you have children, are any living at home? (Check one)

YES ☐ NO ☐

9

If you have children at home, what are their ages?

10	11	12	13
14	15	16	17
18	19	20	21

5. What is your age? _____

22	23
----	----

6. What is your living situation? (Check one)

LIVING WITH AT LEAST ONE OTHER ADULT, NO CHILDREN ☐

LIVING WITH AT LEAST ONE OTHER ADULT, WITH CHILDREN ☐

LIVING ALONE (no other adult), NO CHILDREN ☐

LIVING ALONE (no other adult), WITH CHILDREN ☐

24

7. What is your ethnic background? For example, French Canadian, Chinese, Canadian Native Indian, Black.

*

8. Are there any health related programs at your workplace?
For example, exercise programs, weight loss programs.
(Check one)

YES ☐ NO ☐

25

If yes, please write down the type and nature of the programs.

26	27
28	29
30	31

Appendix A6DO NOT MARK
IN THIS COLUMN

9. Are you currently suffering from an injury, or do you have a physical disability or chronic disease which would prevent you from exercising?

YES ☐NO ☐

If YES, please describe

10. What is your smoking status? (Check one)

NEVER SMOKED ☐EX-SMOKER ☐CURRENT SMOKER ☐

If you are an EX-SMOKER, what year did you quit? _____

32

*

33_____
34_____
35

Appendix B

Dear Working Woman:

You may remember the enclosed letter that I wrote to you last November in which I asked you to participate in a research project. If you have already responded, please ignore this reminder and do NOT respond again. However, if you have not yet had a chance to return your questionnaire package, and are prepared to do so, please send it in now.

In case you have misplaced the original information, I have enclosed another package for you. Please complete and return only ONE questionnaire package (this one OR the one you received in November). Thank you for your cooperation. Appendix C

Appendix C

Sample size estimates for test of difference of two independent means*

Power	Estimated Effect†									
	.10	.15	.20	.25	.30	.40	.50	.60	.70	.80
<i>Part A: $\alpha = .05$</i>										
.60	977	434	244	156	109	61	39	27	20	15
.70	1230	547	308	197	137	77	49	34	25	19
.80	1568	697	392	251	174	98	63	44	32	25
.90	2100	933	525	336	233	131	84	58	43	33
.95	2592	1152	648	415	288	162	104	72	53	41
.99	3680	1636	920	589	409	230	147	102	75	58
<i>Part B: $\alpha = .01$</i>										
.60	1602	712	400	256	178	100	64	44	33	25
.70	1922	854	481	308	214	120	77	53	39	30
.80	2339	1040	585	374	260	146	94	65	48	37
.90	2957	1324	745	477	331	186	119	83	61	47
.95	3562	1583	890	570	396	223	142	99	73	56
.99	4802	2137	1201	769	534	300	192	133	98	75

* Sample size requirements for *each* group; total sample size would be twice the number shown.

Sample size estimates for bivariate correlation

Power	Estimated Effect*									
	.10	.15	.20	.25	.30	.40	.50	.60	.70	.80
<i>Part A: $\alpha = .05$</i>										
.60	489	218	123	79	55	32	21	15	11	9
.70	616	274	155	99	69	39	26	18	14	11
.80	785	349	197	126	88	50	32	23	17	13
.90	1050	468	263	169	118	67	43	30	22	17
.95	1297	577	325	208	145	82	53	37	27	21
.99	1841	819	461	296	205	116	75	52	39	30
<i>Part B: $\alpha = .01$</i>										
.60	802	357	201	129	90	51	33	23	17	14
.70	962	428	241	155	108	61	39	28	21	16
.80	1171	521	293	188	131	74	48	33	25	19
.90	1491	663	373	239	167	94	61	42	31	24
.95	1782	792	446	286	199	112	72	50	37	28
.99	2402	1068	601	385	267	151	97	67	50	39

* For bivariate correlations, the estimated effect (γ) is the estimated population correlation (ρ).

Adapted from Polit and Hungler (1987)