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Determinants of Health-Promoting Lifestyle among Nurses in Taiwan

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DETERMINANTS OF HEALTH-PROMOTING LIFESTYLE AMONG NURSES IN TAIWAN

by

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Abstract

This two-phase study was undertaken to: (1) determine the relationships of self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as a registered nurse (RN) to the practice of a health-promoting lifestyle; (2) determine the combination of predictor variables explaining the variance in the practice of a health-promoting lifestyle; and (3) investigate other personal and environmental cues and characteristics related to health-promoting lifestyles among nurses (N=218) in Taiwan.

Findings of the quantitative approach in Phase One indicated that a health-promoting lifestyle was significantly related to self-efficacy, perceived health status, perceived social support, age, and years employed as an RN. Four predictor variables, namely, self-efficacy, perceived health status, perceived social support, and working the evening shift, explained 40.4% of the variance in health-promoting lifestyle in this sample. Responses to open-ended questions revealed other factors that contribute to health-promoting lifestyle among the nurses.

In Phase Two, nine subjects who scored very high and 10 who scored very low on the Health-Promoting Lifestyle Profile (HPLP) were interviewed regarding health beliefs, behaviors and factors influencing the practice of a health-promoting lifestyle. The interview data partly validate the findings from Phase One. In many situations, the subjects in Phase Two of this study cited predictor variables investigated such as social supports and rotating shift. Subjects also stressed the importance of energy, perseverance and partners in initiating and maintaining a health-promoting lifestyle. The interview data

revealed other personal and environmental cues and characteristics of a health-promoting lifestyle. The high group had initiated less lifestyle changes, but maintained the changes longer than subjects in the low group. They also identified more enabling characteristics than did the low group. Subjects in the low group used more stress management techniques and identified more hindrances for lifestyle changes than the high HPLP group. A revised model was developed for testing in future studies.

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CHAPTER 1

INTRODUCTION

Health promotion is a growing concern in the United States. There has been accumulating evidence of the role of lifestyle in disease onset. It has been estimated that more than 50% of the major health problems in the United States are the result of health-damaging lifestyles (U. S. Public Health Service, 1990). There is also evidence from intervention trials that reducing the level of risk factors in one's life can reduce morbidity and mortality. For example, in the United States, the more than 40% decline in heart disease mortality since 1970 reflects dramatic advances in high blood pressure detection and control, the decline in cigarette smoking, and increasing awareness of the role of blood cholesterol and dietary fat. Stroke death rates, which have dropped by more than 50% in the same period, also reflect gains in hypertension control and declines in smoking (Mason & McGinnis, 1990). These findings have led many to view health promotion as offering the potential not only for improving the health of the population, but also for constraining the enormous growth in health care expenditures.

In the United States, health promotion was advocated by health professionals as the strategy to accomplish designated national health objectives by the year 2000 (U.S. Department of Health and Human Services, 1991). Health objectives and strategies were

set up for each stage of life based on epidemiological data. The Office of Disease Prevention and Health Promotion in the Public Health Service and the State Departments of Health are responsible for the supervision and the implementation of the program. Strategies are mainly carried out through hospitals, work sites, schools, and communities.

In Taiwan, as in the United States, health promotion is a concern. Eight out of ten of the leading causes of death in Taiwan are chronic diseases, which are significantly related to unhealthy lifestyles. Yet, health promotion efforts are not well-developed in this newly industrialized country (Department of Health of the Executive Yuan, ROC, 1994). Here, aged people comprise approximately 10% of the population, which adds further strain on the National Health Insurance Program implemented in 1994. Elderly people often have more than one chronic disease (Yin, 1991). Therefore, health promotion efforts aimed at helping people of all ages to reduce the risks of chronic diseases can lower the nation's expenditure on health care. For meeting people's health needs and constraining medical costs, health promotion must be given high priority. To enhance the health of all age groups and effectively manage health care resources, the "National Health Promotion Plan" has been promulgated by the Department of Health of the Executive Yuan (the cabinet) in Taiwan (DHEY, ROC, 1994).

In both Taiwan and the United States the role of the professional nurse is also changing, and in coming years a primary responsibility of the nurse will be the promotion of health (DHEY, ROC, 1992; 1994; Richter, Malkiewicz, & Shaw, 1987). Many authors believe that client teaching is an essential component of health promotion and nurses should play a major role in client education (McAllister & Farquhar, 1992; Smith, 1984;

McAllister & Farquhar, 1992). Through the application of teaching and counseling strategies in nursing care, nurses will be able to facilitate a wellness lifestyle for people in all age groups. Nurses will also be expected to take an increased interest in their own health so that they can be effective role models in facilitating healthful behaviors in clients (Richter, Malkiewicz, & Shaw, 1987). For instance, if a nurse who is obviously overweight tries to teach a client about the necessity of weight reduction, the client may not respect the nurse or perceive the nurse as competent in this area. As Soeken, Bausell, Winklestein, and Carson (1989) indicated, these kinds of perceptions might then detract from the nurse's effectiveness as a role model to the client.

Evidence exists that nurses, the largest group of health professionals, do not comply with many health-related behaviors (Chen, Liao, J. C., Liao, J. H., & Chou, 1993; Lawrence & Schank 1993), especially when compared with the general public (Soeken et al., 1989). Additional research is needed regarding how to develop effective interventions that encourage nurses to initiate and sustain health-promoting lifestyle changes. Understanding factors that explain or predict why nurses will practice a health-promoting lifestyle is important in the development of health promotion interventions.

The health-promoting lifestyle of nurses was not addressed in Taiwan until the1990s. The first related research was published in 1993 (Chen et al., 1993). Similar to the results of prior studies on Western nursing populations, this survey research indicated that nurses in Taiwan did not comply with health-related behaviors, especially those of exercise, stress management, and health responsibility. Nurses in Taiwan, Chinese in heritage, are expected to act as role models for Chinese people.

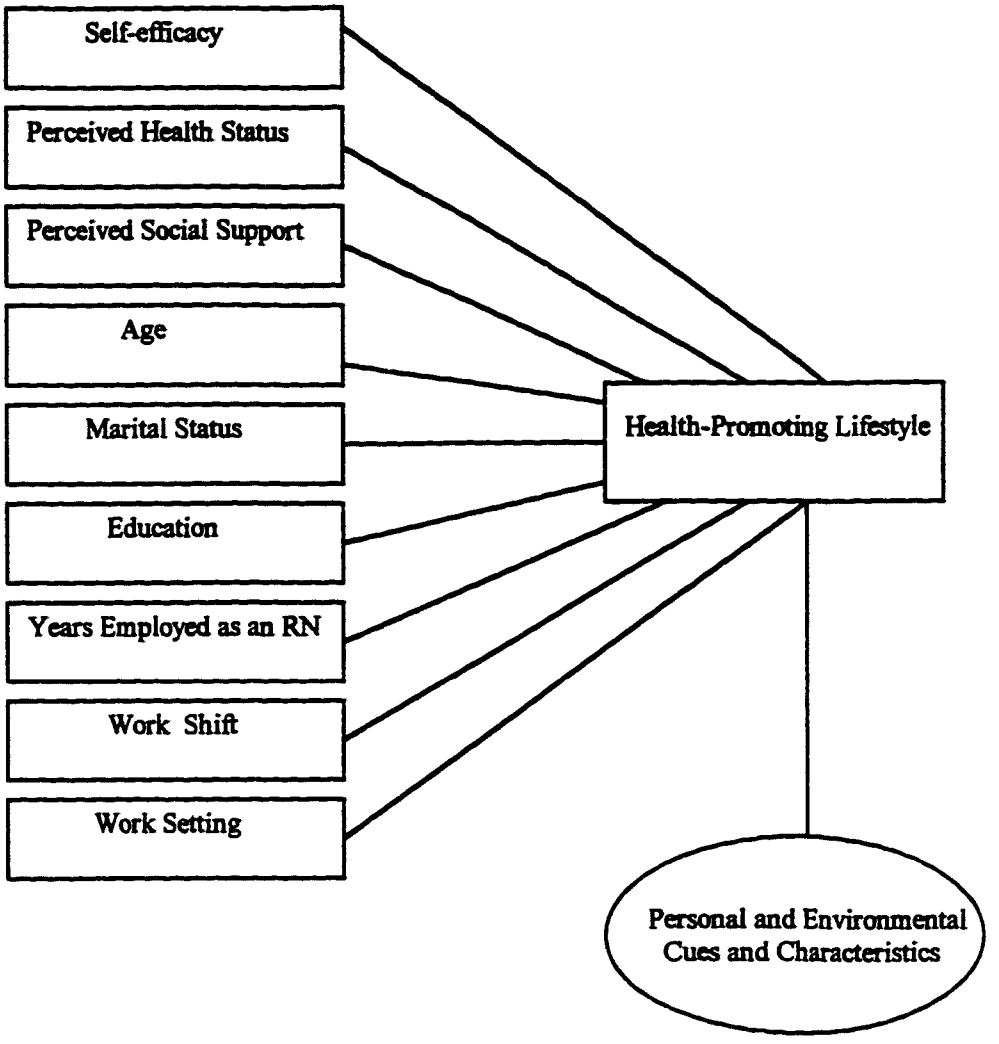
More studies are needed from the perspective of Chinese experiences. This research study was comprised of both a qualitative and a quantitative portion. For the quantitative portion, the study instruments were made compatible with Chinese culture. To discover those unmeasurable experiences in daily life that may influence a Chinese health-promoting lifestyle in Taiwan, the qualitative research method was used. Therefore, a triangulation method which incorporated both quantitative and qualitative methods was used in this study (Patton, 1990).

Purpose of the Study

The purpose of this research was to determine the factors which significantly influence a health promotion lifestyle among nurses in Taiwan. First, the study determined the significance of the relationships between a health-promoting lifestyle among nurses and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN. Secondly, the total variance in health-promoting lifestyles explained by the predictor variables was determined. A third purpose was to determine what additional personal and environmental cues and characteristics are related to health-promoting lifestyles among nurses in Taiwan.

Conceptual Framework

A modification of Pender's Health Promotion Model (Pender, 1987) provided the conceptual framework for this study. An exploratory pattern of the relationships examined in this study is presented in Figure 1. The exploratory pattern is intended as a correlational



Note. Modified from Health Promotion Model by Pender (1987)

Figure 1. Modified Health Promotion Model

model instead of a hypothesis-testing model. It is this investigator's opinion that there is insufficient empirical or theoretical evidence in the literature to support its use as a hypothesis-testing model with nurses.

Pender's model assumes that the likelihood of engaging in health-promoting behavior is related to three sets of variables: (a) cognitive-perceptual variables, including the importance of health, self-efficacy, definition of health, perceived health status, perceived benefits of health-promoting behaviors, and perceived barriers to health-promoting behaviors; (b) modifying variables, including demographics, biological characteristics, interpersonal influences, situational factors, and behavioral factors; and (c) cues to action.

The modified Health Promotion Model (see Figure 1) outlines a relationship between a health-promoting lifestyle and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN among nurses. The model also shows a health-promoting lifestyle relates to personal and environmental cues and characteristics.

Research Questions

This research study sought to answer three questions, derived from the conceptual framework.

1. What relationships exist between a health-promoting lifestyle and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN?

2. What combination of predictor variables explain the variance in the practice of a health-promoting lifestyle by nurses?
3. What other personal and environmental cues and characteristics influence the initiation and maintenance of health-promoting lifestyles by nurses?

Importance of the Study

Nurses provide more direct health care and information for clients than any other members of the health care team (Close, 1988). They are expected to play a key role in the implementation of health promotion strategies. However, nurses' non-compliance with health behaviors exposes them to conditions which are likely to be hazardous to their health and inhibits their role as health promoters. This study was an attempt to address possible predictors of health-promoting lifestyle among nurses in Taiwan and to aid the nurses' efforts in practicing health-promoting lifestyles.

Although studies show that nurses are not ideal role models, neither the nature nor the extent of nurses' non-compliance with health-promoting lifestyles have been clearly established. Besides, previous surveys have been mainly based on samples of Western nurses (Callaghan, 1995; Lawrence & Schank 1993; Soeken et al., 1989), and the findings may not be applicable for nurses in Eastern societies. The intent of this study was to address health promotion issues as they related to a sample of nurses in Taiwan.

This study will provide knowledge of health-promoting lifestyles among nurses in Taiwan. Thus, it will add to knowledge development in the field of health promotion. In addition, this study will provide nursing educators with insights into how to develop

strategies, educational materials, programs, and activities to attract and retain participants in both worksite and nursing school health promotion programs.

Assumptions

This study was based on the following assumptions:

1. All those who volunteer to be part of this research value health promotion activities as part of professional behavior.
2. The respondents answered honestly and accurately.

Operational Definitions

Health-promoting lifestyle is a multidimensional pattern of self-initiated actions and perceptions that serves to maintain or enhance the level of wellness, self-actualization, and fulfillment of the individual as measured by Walker, Sechrist, and Pender's (1987) Health-Promoting Lifestyle Profile. The six factors to be measured are: seeking personal development; accepting responsibility for one's own health; exercising regularly; establishing meal patterns; maintaining interpersonal support systems; and managing stress (Walker, Sechrist, & Pender, 1987).

Self-efficacy is a person's belief in one's own competence as measured by Sherer, Maddux, Mercadante, Prentice-Dunn, Jacobs, and Rodger's (1982) Self-Efficacy Scale. The scale consists of two subscales: general and social self-efficacy (Sherer et al., 1982).

Perceived health status is a sense of one's own health level as measured by personal report of health status as "excellent", "good", "fair", "poor" or "very poor".

Perceived social support is a person's sense of support obtained from one's living circle as measured by personal report of social support as "very good", " good", "ok", "not enough" or " very poor".

Education means nursing education level as measured by self-report as "vocational school", " junior college", "university", or "graduate school".

Work shift is measured by self-report as "day" (8A.M. to 4 P.M.), "evening" (4 P.M. to midnight), "night" (midnight to 8 A.M.) and "irregular".

Personal cues are "internal determinants of behavior" (Pender, 1987, p. 53) based upon distinguishing qualities such as motivation. Personal cues were determined from content analysis of interview data.

Environmental cues are direct or indirect external influences on health behavior (Pender, 1987) and were determined from content analysis of interview data.

Organization of the Study

The report of this study is presented in six chapters. In Chapter One, the problem is introduced. Related research and literature are reviewed in Chapter Two. Study methodology is described in Chapter Three. Findings from Phase One and Two of the study are presented in Chapter Four. Discussion of the findings is in Chapter Five. Chapter Six contains implications, study limitations and a summary.

CHAPTER 2

LITERATURE REVIEW

In this chapter, literature relevant to the conceptual framework is presented first. Subsequent sections address studies related to nursing's role in health promotion and health-promoting lifestyles of nurses.

Conceptual Framework

The Concept of Health Promotion

A range of interpretations of health promotion have been identified in various studies (Callaghan, 1995; Edelman & Mandle, 1990; Lawrence & Schank, 1993; Mitchinson, 1995). However, consensus of opinion on a concise and precise definition has not yet appeared. Delaney (1994) offers the following definition which is consistent with the World Health Organization's (WHO) (1995) definition of health promotion as "a unifying concept for those who recognize the need for change in the ways and conditions of living...a mediating strategy between people and their environments synthesizing personal choice and social responsibility" (p. 828). This definition illustrates the supposedly dual emphasis on lifestyle and living conditions.

Redland and Stuifbergen (1993), in discussing promotion of health in public health settings, stated that the broad concept of primary prevention encompasses health protection, disease prevention, and health promotion. Direct regulatory methods automatically provide health protection to people via health laws and consumer protection laws. Disease prevention focuses on identified groups at risk for particular problems by providing services to prevent those problems from occurring or becoming more serious. Immunization is an example of disease prevention. On the other hand, health promotion encourages basically healthy people to adopt and maintain behaviors that will help them live longer and better. Examples of health-promoting behaviors are eating low-fat diets, not smoking, not abusing drugs, and regularly exercising. Redland and Stuifbergen (1993) acknowledged some overlap between disease prevention and health promotion. The concept of health promotion has often been used interchangeably with disease prevention.

Pender (1987) defined health promotion as activities directed toward increasing the level of well-being and actualizing the health potential of individuals, families, communities, and society. Pender believed that there was both theoretical and research support for differentiating health promotion from primary prevention. Pender defined primary prevention as activities directed toward decreasing the probability of encountering illness, including active protection of the body against unnecessary stressors. She noted that identical behaviors can be categorized as either health promoting or health protecting. Health-promoting behavior always has as its goal maintaining current health status or moving toward a higher level of health. Brubaker (1983) suggested that health promotion is health care directed toward growth and improvement in well-being. From this view,

health promotion only occurs after health status is stable. In Chinese culture, the highest level of health is defined as harmony between human being and nature (Chang, 1992). Accordingly, health promotion in the Chinese culture can be the activities directed toward maintaining the balance of human being-nature interaction.

Different interpretations of health promotion have been identified in various studies as: activities performed by individuals (Pender, 1987); interventions initiated and carried out by health care professionals (O'Donnell, 1986); and community sponsored educational programs (Goodstadt, Simpson, & Loranger, 1987). From the view of interventions initiated and carried out by health care professionals, O'Donnell (1986) defined health promotion as the science and art of helping people change their lifestyle to move toward a state of optimal health. However, this definition does not address specific activities of health promotion. Wallack and Winkleby (1987) interpreted health promotion as directed toward encouraging basically healthy people to adopt and maintain behaviors that will help them live longer and better. From this perspective, health promotion only occurs in healthy people.

From the view of community sponsored educational programs, Goodstadt, Simpson, and Loranger (1987) defined health promotion as the maintenance and enhancement of existing levels of health, through the implementation of effective programs, services, and policies. According to Delaney's (1994) classification, this view can be considered as an umbrella where health promotion encompasses a range of activities contributing to health. The difficulty with such a definition is the implication that

it includes any health improving activity, such as acute services, or social and community care, depending on one's view of health.

The delineation of a specific health promotion measurement remains unclear. O'Donnell (1986) generally described health promotion activities as maintaining a balance of physical, mental, intellectual, and social health. Pender (1987) proposed and later refined the Health Promotion Model (HPM) which is intended to explain the occurrence of behaviors directed toward an increasing level of wellness, rather than behaviors targeted specifically toward decreasing the probability of illness. The HPM postulates that both cognitive perceptual factors and modifying factors are influential in determining one's lifestyle. Pender (1987) isolated six factors related to health promotion: seeking personal development; accepting responsibility for one's own health; exercising regularly; establishing meal patterns; maintaining interpersonal support systems; and managing stress. Similarly, Palank (1991) gave examples of health promotion behaviors such as routine exercise, rest, optimal nutrition, and stress management. Laffrey (1990) classified health promotion behaviors as sleep/rest, relaxation/recreation, psychological well-being, medication use and avoidance, nutrition, personal care, work/school productivity, health care system contact, substance avoidance, environmental protection, and moral order/codes.

According to Pender's health promotion model (HPM), the likelihood that a health-promoting behavior or lifestyle will occur is determined by a combination of individual cognitive-perceptual factors. These factors include one's definition of health, the importance of health, perceived health status, control, self-efficacy, and the benefits of,

and barriers to action. Modifying factors such as age, gender, race, ethnicity, education, income, biologic characteristics, interpersonal influences, situational factors, and behavioral factors also influence health promotion. Cues that can stimulate one to action include personal awareness, advice from others, mass media, and social and political movements. Gillis (1993) reviewed research studies that showed self-efficacy was the strongest predictor of a health-promoting lifestyle, followed by social support, perceived benefits, self-concept, perceived barriers and health definition. Due to the variety of definitions, approaches, and research methods, the exact impact of the many variables on a singular behavior or a lifestyle index is not conclusive.

Four major characteristics of health promotion can be derived from the above literature. The first characteristic is that health promotion involves attitudes and activities directed towards increasing wellness. All of the definitions reflected in the literature have a common goal which is the movement toward increased levels of health. This movement is described in the various definitions as moving toward a state of optimal health, increasing the level of well-being, actualizing health potential, and enhancing existing levels of health (O'Donnell, 1986; Pender, 1987; Redland & Stuifbergen, 1993; Wallack & Winkleby, 1987).

Second, consistent with the concept of person within nursing, health promotion must encompass the whole person. This belief is reflected in nursing practices which do not focus health promotion activities on one aspect of the person's life. Wellness can be experienced simultaneously with disease and chronic disability (Goodstadt, Simpson, & Loranger, 1987). Brubaker's (1983) definition of health promotion is not consistent with

overall wellness but views wellness as occurring only after health is stabilized. While Brubaker's definition includes individuals with disabilities, it excludes those with health problems that limit the goal of health promotion to activities directed toward staying alive or achieving a state of non-illness.

The third characteristic of health promotion is that activities directed toward health promotion differ from those directed toward preventing disease. A common perception of health promotion is that it involves the identification and alleviation of risk factors, thus promoting the absence of disease. This approach is limited to the biomedical model. However, health promotion is not disease or problem-specific; it is directed toward expanding the possibilities available for a more healthful existence. Disease prevention, on the other hand, is problem-specific and avoidance-oriented (Pender, 1987).

The final characteristic is that participation in health promotion is influenced by the individual's personal differences and environment. Both Butterfield (1990) and Green & Kreuter (1991) argued that some researchers have overly emphasized the individual characteristics to the exclusion of environmental influences. It has been argued that health promotion activities are the individual's responses to cultural, social, economic, and political environments. In their view, teaching on health promotion must be such that blame is not centered on the individual. Health promotion consists of a combination of educational, organizational, economic, and environmental supports for behavior conducive to health. In this view, health promotion includes activities that are personally initiated, professionally directed, and influenced by public policy (Green, 1984).

Since there is no consensus on a precise description of health promotion activities, it is difficult to isolate factors influencing health promotion. Influencing factors can be discussed from the perspective of a variety of realms, including physical, mental, intellectual, social, and spiritual components. Health promotion, as movement towards wellness, involves specific attitudes and activities influenced by an individual's personal characteristics and environment. It requires the recognition that disease or disability can occur simultaneously with movement towards wellness.

Self-Efficacy and Health-Promoting Lifestyle

Self-efficacy is defined as the expectation that one can successfully perform a behavior (Bandura, 1977). One's sense of self-efficacy is influenced by past experience and by one's attribution of success to chance or skill (Bandura, 1977). Self-efficacy has been repeatedly correlated with positive health behaviors such as smoking cessation, weight control, exercise, nutrition, contraception and AIDS prevention (Bandura, 1991, 1993; McAuley & Jacobson, 1991; O'Leary, 1992; Strecher, DeVellis, Becker, & Rosenstock, 1986). Health promotion interventions enhance self-efficacy, which in turn, foster health behavior itself (Bernier & Avard, 1986; Kaplan, Atkins, & Reinsch, 1984; Maibach & Flora, 1993). Self-efficacy was also found to be an important predictor of health-promoting lifestyle in various western populations such as adult females (McAuley & Jacobson, 1991), employees (Pender, Walker, Sechrist, & Frank-Stromberg, 1990), nurses (Rosenberg, 1990), and blue-collar workers with different ethnic backgrounds (Weitzel & Waller, 1990).

Perceived Health Status and Health-Promoting Lifestyle

Perceived health status is the self-evaluation of current health as a subjective state. Duffy (1988) indicated that current health status was predictive of activity subscales of HPLP such as self-actualization, interpersonal support, and exercise. Poor prior health status was related to subscales of health responsibility, nutrition, and stress management. Chen et al. (1993) found that there was a positive relationship between perceived health status and health-promoting lifestyle in public health nurses in Taiwan. These results supported those of Pender et al. (1990) with a sample of employees, and Frank-Stromberg, Pender, Walker, & Sechrist (1990) with ambulatory cancer patients. In contrast, Laffrey (1990) found that perceived health status and health behavior choices were not related in a study of normal weight and overweight adults. Therefore, the relationship between perceived health status and health-promoting lifestyle needs further investigation.

Perceived Social Support and Health-Promoting Lifestyle

Perceived social support is defined as a person's sense of support obtained from one's living circle. The importance of social support for establishing healthy behaviors is widely accepted, and empirical data validates this. For example, social support was thought to be among the most important factors in adhering to and enjoying activity programs (Lee & Markides, 1990; Treiber, Baranowski, Braden, Strong, Levy, & Knox, 1991). In a study of 200 members of a health club, Unger & Johnson (1995) found social support was important to the maintenance of exercise behavior. They suggested that designing exercise programs in ways that facilitate the formation of friendships may lead to

increased exercise adherence and enjoyment. Kviz, Crittenden, Madura, & Warnecke (1994) identified that social support predicted compliance with recommended behaviors in smoking cessation. Other studies that demonstrate the positive influence of social support on the practice of health-promoting lifestyles included studies on aging populations (Riffle, Yoho, & Sams, 1989) and adolescents (Yarcheski & Mahon, 1989).

Demographic Influences on Health-Promoting Lifestyle

Demographic characteristics such as age, marital status, and education have been studied extensively in health behavior research. Duffy (1988) indicated that highly educated, midlife women did not want to leave their health to chance. Frauman & Nettles-Carlson (1991), from a study on 130 well adults in a primary care clinical setting, indicated that those with higher levels of education and income had higher scores on the HPLP. In a study on age differences and reactions to disease, Leventhal and Prohaska (1986) found that the elderly had a greater range of health actions and believed their health actions are more effective than did younger subjects. Woodward and Wallston (1987) found older adults had a lower perceived self-efficacy and preferred health care professionals to make decisions for them.

Wang & Chiew (1992) indicated that married women have more positive health behaviors than those who are unmarried. However, the negative influence of marital status on health promotion behavior showed in another study (Chen et al., 1993). Further investigation of the influence of marital status on women's practicing health promotion lifestyle is needed.

Very few studies examined the relationship between work shift, work setting, and years of employment as an RN and a health-promoting lifestyle. However, working the night shift may cause chronic sleep disorders from maladjustment of the physiological clock. Furthermore, a different working schedule may affect both quality and quantity of social support and other resources that are available to non-day shift nurses. In this study, work shift was used as a predictor variable of a health-promoting lifestyle.

Work setting was selected for this study because different specialty areas may cause different stress and workloads. Li, Wei, Tang, & Chen (1990) found the workloads of ICU nurses were heavier than general ward nurses. The study also indicated ICU nurses were stressed mentally while general ward nurses were stressed physically. The stress and workloads may influence nurses' will and energy to keep a healthy lifestyle. Besides, different knowledge and experience may affect nurses' focus on health behavior. For example, psychiatric nurses may pay more attention to mental health-promoting activities than ER nurses.

Years employed as an RN may cause both positive and negative influences on the practice of health-promoting lifestyle. From the positive aspect, accumulated professional knowledge and experiences teach nurses to keep away from all possible risks and keep healthy. The negative influences may come from a feeling of uncertainty or powerlessness because of those unpredictable and unexplained cases they have encountered.

Personal and Environmental Cues to Health-Promoting Lifestyle

Cues are identified as the internal and external perceptions, thoughts, feelings, sights, sounds, and other sensory data identified by participants as guiding them to engage

in health-promoting lifestyles. Research on dietary behavior showed a positive relationship between advice and healthy activities (Contento & Murphy, 1990). Furthermore, interactive processes between clients and nurses, as well as other health resources, have been found to be useful strategies to help clients adopt preventive behaviors and exercise activities (Cox & Roghmann, 1984; Kaplan et al., 1984; Lovato & Green, 1990). In addition, the influence of mass media in affecting health behaviors is much more pervasive than might be thought particularly with respect to the impact of nonnutritious food advertising. Ulmer (1984) found people who watch television frequently are more likely to exhibit poor habits with respect to eating, drinking alcohol, and exercise. From qualitative studies, Chen (1996) identified harmonizing with the environment, following bliss, and listening to heaven as health promotion and illness prevention processes for a Chinese aging group.

Nursing's Role in Health Promotion

The origins of the nursing profession, based on the philosophy of health promotion, can be traced back to the work of Florence Nightingale. Embedded in Nightingale's philosophy were the notions of educating patients to meet their own health needs and encouraging patients with similar health concerns to help each other. However, since those beginnings, the evolution of health promotion has been somewhat changed (Brown & Wybrant, 1988; Hills & Lindsey, 1994).

The role of the nurse in the early twentieth century moved away from Nightingale's ideas about educating patients, and her emphasis on disease prevention. Kalisch & Kalisch (1995) described this as a period where health care frequently emphasized cure rather than

prevention. Nurses were trained rather than educated and were usually permitted to only follow orders and not to make independent decisions. Henderson (1978) traced the development of nursing and its definition of its practices, and showed that until the 1960's, nursing theory stressed the role of health promotion and the concept of the nurse as a health worker who was more interested in promoting health than the physician. King (1971) further stated that the goal of nursing is to help individuals and groups attain, maintain and restore health. In the 1990s, both Taiwan and USA viewed the scope of nursing as encompassing practices that are restorative, supportive, and promotive in nature (American Nurses Association, 1995; DHEY, ROC, 1992).

Donoghue, Duffield, Pelletier, and Adams (1990) emphasized that strategies for health promotion can be applied in a variety of contexts and environments in which nurses are employed. The WHO introduced the concept of "health promoting hospitals" where the focus becomes health rather than disease. This focus has three aspects which include the roles of the health care professionals within the hospital; in relationship to their patients; and the hospital as a work environment. Hospital nurses work with patients to help them move towards a healthy lifestyle as one of their professional responsibilities (as cited in McBride, 1994).

In 1991, the American Nurses Association published Nursing's Agenda for Health Care Reform from nurses' perspectives of a cost-efficient, relevant, effective agenda. The agenda includes new emphasis on primary care and health promotion and disease prevention which can be delivered in the workplace, school and other community settings.

Most important, it calls for a renewed commitment to programs devoted to active participation in self-care and personal responsibility for health and wellness.

In summary, there is an intimate relationship between nursing and health promotion. Looking back on the original nursing profession envisioned by Florence Nightingale, nursing practice is based on the philosophy of health promotion. Based on the goals of existing nursing theories and the scope of current nursing practice, increasingly, nurses are expected to function not only as health care providers but also as health promoters.

Health-Promoting Lifestyle of Nurses

Studies Involving Registered Nurses

With sufficient health care knowledge as well as appropriate assessment and teaching skills, public health nurses (PHNs) are in an ideal position to develop and lead health promotion programs for people in Taiwan. Lai (1992) investigated the concept of health promotion by public health nurses in Taipei and their educational role perception, as well as attitudes and intentions related to engaging in health promotion. The author found that the nurses in her study reported that health promotion will become more important to the practice of public health nursing in the future. The nurses also felt that the emphasis on health promotion would increase their work load. Only 50% of the subjects had expectations that people will support, participate and follow through with health promotion activities. The subjects below 35 years of age or with previous educational experiences had more intention to encourage health promotion activities than the others.

Chen, Liao, Chang, Liao, and Chou (1993) conducted a preliminary study of health-promoting lifestyles of 139 public health nurses from 13 public health centers of Taoyuan County in Taiwan. The 48-item Health-Promoting Lifestyle Profile (HPLP) developed by Walker et al. (1987) was translated into Chinese, with appropriate modification, and administered to public health nurses. The results showed that their subjects got higher scores on self-actualization, nutrition, and interpersonal support subscales than the other subscales of the HPLP. The lowest average score in this sample was exercise. The results of the study indicated more than one third of the nurses never participate in regular exercises. Stress management, as well as health responsibility, received the second lowest scores. More than half of the nurses in the study did not usually relax themselves with various interventions.

Results of a study of the health-promotion beliefs, attitudes, and practices of nurses from acute, adult, and ward-based units at a large teaching hospital and at a district general hospital in Great Britian demonstrated nurses overwhelmingly see a role for themselves in health promotion within their practice (McBride, 1994). They also show positive attitudes towards health promotion. Yet, they feel that they lack time, training and a systematic approach toward teaching health promotion.

Rosenberg (1990) surveyed 183 nurses of a large mid-western hospital and medical center in the United States to discover what influenced nurses' health behaviors. The result from regression analysis indicated that hardiness, self-efficacy, and self-motivation were statistically significant at the .05 level, and explained 34% of the variance in lifestyle. Commitment, a hardiness subscale, and number of years employed in the work

setting had the largest beta weights, and were the most predictive of a healthy lifestyle. From further interviews, Rosenberg found most nurses identified support and encouragement as very helpful in initiating and maintaining lifestyle changes. Using a two-group, before-after, quasi-experimental research design, Gregory (1991) found that registered nurses (RNs) who attended a course in health promotion and disease prevention did record more personal health behaviors, collected more health education materials, and taught more about health behaviors than RNs who did not attend such a course.

Studies Involving Nursing Students

Some studies investigated perceptions of health promotion among nursing students (Donoghue, Duffield, Pelletier, & Adams, 1990; Gorin, 1992). To determine the attitudes of students towards health promotion on entry and throughout a nursing program, a three-year-study was done by Donoghue et al. (1990) in Australia. The authors surveyed 590 nursing students (503 female, 75 male, and 12 respondents unspecified) with an open-ended questionnaire for description of the functions of a nurse from an individual perspective. Students were divided into two groups. The first group consisted of those students who entered the program in 1985 and were surveyed until completion in 1987; the second group entered in 1986 and were surveyed until 1988. All students entering the program in 1985, 1986, and 1987 were surveyed to provide comparative data on entry behavior only. Results indicated that entering students cited the health promotion function of nursing more frequently than did those nearing program completion. Students' nursing role perceptions were developed not only by a new curriculum emphasis on promoting health but also by role modeling and institutional influences.

Gorin (1992) studied nursing students' beliefs about the importance of health promotion behaviors to the average person. In this study, 505 senior nursing students from 13 participating schools of nursing in the New York metropolitan area were asked to indicate on a four-point scale the degree of importance of each of 23 health-related behaviors. The five most important items identified included: knowledge of drug contents and their side effects; elimination of cigarette and cigar smoking; eating a balanced diet; using a seat belt; and having an annual exercise test. These results were similar to those found for other health care providers, including physicians (Sobal, Valente, Muncie, Levine & DeForge, 1985), dieticians (Vickery & Cotugna, 1990), and pharmacists (Fincham & Smith, 1988).

In an attempt to determine whether academic success, measured by the grade point average (GPA), was related to health behavior of nursing students, Poston, Bowman, and Rouse (1994) surveyed 196 students from a baccalaureate nursing program with a modified Youth Risk Behavior Survey as the instrument. Their results indicated that only two associations were significant statistically: nutrition was related to student level (freshman, sophomore, junior, or senior) and nutrition was associated with GPA. The authors recommended that several areas needed to be examined further because of the high percentage of negative behaviors seen or the pattern in which these behaviors occurred. The behaviors were suicide, alcohol use, cocaine use, perception of weight, diet, exercise, AIDS information, and safe sex practices.

Studies Comparing Nursing and Non-nursing Populations

To compare the differences between nursing and non-nursing students, Soeken, Bausell, Winklestein and Carson (1989) assessed the preventive health behaviors of 139 final-year nursing students, 97% of whom were female, and compared their responses with 228 female non-nursing students from a national sample derived from a study published four years previously. A prevention index assessing 19 behaviors (related to nutrition, lifestyle and safety) was used to examine an overall preventive lifestyle. For their sample, Soeken et al. reported that the preventive behaviors were considered important to health for nursing students. When compared to the national sample, however, the nursing students were significantly less likely to exhibit 12 out of 19 behaviors studied. Surprisingly, the student nurses in this study reported significantly less participation in medical treatment decisions regarding their health issues. The greatest difference between nursing and non-nursing students in compliance emerged with respect to regular exercise. This study has implications for the role of nurses as effective health promoters. The results suggested that these nursing students were not very good models of health behaviors. Both the desires to practice preventive behaviors and the perceived difficulty in doing so were the factors predictive of the level of compliance. This study fails to address potential reasons for this lack of compliance.

Lawrence and Schank (1993) investigated 76 young adult women (38 nursing students and 38 non-nursing students) enrolled in a women's health course at a large Midwestern university in the United States. The women enrolled in the women's health class, an upper division course, were junior or senior college students. The authors

concluded that the young adult women in this study reported their health as good or excellent, viewed health as very important, and generally had positive health practices. Although the majority of respondents had positive practices, several of the negative practices identified should be further investigated. These areas included drinking and driving, nonperformance of self breast examinations, ineffective stress management strategies and poor dietary and exercise habits. There were no significant differences noted between nursing and non-nursing students in this study. Since nursing is in a position to assume a leadership role in assessment and promotion of healthy lifestyles, it was recommended that the education of nurses needs to be evaluated and perhaps modified in order to prepare professionals for wellness role-model expectations.

The majority of health promotion research uses quantitative research methodology (Clarke, 1992). Since some human behavior cannot be assessed directly, there is a limitation to the application of solely quantitative research in the area of health promotion. The methods of data analysis are significantly different among these studies, with some studies reporting only frequencies. If quantitative methods are to be used, levels of measurement which allow for more robust statistical analysis are recommended.

Summary

Literature relevant to the conceptual framework as well as nursing's role in health promotion and the health-promoting lifestyles of nurses were reviewed in this chapter. In summary, research suggests that most nurses' health-promotion beliefs and attitudes are positive. However, in behavior, these nurses are not fulfilling their roles as health

exemplars. Research suggests nurses do not exercise regularly, engage in stress management, or assume responsibility for their health. Some indicators of nurses' health-promoting lifestyle are found in these studies. For example, public health nurses' perceived health status was positively related to their health promotion lifestyle (Chen et al., 1993). Both the desire to practice preventive behaviors and the perceived difficulty in doing so are factors predictive of the level of compliance for nursing students (Soeken et al., 1989); RNs' personal health behaviors were influenced by attending a course on health promotion and disease prevention (Gregory, 1991); and nursing students' perception of nursing's role in health promotion was influenced by curriculum content, the modeling of teachers and clinicians and institutions (Donoghue et al., 1990). In a hospital setting, there are different needs of nurses according to their professional role, however, a coherent health promotion strategy is not yet developed (Rosenberg, 1990).

The health promotion literature indicated that health promotion, as movement towards wellness, involves specific attitudes and activities influenced by an individual's personal characteristics and environment. However, there is no consensus on a concise or precise description of health promotion activities.

CHAPTER 3

METHODOLOGY

The research design, setting, population and sample are delineated in this chapter. The instrumentation methods, pilot study, procedures for data collection, and data analysis techniques are also described.

Research Design

This descriptive and exploratory study utilized a process termed triangulation which combines quantitative and qualitative research (Cowman, 1993; Patton, 1990). Interviews enabled the author to clarify points which the questionnaires did not allow.

Phase One used quantitative methodology to examine the relationships between health-promoting lifestyle and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN in nurses in Taiwan. Data were gathered by written questionnaires. Phase Two, a qualitative process, used personal interviews to explore what other personal and environmental cues and characteristics influence the initiation and maintenance of health-promoting lifestyles. Analysis of data related to a single construct illustrates how data

generated by qualitative and quantitative methods can provide both convergent validity and a broader understanding of one's subject matter.

Setting

The setting for the study was a large medical center in Taiwan, Republic of China. Founded in 1912, the Republic of China (ROC) was Asia's first constitutional republic. Following the communist occupation of the Chinese mainland in 1949, the seat of the ROC government was moved to Taiwan. The ROC on Taiwan is situated in the Pacific Ocean about 100 miles off the Southeastern coast of the Chinese mainland. Taiwan is located midway between Korea and Japan to the north and Hong Kong and the Philippines to the south. Taiwan has an area of approximately 14,000 square miles. The island of Taiwan is largely mountainous. The Central Mountain Range runs from the northeast corner to the southern tip of the island, occupying about 50% of the total land area. At the end of 1994, the population of the ROC on Taiwan was 21.13 million. Taiwan is the second-most densely populated area in the world with an average of 587 persons per square km (Government Information Office, ROC, 1995).

The Health Care System in Taiwan

Statistical data indicates that there are 15,052 public and private medical care institutions totaling 100,570 beds, or an average of 204 persons per bed in Taiwan (Council for Economic Planing and Development, ROC, 1995). Hospitals are classified according to their functions into primary care units, district hospitals, regional hospitals, and medical centers. Currently, there are nine medical centers which conduct medical care

services, provide continuing education for various medical personnel, and assist in the assessment and development of various medical specialties (DHEY, ROC, 1995). The total number of medical personnel includes 24,455 biomedical physicians, 2,833 Chinese traditional physicians, 7,095 dentists, 18,762 pharmacists, 53,734 nurses, and 1,004 midwives (CEPD, ROC, 1995).

The Characteristics of Nurses in Taiwan

Registered nurses in Taiwan come from four different levels of nursing education facilities: graduate institutes, nursing departments at the university level, junior colleges and vocational schools. Vocational nursing schools accept the graduates of junior high schools and provide three years of nursing education. Five year junior colleges of nursing admit the graduates of junior high schools, while two year junior colleges of nursing admit the graduates of vocational schools. Over 90% of all nurses in Taiwan are the graduates of these schools. About 6.5% of nurses come from the university level or above. Recently, many medical centers accept only new nurses with junior college level education or above due to quality of nursing service considerations. At the end of 1995, 75-85% of nurses in medical centers were junior college level and 10-14% were university or graduate school level (Yang, 1996). Graduates from different nursing programs do not practice clinical care at different levels, although it is expected that nurses with BSN or higher degrees have better opportunities for promotion. Approximately 45% of hospital nurses are age 21-25 years, while 21% are aged 26-30 years (Chen, Yu, et al., 1990).

Issues of Nurses as Role Models for Chinese People in Taiwan

To develop, implement, and evaluate culturally competent health promoting interventions, it is critical to assess lifestyle behaviors in different cultures. However, until recently, little interest, attention, or research has been directed toward Chinese culture and health-promoting lifestyles.

There is a historical reason why nurses in Chinese society only focus on Western medical standards. Until the 1880s, China had no nurses, no schools of nursing and no word that would translate as nurse. Miss Elizabeth McKechnic, an American missionary, established the first Nightingale system of nursing at Shanghai West Gate Hospital in 1884. After three years, in 1887, the first school for Chinese nurses was established in the same port city by another American missionary, Dr. Boone (Chen, K., 1996; Chen, Y. C., 1991). Nursing continues to be labeled a western style profession in Chinese society because of its westernized curriculum, training, and working style. Many Chinese nurses have little knowledge and interest in their own culture because of the totally westernized nursing curriculum. This creates a cultural gap when nurses care for Chinese people. Since Chinese people do not totally trust western medicine, some patients obeyed nurses' orders and followed the health rules from patient education classes while in the hospital, but returning home, the patients would look for Chinese medicine or folk medicine (Chang, 1992).

Culturally, Taiwan shares in the heritage of Chinese civilization. There was a need for a nationalized nursing curriculum in Taiwan, but no one advocated for it until a number of nurse educators returned from the United States with their PhD degrees in

nursing during the late 1980s (Chen, 1994). Some courses in the application of Chinese philosophies and traditional medicine were introduced in certain programs. However, the experts on both nursing and traditional Chinese culture are difficult to find at this time. An applicable Chinese health-promoting lifestyle model has not been established.

Population and Sample

Participants for this research were recruited from a 2,500-bed medical center which employs 2,000 registered nurses in six different departments including Intensive Care Units (ICUs), medical units, surgical units, psychiatric units, physical examination services and the Emergency Room (ER). In Phase One, systematic sampling was used in which every first unit of the six departments on the list was selected. All registered nurses of the selected units were invited to participate in this study; the total number was 306. Based on a power analysis for multiple regression analysis, the required sample size for this study was determined to be 197 nurses. An oversampling of 50% (N = 285) was done to account for a low return rate or items skipped by the respondent.

Of the 306 subjects, 243 questionnaires were returned. Of the 243 returned, only 218 were complete and usable for the final statistical analysis in Phase One of this study. All of the subjects were female ranging in age from 19 to 45, with a mean age of 25 (S. D. = 4). Table 1 presents the age distribution for the sample. Of the subjects, 85% were unmarried and 15% were married; vocational school graduates comprised 3% of the sample while 80% were junior college graduates, 16% were BSN prepared, and 1% had completed the MSN degree. The sample is similar to the 1995 annual report in Taiwan in

terms of education and age (Yang, 1996). The nurses' educational level composition followed the basic distribution but there was a higher percentage of those younger than the age of 30.

Table 1

Sample Age Distribution (N = 218)

Age	Number	%
less than 20	2	0.9
20-29	187	85.8
30-39	26	11.9
40-49	3	1.4
Total	218	100.0

Subjects had been employed as RNs for 2 months to 22 years with a mean employment time of 3.5 years (S. D. = 3.71). Table 2 displays the sample distribution of years employed as an RN. The areas of employment within the institution were: 31% worked on a surgical unit, 20% worked in the ER, 19% work in the ICU, 17% served on a medical unit, 7% facilitated physical examination, and 6% were employed in a psychiatric setting. Shifts that were represented included: 43% worked from 8:00 A.M. to

4:00 P.M., 28% worked from 4:00 P.M. to midnight, 25% worked from midnight to 8:00 A.M., and 4% worked irregular shifts. Demographic data for subjects participating in this study are presented in Appendix H.

Table 2

Years Employed as an RN (N = 218)

Years Employed as an RN	Number	%
< 1	32	14.7
1- 5	144	66.1
6- 10	31	14.2
11- 15	8	3.6
16- 20	2	0.9
> 20	1	0.5
Total	218	100.0

Criteria for selection of subjects for participation in the Phase Two interviews were based on the data resulting from analysis of the questionnaires in Phase One. HPLP scores were placed in rank order. The frequency distribution of HPLP scores showed a normal

distribution. Two groups of 10 subjects each that scored at opposite ends of the range, very high or very low on the HPLP, were chosen to participate. Nine out of ten subjects with high HPLP scores and all ten subjects with low HPLP scores agreed to participate. Subjects were contacted in person or by telephone to arrange a convenient time for them to be interviewed.

Subjects with a low HPLP score ranged in age from 21-32 years, with a mean age of 25 years (S. D. = 4). All of the subjects were unmarried. Nine subjects were junior college graduates, only one was BSN prepared. Subjects had been employed as RNs for one to ten years, with a mean of 3.4 years (S. D. = 3.7). At the time of interview, four participants worked the day shift, three the evening shift, two the night shift and one worked an irregular shift schedule.

Subjects with a high HPLP score ranged in age from 24-45 years, with a mean age of 29 (S. D. = 6.5). One of the nine was married. Seven subjects were junior college graduates, two were BSN prepared. Subjects had been employed as RNs for two to twenty-two years, with a mean of 7 (S. D. = 6). At the time of the interview, five participants worked the day shift, one the evening shift, three the night shift and no one worked the irregular shifts. Demographic data for both groups are indicated in Appendix H.

Instrumentation

Questionnaires and an interview protocol were used as instruments for this study.

Phase One

The instrument set consisted of a demographic questionnaire (see Appendix E, item 1-5), a single item questionnaire used to assess subjects' perceived health status (see Appendix E, item 6), a single item questionnaire used to assess subjects' perceived social support (see Appendix E, item 7), a Chinese version of the Self-efficacy Scale used to measure general levels of belief in one's own competence (see Appendix F) and a Chinese version of the Health-Promoting Lifestyle Profile (see Appendix F) to measure the frequency of health-promoting behaviors. Also included were three open-ended questions: 1. What is beneficial for you to practice a healthy lifestyle? 2. What is obstructive for you to practice a healthy lifestyle? 3. Who is/are your role model(s) in the practice of a healthy lifestyle? (see Appendix E, items 8-10) Table 3 presents the variables and instrumentation used in this study.

Health-Promoting Lifestyle

A modified Health-Promoting Lifestyle Profile (HPLP) developed by Walker et al. (1987) and translated into Chinese by Chen et al. (1997) was used to assess health-promoting lifestyle behaviors. The 40 item, 4-point summated Chinese version of the HPLP was developed through backtranslation, and tested for expert validity, internal consistency, construct validity, criterion validity and factor analysis. Coefficient alpha for the Chinese version scale was 0.92, with subscales ranging from 0.69 to 0.84. among a group of 920 adults in northern Taiwan. Six factors including self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management were

Table 3

Study Variables and Instrumentation

Variables Measured	Instruments
Predictor Variables:	
Self-Efficacy	Self-Efficacy Scale (Chinese version, modified from Sherer et al., 1982 by Yao, 1996)
Perceived Health Status	Single Question "How would you rate your overall health at the present time?" (translated from Pender et al., 1990)
Perceived Social Support	Single Question "How would you rate your overall social support at the present time?" (developed by the investigator)
Age, Marital Status, Education, Shift, Years Employed as an RN	Demographic Information Form (developed by the investigator)
Criterion Variable:	
Health-Promoting Lifestyle	Health-Promoting Lifestyle Profile (Chinese version, modified from Walker et al. 1987 by Chen et al., 1997)

derived from factor analysis. The 40 items explained 48.19% of the variance in HPLP. The Chinese version HPLP has shown good criterion-related validity by accurately predicting that people with higher scores on HPLP have better observed health-promoting lifestyles than those who score low in HPLP.

Self-Efficacy

The Self-efficacy Scale (SES) consists of 30 items with a 5-point Likert-response format that ranges from disagree strongly to agree strongly. Letter answers are converted to numbers (A = 1, B = 2, etc.). Fourteen items are reversed in scoring (A = 5, B = 4, etc.). Seven items are filler items and are not scored. On this scale, high scores reflect a strong belief that one can successfully perform a target behavior that may produce powerful changes in one's life. The scale is divided into two subscales, General Self-efficacy (GSE) and Social Self-efficacy (SSE). Seventeen items contribute to the General Self-efficacy subscale that assesses efficacy expectancies without reference to any specific behavioral domain. These items are summed to produce the GSE score. The SSE subscale consists of six items that reflects efficacy in social situations. These items are summed to produce the SSE subscale score. The items for this instrument were constructed initially by Sherer et al. (1982). Coefficient alpha for the English version scale was .86 for the general subscale and .71 for the social subscale among a group of 376 undergraduate students and 150 inpatients. The SES was shown to have good criterion-related validity by accurately predicting that people with higher self-efficacy have greater success in past vocational, educational, and monetary goals than those who score low in self-efficacy. The SES also has demonstrated construct validity by correlating significantly in predicted

directions with a number of measures such as the MMPI (Adams & Sherer, 1982), Rathus Assertiveness Schedule (Rathus, 1973), and Bem Sex-role Inventory (Bem, 1974).

For this study, the SES was translated into Chinese with proper modification by the investigator (Yao, 1996). The Chinese version SES was developed through backtranslation. Coefficient alpha for the Chinese version was .75 for the total scale among a group of 210 registered nurses. To assess the stability of responses, 19 nurses in the same unit were asked to complete the questionnaire a second time, 10 days after the first administration. The 10-day test-retest reliability was .88.

Perceived Health Status

A single question, "How would you rate your overall health at the present time?", using a 5-point response format ranging from "very poor" to "excellent", was used to measure perceived health status. Other researchers have found single-item ratings of general health perception to be reliable and reproducible (Ware, Brook, Davies, & Lohr, 1981). The validity of a single-item rating is evidenced by the strength of its correlation with other health status measures.

Perceived Social Support

A single question, "How would you rate your overall social support?", using a 5-point response format ranging from "very poor" to "very good", was developed by the researcher to measure perceived social support.

Social support is a complex contruct, and care must be taken when nonstandardized measures of social support are used. Cohen and Wills (1985) categorized social support along two dimensions: structural versus functional and global versus

specific. Structural measures assessed the person's social network, whereas functional measures assessed the magnitude of support provided by others. Specific measures assessed different aspects of support, whereas global measures assessed an undifferentiated mixture of support functions. Cohen and Wills (1985) recommended that the measure of social support should correspond to the outcome under investigation. In this study the outcome of interest was a health-promoting lifestyle. The question was whether social support from others in subjects' life circles would be associated with a health-promoting lifestyle. In the quantitative approach of Phase One, one item was written to assess the degree of global functional support provided to nurses. The structural and specific support were identified from the qualitative approach, respectively.

Demographic Information

A brief, 6-item questionnaire developed for this study was used to assess age, marital status, education, work shift, and years employed as an RN. All variables except age and years employed as an RN were categorized and are presented by numbers such as 1= "unmarried", 2 = "married". The information on work setting was recognized from the assigned number on the questionnaire.

Phase Two

An interview protocol modified from Rosenberg (1990) (See Appendix G) served as a guide during the interviews. Both consensual and content validity of the interview protocol were established with bilingual experts in public health and nursing; face validity was established with nurses representative of the sample. A pilot study was conducted

with four nurses from various educational levels and work settings. No major changes of the questions were made after the pilot study.

The questions such as "Did any one serve as a role model for you?" or "Are there any other factors that help you to change your behavior?" were included in this protocol. If subjects were unable to respond, they were probed as indicated following the question.

Pilot Study

Ten nurses from the selected medical center were invited to do a pilot test of the data collection procedure. First, the subjects were told to complete the questionnaires as if they were research subjects and then answer three questions: Could you understand all questions? How long did it take to complete everything? Do you have any other comments? Following this, four nurses joined a pilot test of the interview protocol. The researcher timed the length of interviews and evaluated the questions from the subjects' responses. The subjects participating in the personal interviews were also asked to answer the questions: Could you understand all questions? Do you have any other comments?

Answers to the questions were written directly on the forms and returned to the researcher. After reviewing comments, mild wording modifications were made accordingly and subject recruitment began.

Procedure for Data Collection

Permissions from the Human Subjects Committees of the University of San Diego (see Appendix A) and from the participating institution in Taiwan were obtained (see

Appendix B). Signed consent letters from the authors of research instruments were also acquired before data collection began (see Appendix C).

Phase One

The researcher introduced the study in morning meetings of the participating units. Before distributing the instruments, nurses were apprised of the purpose of the research and the voluntary nature of participation. The researcher also emphasized that all information received would be coded to guarantee confidentiality. A package including a cover letter (see Appendix D, Phase One), the questionnaires and a gift was distributed to each participant after the introduction. Completion and return of the questionnaires were construed as informed consent to act as a subject in this research.

The time required to complete the 75 items was approximately 30 minutes. Participants were allowed to take home and return the completed questionnaires. The completed forms were returned to an assigned locked box at each nursing station. The participants were asked to return the materials within one week. During the week, the researcher was available in-person and by telephone to answer any questions and receive comments. No questions about the study came from subjects during the week.

Phase Two

In this exploratory phase, interviews were arranged in the following manner. Twenty subjects, ten scoring very high and another ten scoring very low on the HPLP were contacted in person or by telephone to participate in a face-to-face interview with this investigator. The purpose of this part of the study was explained. A package including a cover letter (see Appendix D, Phase Two), demographic information (see Appendix E)

and a gift was sent to participants before the interview. According to the description on the cover letter, completion of the demographic information was construed as informed consent to act as a subject in this research. To guarantee confidentiality, subjects were identified by number on the tapes. Only the investigator knew the subject's name. All documents and tapes for this study were preserved in a locked private cabinet by the researcher. The interviews were arranged at times convenient for the participants between 8:00 A.M. and 8:00 P.M. and took place in a private conference room at the facility or at places convenient for the subjects such as their room in the hospital dormitory. The investigator established rapport with the subject, provided a brief description of the purpose of the study, and explained that a series of questions would be asked. Subjects were also informed that participation was voluntary and refusal to participate involved no penalty.

Data Analysis

In this triangulation design, the quantitative approach in Phase One used descriptive statistics and correlational analysis to determine the relationships between the predictor variables (self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN) and the criterion variable (health-promoting lifestyle). Multiple regression was used to determine the combination of predictor variables explaining the variance in the practice of a health-promoting lifestyle. The qualitative data, including responses to open-ended questions in Phase One and personal interviews in Phase Two, were analyzed by content analysis to

discover other personal and environmental cues and characteristics related to health-promoting lifestyles.

Content analysis is a methodology that falls midway between the quantitative survey and the qualitative observation or interview. The analysis is a formal procedure for classifying the qualitative information contained in written and oral materials (Krippendorff, 1980). The procedure yields data in a form amenable to quantitative manipulation. Content analysis is a multistep process that requires developing categories for coding thematic content, coding the material of interest, and statistically analyzing the resultant data.

In the present study, the investigator used content analysis to identify and code the themes underlying nurses' descriptions of their health beliefs and practices and factors influencing them in practicing health-promoting lifestyles. Interviewee comments were than rated and the ratings were quantitatively explored to identify the most important themes related to practicing a health-promoting lifestyle among nurses in Taiwan.

Quantitative Approach

First, data were described by frequencies, percentiles, means, and standard deviations. Next, Pearson product moment correlations were performed on all of the predictor variables and the total HPLP and its subscales. Third, data were analyzed using stepwise multiple regression with backward elimination of variables. All predictor variables were the predictors while the total HPLP and its subscales were the criterion variables. Significance was accepted at the .05 level.

The backward elimination procedure was selected for this study because the current state of knowledge of determinants of health-promoting evidence support building a model based on predictor variables. Through variable-selection methods based on statistical considerations, the backward elimination procedure begins with a model containing all the predictor variables and then eliminates those that are of little use to the regression equation (Hinkle, Wiersma, & Jurs, 1994). This procedure is useful for predicting a criterion variable, (in this case, nurses' health-promoting lifestyle), when there is limited knowledge of which predictor variables are good predictors. All analyses were conducted with the Statistical Package for the Social Sciences (SPSS).

Qualitative Approach

Information from open-ended questions and personal interviews were transcribed, coded, and analyzed by the investigator. Field notes were written following each interview. Notes were descriptive and reflective, and included a title page, description of the physical setting, information on the subject (e. g., appearances, dress), and data collected (Strauss & Corbin, 1990). A coding system was devised relating to (1) processes, which categorize events or changes over time (e.g., stopped drinking coffee two years ago); (2) activities, which are regularly occurring kinds of behavior (e. g., aerobics); (3) events, which are specific occurrences (e.g., illness, health education seminar); (4) strategies, which are the conscious ways the subject accomplishes things; and (5) perceptions of the subjects, which are the subject's way of thinking (Rubinson & Neutens, 1987).

Analysis of responses to open-ended questions validated and extended the results of the quantitative approach in Phase One, while interview data provided insights into how the high and low HPLP score groups differed and how much they were alike. The findings in Phase Two were further expected to validate the results in Phase One. Results of the current study were used to revise the original conceptual framework of this research for future testing. The differences and similarities found among the two groups might provide the basis for identifying and refining study variables.

Protection of Human Subjects

All instruments were numerically coded and names were recorded in order to protect subjects' confidentiality and anonymity. All documents and tapes for this study were preserved in a locked private cabinet by the researcher. Subjects were informed that participation in the study was voluntary and refusal to participate involved no penalty.

CHAPTER 4

FINDINGS OF THE STUDY

The findings from this two-phase triangulation study are presented in this chapter. Data from the quantitative component of phase one, which was designed to answer research questions one and two, are presented first. Presented next are the findings of the three open-ended questions that were a part of the phase one survey and designed to validate and extend the findings of the quantitative approach. Lastly, the results of the phase two interviews, conducted with sub-samples of the original sample and designed to answer research question three, are presented.

Phase One Quantitative Component

In this quantitative portion, the relationship between each of the predictor variables (self-efficacy, perceived health status, perceived social support, and demographic variables) and the criterion variable (health-promoting lifestyle) as well as results of regression analyses of variables explaining the variance in health-promoting lifestyle are presented.

The Statistical Package for the Social Sciences (SPSS) program for bivariate correlation was utilized to determine if relationships existed and stepwise multiple

regression analysis was applied to find the combination of predictor variables that explained the variance in practicing a health-promoting lifestyle. The possible range of scores, actual range of scores, means, and standard deviations for the variables measured can be found in Table 4.

Research Question 1

What relationships exist between a health-promoting lifestyle and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN?

Correlation coefficients were calculated to determine the relationships between each predictor variable (self-efficacy, perceived health status, perceived social support, and demographic variables) and the criterion variable (health-promoting lifestyle). Statistically significant predictors of a health-promoting lifestyle were self efficacy ($r = .603$, $p < .001$), perceived health status ($r = .332$, $p < .001$), perceived social support ($r = .378$, $p < .001$), age ($r = .185$, $p = .006$), and years employed as an RN ($r = .181$, $p = .007$). The correlation matrix for all variables is presented in Table 5. Self-efficacy, perceived health status, and perceived social support were the strongest predictors of a health-promoting lifestyle.

Research Question 2

What combination of predictor variables explains the variance in the practice of a health-promoting lifestyle by nurses?

Table 4

Ranges, Means, and Standard Deviations for Variables (N = 218)

Variable	Possible Range of Scores	Actual Range of Scores	Mean	S D
Perceived Health Status (1= very poor, 5= excellent)	1-5	1-5	3.35	0.73
Perceived Social Support (1= very poor, 5= very good)	1-5	2-5	3.81	0.68
Self-efficacy	23-115	56-108	78.97	9.14
Lifestyle	0-120	23-115	61.93	13.97
Self-actualization	0-24	5-24	14.21	3.66
Health responsibility	0-24	0-23	9.00	3.88
Interpersonal support	0-18	6-18	12.30	3.15
Exercise	0-18	0-18	5.70	2.87
Stress management	0-21	3-21	12.44	3.01
Nutrition	0-15	0-15	8.28	2.87

Table 5

Correlation Matrix for All Variables within Model (N = 218)

	SES	PHS	PSS	AGE	MRS	ED	YRN	SHFT	UNIT
HPLP	.603**	.332**	.378**	.185*	.088	-.017	.181*	-.020	-.025
SES		.320*	.448*	.166	.153	.045	.181*	.077	-.001
PHS			.319**	.256**	.025	.045	.298**	.117	-.089
PSS				.080	.025	.024	.118	.027	.088
AGE					.512**	.740	.926**	-.184*	-.174*
MRS						-.057	.528**	-.282**	-.273**
ED							.011	.034	.038
YRN								.171	-.205*
SHFT									.110

Note. HPLP = Health-Promoting Lifestyle Profile SES = Self Efficacy Scale

PHS = Perceived Health Status PSS = Perceived Social Support

MRS = Marital Status ED = Education

YRN = Years Employed as an RN SHFT = Work Shift

UNIT = Work Setting

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

Before the analysis, dummy variables were created using marital status as married, unmarried; educational level as vocational school, junior college, university, graduate school; work shift as day, evening, night or irregular; and work setting as physical examination, psychiatric, surgical, medical, ICU, ER. Stepwise multiple regression analysis yielded two significant predictors of health-promoting lifestyle, self-efficacy (beta = .553, $p < .001$) and perceived health status (beta = .154, p = .006). The two variables predicted 38.5% of the variance in HPLP scores (see Table 6).

Table 6

Stepwise Multiple Regression Analyses of Predictor Variables Contributing Significantly to Variance in Health-Promoting Lifestyle (N = 218)

Variable	B	SE	Beta	R^2
Self-efficacy	.846**	.086	.553	
Perceived Health Status	2.950*	1.078	.154	.385

*p< 0.01 ** p< 0.001

Further inspection of variables not in the equation revealed that perceived social support (beta = .115, p = .058) and evening shift (beta = -.089, p = .093) had higher beta scores and lower p values than age (beta = .058, p = .297) years employed as an RN (beta = .038, p = .500) and fifteen dummy variables (beta = -.005 ~ .084, p = .11~ .92).

Therefore, perceived social support and evening shift were forced into the regression equation, thereby increasing final r^2 from 38.5% to 40.4%. All variables' beta weights in the forced equation were shown in Table 7.

Table 7

Forced Entry Regression: Health-Promoting Lifestyle Score on Selected Variables (N = 218)

Variable	B	SE	Beta	R^2
Self-efficacy	.777**	.092	.508	
Perceived Health Status	2.584*	1.092	.135	
Perceived Social Support	2.418 (p = .05)	1.228	.118	
Evening Shift	-2.900 (p = .07)	1.645	-.093	.404

*p< 0.01. ** p< 0.001

Further analysis of the effects of self-efficacy, perceived health status, perceived social support, and demographic variables on each subscale of the HPLP (self-actualization, health responsibility, interpersonal support, exercise, stress management, and nutrition) were also investigated. Table I1 shows the relationship between

predictor variables and each subscale. Self-efficacy, perceived health status, and perceived social support were the three variables that significantly related to all six subscales at the level $p \leq .05$. Age and years employed as an RN were only significant in health responsibility, exercise, and nutrition. The work shift was significantly related to exercise and nutrition. Although correlations of nutrition to eight predictors were significant, none exceeded .30.

Table I2 shows the findings of stepwise multiple regression analysis of predictor variables contributing significantly to variance in each subscale of HPLP. The results revealed that self-efficacy, perceived social support and perceived health status explained 47% of the variance in self actualization. Twenty-six percent of the variance in the health responsibility score could be predicted by self-efficacy, age, and working on a medical unit. Twenty-four percent of the variance in interpersonal support could be explained by self-efficacy and perceived social support. Sixteen percent of the variance in exercise could be predicted by self-efficacy, perceived health status, being unmarried, and age. Nineteen percent of the variance in stress management could be predicted merely by self-efficacy. Twenty-seven percent of the variance in the nutrition score could be predicted by self-efficacy, perceived health status, working on the evening shift, working in the ICU, medical, physical examination, and psychiatric ward. None of the demographic variables were significant predictors of self actualization, interpersonal support, stress management and exercise in this sample.

This study focused on a health promoting lifestyle as a whole, a further discussion of the relationships between predictor variables and each HPLP subscale was expected in the future.

Phase One Open-ended Questions

Three open-ended questions were used to extend and validate the information available for analysis in Phase One. 1)What is beneficial for you to practice a health-promoting lifestyle? 2) What is obstructive for you to practice a health-promoting lifestyle? 3) Who is/are your role model (s) in practicing a health-promoting lifestyle? Of 218 subjects, 180 (82%) answered the first two questions and 202 (90%) answered the third question. The results of the three questions are shown in Tables 8-10.

Thirty-two per cent of subjects perceived support from professional colleagues as helpful for them in practicing a health-promoting lifestyle. The other positive factors identified by the subjects included: 30% personal health value, 20% positive feedbacks and 17% support from families. On the other hand, 49% of the subjects thought that lack of energy kept them away from a healthy lifestyle. Rotating shift was the second most frequently (39%) identified hinderance to practicing a health-promoting lifestyle. In addition, more than one quarter of the subjects cited laziness (28%) and lack of perseverance (26%). Lack of partners for practicing healthy activities together was perceived by 12% of the sample as negatively influencing their lives.

Table 8

Perceived Positive Influence Factors for Practicing a Health-Promoting Lifestyle (N= 180)

Positive Factor	N of Response	%
Personal		
Health value	54	30
Positive feedback	36	20
Sufficient time	15	10
Perseverance	12	7
Sense of crises (weakness, sick, death)	11	6
Team work	11	6
Self-motivation	10	6
Knowledge	5	3
Environmental		
Interpersonal support		
Professional colleagues	57	32
Family (parents, husband, children, siblings, and relatives)	31	17
Boyfriend	3	2
Resources		
Media	11	6
Living in the dormitory	2	1

Table 8 (Continued)

Positive Factor	N of Response	%
Joining a hospital club	3	2
Recreation Center opened 24 hrs.	3	2
Experience sharing	2	1
Job		
Pleasant working atmosphere	2	1
Fixed shift	2	1

Note. Some subjects identified more than one benefit.

Table 9

Perceived Negative Influence Factors for Practicing a Health-Promoting Lifestyle (N=180)

Negative Factor	N of Response	%
Personal		
Physical limitation		
Lack of energy (exhausting work; poor adjustment of physiological clock)	88	49
Health problem	2	1

Table 9 (Continued)

Negative Factor	N of Response	%
Laziness	50	28
Lack of perseverance	46	26
Financial problem	4	2
Lack of sense of crises	4	2
Lack of proper plan	4	2
Negative attitude to life	1	1
Lack of knowledge	2	1
Environmental		
Job		
Shift rotating	71	39
Overloading	5	3
Lack of resources		
Partners	21	12
Space and equipment for exercise	16	9
Choice of food	13	7
Narrow social circle	2	1
None	3	2

Note. Some subjects identified more than one barrier.

Table 10

Perceived Role Model for Practicing a Health-Promoting Lifestyle (N = 202)

Perceived Role Model	N of Response	%
Parents	117	58
Professional colleagues	112	55
Siblings	67	33
Friends	61	30
Teacher	59	29
People of note	46	23
Spouse	30	15
Boy friend	5	2
From Imagination	2	1
Self	1	0.5

Note. Some subjects identified more than one role models.

One or more role models for practicing a health-promoting lifestyle were identified by the subjects. More than half of the subjects percieved their parents (58%) and professional colleagues (55%) as their role models in practicing a health-promoting

lifestyle. Other role models mentioned by the subjects included: siblings (33%), friends (30%), teachers (29%), people of note (23%), and spouses (15%).

Phase Two Interviews

Phase Two, a qualitative process, used personal interviews to explore what other personal and environmental cues and characteristics influence the initiation and maintenance of health-promoting lifestyles. The purpose of this Phase was to provide both convergent validity for findings of Phase One and a broader understanding of factors influencing these nurses in practicing or not practicing health-promoting lifestyles.

Nine of the ten subjects with the highest HPLP scores and the ten subjects with the lowest HPLP scores in Phase One participated in the personal interviews. Table J1 displays the mean, standard deviation, calculated T and p values for comparison of scores on the predictor variables and lifestyle for these subsamples of study participants. Significant differences ($p = .01$) existed between the high and low HPLP group scores on all variables. Subjects in the high HPLP group perceived better health status, more social support, had higher scores on the SES and both the total and all subscales of HPLP than did those with low HPLP scores.

Research Question 3

Data for research question number 3 was obtained using an interview protocol. The following question was asked: **"What other personal and environmental cues and characteristics influence the initiation and maintenance of health-promoting lifestyles by nurses?"**

Data from the interviews were coded and categorized. Discrete categories that emerged were partly determined by the questions asked, partly arrived at through the researcher's knowledge and understanding of the topic under investigation, and partly through validation of the categories by a bilingual health promotion expert (see Table 11).

Personal Cues and Characteristics

Health Maintainance or Improvement. What things do you usually do to maintain or improve your health? The most frequent factors identified to maintain or improve their health, for both groups, were good nutrition, regular exercise, adequate rest, satisfying interpersonal support and adequate stress management. Subjects cited visiting the doctor when they felt sick as a means to maintain their health. Two subjects in each group thought they should lose some weight. Two subjects in the low group and one subject in the high group took vitamin pills occasionally to keep their nutrition intake in balance. One subject in each group used some herb provided by their parents to promote their physical function although they did not know much about the mechanism of the herb they took.

Eleven exercise practices were identified. More than half of the high HPLP group said they participated in more than one type of exercise. Some oriental style exercises such as Chi Gong and Yoga were practiced by subjects of the high group. One of the low HPLP group said she did not do any exercise currently. Table J2 presents exercise practices for both groups. Talking with others (e.g., professional colleagues, family, boyfriend), reading, music, thinking, relaxing, and travel were techniques used for stress management by subjects in both groups. One subject in the high HPLP group indicated

Table 11

Categories Related to a Health-Promoting Lifestyle

Main Categories	Sub Categories
Personal Cues and Characteristics	Health Maintainance or Improvement
	Lifestyle Changes
	Health Rating
	Factors to Accomplish Changes
	Personal Enabling Characteristics
	Health Importance
	Health Control
	Healthy Lifestyle Benefits
	Strategies for Overcoming Barrier
Environmental Cues and Characteristics	
	Experiences That Taught Good Health Practices
	People Who Made an Impact
	Role Models
	Experiences That Changed Behavior
	Influences from Environment
Other Cues for Change	Incentives That Encourage Change
	Strategies to Help Others

worshiping god to deal with stress. Table J3 compares both groups' stress management techniques. Stress management techniques identified by subjects in the low score group were twice that of the high score group. However, the low group's mean score on the stress management subscale of HPLP was lower than the high score group's.

Lifestyle Changes. Have you made any lifestyle changes? If so, how long have you maintained these changes? Eight out of the 10 subjects in the low score group had lifestyle changes, while only three out of the nine subjects in the high score group had changed their lifestyle. None of these changes were indicated by both groups. The most frequent change in lifestyle identified by subjects in the low score group was nutritional intake. Subjects reported that they had increased their fiber and water intake and maintained this change from one week to three months. Two subjects in the low HPLP group did not participate in regular exercise after graduating from school, where exercise is required. One subject thought she was too thin and successfully gained weight through increasing nutritional intake during a three-month period. In the high score group, two subjects lost weight through food control over a one-year period. One learned how to play piano to fulfill a dream. Table J4 displays the lifestyle changes made in each group.

Health Rating. Overall, do you consider yourself healthy or unhealthy? On a scale of 1-10, with 1 being unhealthy and 10 being healthiest, rate yourself. The mean for subjects in the low HPLP group on this scale was 7.1. Subjects in the high HPLPgroup had a mean of 7.7. This difference was not significant. Two subjects responded with two numbers, such as 7-8. No subject rated herself at 10 which is the healthiest.

Factors to Accomplish Changes. If you accomplished a change, what do you feel helped you the most? If you did not, what hindered you the most? All subjects replied that one or more factors helped them to make a change. Subjects in both groups identified support from parents or professional colleagues, physically feeling good, high personal motivation, a sense of being at risk, and setting goals as things that helped them accomplish a health behavior change. A similar number of subjects from each group accomplished a health behavior change because they sensed some signs of being at risk such as lack of energy, getting sick easily, and being sick longer.

In response to part two of this question, half of the subjects in each group identified that a lack of energy kept them away from lifestyle change. The other hindrances to change perceived by subjects in both groups were lack of perseverance and lack of partners. Factors cited only by the low score group were indolence, peer pressure, not seeing results, and lack of time. Two subjects in the low score group indicated lack of time to initiate or continue healthy behaviors, because they spent all of their spare time on preparing for the university entrance examination. Table J5 identifies factors that helped or hindered change.

Personal Enabling Characteristics. What personal characteristics enable you to be consistent? Most subjects identified more than one characteristic that enabled them to be consistent in pursuing a health-promoting lifestyle. Subjects in both groups used terms such as sense of responsibility, caring for self, and self-discipline to describe personal characteristics that enabled them to be consistent. They also said being self-motivated, setting goals, being organized, and using resources available helped them to be consistent.

Subjects in the high HPLP group identified more enabling characteristics than did the low HPLP group. Being self-directed, independent, being compulsive, setting priorities, and having time were factors that only appeared in the high score group. Table J6 presents a comparison of both groups' responses.

Health Importance. How important is health to you? All subjects responded that health was very important.

Health Control. Extent you feel in control of your health? All subjects responded with one or more perceptions on the extent to which they felt in control of their health. Subjects in both groups identified heredity and environment as having a lot to do with the extent of their control. A similar number of subjects in each group attached a numerical value to the extent they felt in control of their health, 100%, 90% and 80 to 90% and then cited hereditary or environmental factors that influenced control. Other subjects' responses were vague. They said that they were "a lot in control" and "pretty much in control". Table J7 presents the extent that subjects felt in control of their health.

Healthy Lifestyle Benefits. What are the benefits of leading a healthy lifestyle? All subjects identified one or more benefits. Subjects in both groups identified immediate and future physical and psychological benefits from leading a healthy lifestyle. Subjects in each group identified feeling better, more energy, and keeping proper body weight as physical benefits of a healthy lifestyle. Their feeling good further reinforced their maintaining healthy behaviors. Subjects also identified higher self-confidence as a benefit and cited future benefits such as being healthier when older, being able to fulfill their dream, and

being able to take care of their aging parents. Table J8 identifies benefits from leading a healthy lifestyle.

Strategies for Overcoming Barrier. What do you do to overcome barriers to leading a healthy lifestyle? More than half of the subjects in each group cited lack of perseverance as a barrier. Other internal barriers to overcome included lack of energy, stress, scheduling, and dinner parties. Subjects in the low score group identified lack of partners, lack of knowledge, and peer pressure as barriers for practicing health behaviors. Table J9 displays barriers to leading a healthy lifestyle. All subjects cited barriers to leading a healthy lifestyle but not everyone identified strategies to overcome barriers. Setting realistic goals, getting information and announcing a personal health promotion plan to people around them were cited by subjects in both groups as strategies to overcome barriers to a health-promoting lifestyle. The most frequent strategy used to overcome barriers in the low score group was changing their schedule. Table J10 presents strategies used to overcome barriers.

Environmental Cues and Characteristics

Experiences That Taught Good Health Practices. What kind of experience(s) taught you good health practices? All of the subjects felt there were one or more experiences that taught good health practices. All family experiences that taught good health were positive for both groups. Subjects in each group said good health practices were the result of personal illness or illness of family members or professional colleagues. All subjects in each group identified formal education as providing information regarding good health practices. Informal education was identified by eight subjects in the low score

group and seven subjects in the high score group. One subject in each group perceived working in a special area taught them good health practices. In the low score group, several subjects learned healthy behaviors from their professional colleagues and boyfriends. Based on subject responses, experiences that taught good health practices included family, illness, education, and job related activities. Table J11 identifies the categories of experiences that subjects said taught them good health practices.

People Who Made an Impact. Was there a person who had an impact on you to make change? How did the person influence you? In many cases the subject identified themselves plus another person. The majority of subjects in each group responded to this question with family, friends, or professional colleagues. Two subjects in both groups identified self as having an impact. Both positive and negative effects were cited by subjects. Encouragement, examples and illness were identified as the positive effects while peer pressure was perceived as the negative effect. Table J12 describes subjects' perceptions regarding how individuals influenced health-promoting lifestyle.

Role Models. Did anyone serve as a role model for you? More than half of the subjects in each group did not identify any role model for a health-promoting lifestyle. One subject said "We nurses are similar, we suffer rotating shifts and stress. I don't think most nurses can meet normal criteria of a health-promoting lifestyle. "A friend was the only person identified by both groups as a role model. Only positive role models were identified by the subjects. Table J13 displays role models for both groups.

Experiences That Changed Behavior. Has there been an event or experience in your life that helped you to change your behavior? Not change your behavior? An equal number from each group said they were influenced by family illness, medias and being overweight to change their health behavior. Change was also influenced by personal illness such as "I drink water more often during working after I suffered from acute nephritis a few month ago". The hindrances to change were identified such as being reminded by family (parents and siblings) of participating in unhealthy behaviors and being reinforced by media. Five subjects in the low score group and three in the high score group cited feelings bad as a hindrance to change. Table J14 compares factors that led to or hindered health behavior change.

Influences from Environment. Do your surroundings and environment influence your ability to be consistent? The majority of subjects in both groups said yes, and then identified how their surroundings and environment influenced their ability to be consistent. An equal number from each group responded with family support and school as positive influences. The location of home and the media were also perceived as influencing factors by the two groups. Three subjects in the high score group indicated available information/resources were helpful for the practice of health-promoting lifestyle. Subjects in both groups identified job-related activities as both positive and negative environmental influences. The positive influences came from professional colleagues' positive manner and increasing awareness. One subject in the low HPLP group said "it is unusual for me to leave my unit on time after work because I should wait for my team members. Some of them are new and slow for many required paper work. I don't mind working overtime for

this reason because somebody did the same thing when I was new." The negative influences of job-related factors were rotating shifts, overloading, poor organizational climate and high risk work settings. Subjects expressed "My healthy behaviors always terminated when I started evening or night shift"; "I feel lonely and not happy when working because I don't belong to any group in my unit"; "Patients came to my unit with various problems, you never know the exact problems before the results from tests." More subjects in the low score group identified job-related activities as a negative influence. In addition, pollution and lack of support were cited by subjects of both groups. Lack of time and living setting were only shown in the low HPLP group. Table J15 presents both groups' perceptions of how the environment influences their ability to be consistent.

Other Cues for Change

Incentives That Encourage Change. If you could be offered one incentive that would encourage you to change what would that be? The incentives identified by both groups can be classified into four categories. These are: personal, schedule, activity pattern, and information. Five out of nine subjects in the high score group and two out of ten in the low score group might change their lifestyle if they were guaranteed to have a significant improvement in health. Flexible schedule, convenience, and team work were also cited by both groups. Existing programs need to be revised to meet their needs. Providing a variety of topics about health promotion was identified by subjects in both groups. Four subjects in the low score group thought a healthy role model and supportive

attitude were encouraging to change for them. Table J16 identifies categories and subject responses.

Strategies to Help Others. How would you help others who have tried to improve their lifestyle and were unsuccessful? What worked for you? All of the subjects in both groups responded with at least one strategy to help others improve their lifestyle. The largest number of responses indicated that being taught decision-making skills enabled them to improve health behaviors. Four subjects in the low score group and two subjects in the high score group identified providing support and encouragement as strategies to help others to improve their lifestyle. Setting goals was categorized as another strategy. Positive reinforcement and showing how it will benefit them were two strategies from the low score group. Two subjects in the high score group addressed providing information and using a variety of approaches. Table J17 categorizes the strategies that both groups identified to help others improve their lifestyle.

Summary

The purpose of this study was to determine factors that significantly influence a health promotion lifestyle among nurses in Taiwan. A sample of 218 nurses from six different work settings of a large medical center participated in a survey in Phase One. Nineteen out of the 218 subjects that scored at each end of the range of HPLP scores joined Phase Two, personal interviews.

Findings of Phase One indicated that a health-promoting lifestyle was significantly related to self-efficacy, perceived health status, perceived social support, age, and years

employed as RN. Four predictor variables, namely, self-efficacy, perceived health status, perceived social support, and working the evening shift, explained 40.4% of the variance in health-promoting lifestyle profiles of this sample. Other important factors identified by the subjects included personal health values, perseverance, energy, feedback, partners, and rotating shifts.

In Phase Two, a qualitative portion, information collected from personal interviews identified other personal and environmental cues and characteristics that result in the initiation of a healthy lifestyle. Specific things, such as illness or overweight, often resulted in a lifestyle change. Subjects in both the high and low score groups identified personal factors such as motivation, perseverance, a sense of being at risk, energy, stress, and scheduling as influencing the practice of a health-promoting lifestyle. Environmental factors perceived by subjects in both groups included interpersonal support, school, the media, job-related activities, and pollution. Some factors were identified only by subjects in the high score group such as available information/resources, being self-directed, independent, being compulsive, setting priorities, and having time. Factors cited solely by the low score group were indolence, not seeing results, lack of time, and peer pressure. Hindrances to change were identified by more subjects in the low score group. Some strategies and incentives for promoting a healthy lifestyle were cited by subjects in both groups.

The subjects in the high HPLP group had significantly higher SES scores, perceived health status, perceived social support, and total as well as subscales of HPLP. This result validated the findings of Phase One. Some other personal and environmental

cues and characteristics were perceived by subjects in both groups. However, some factors appeared only in the single group. Further discussion of these results will be presented in Chapter Five.

CHAPTER 5

DISCUSSION OF FINDINGS

The study examined a modified health promotion model specifying relationships between the predictor variables (self-efficacy, perceived health status, perceived social support, and demographic variables) and the criterion variable (a health-promoting lifestyle). In addition, data were collected to explore other variables that might facilitate a health-promoting lifestyle.

This chapter consists of the discussion of the research findings related to the three research questions.

Research Question 1

Research question one is "What relationships exist between a health-promoting lifestyle and self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as RN?" Data analysis revealed that the following variables were positively and significantly correlated with the nurses' Health-Promoting Lifestyle Profile: self-efficacy, perceived health status, perceived social support, age, and years employed as an RN. Self-efficacy emerged as the strongest predictor of the nurses' Health-Promoting Lifestyle Profile. This finding adds to empirical

support in the literature for the role of self-efficacy as a predictor of health-promoting lifestyle in previous studies (McAuley & Jacobson, 1991; Pender et al., 1990; Rosenberg, 1990; Weitzel & Waller, 1990).These studies suggest strong relationships between self-efficacy and health behavior change and health maintenance. Since one's sense of self-efficacy is influenced by past experience and by one's attribution of success to chance or skill (Bandura, 1977), it is necessary to find out what experiences influenced nurses' health-promoting lifestyle in Taiwan. If nurses can be helped to develop a positive perception of their self-efficacy, they may be more likely to initiate actions that enhance health-promoting lifestyles.

In keeping with the findings of Chen et al. (1993) who studied public health nurses, the current study provided support for the role of perceived health status as an important predictor of Health-Promoting Lifestyle among nurses in Taiwan. The current results are also consistent with a number of studies using western populations with and without nursing backgrounds (Frank-Stromberg et al., 1990; Gillis, 1994; Pender et al., 1990). The implications are that the better a nurse believes her health to be, the more likely the nurse will act in ways to maintain or promote it.

A positive relationship between perceived social support and a health-promoting lifestyle was also supported in this study. This result is consistent with prior reviews of the related studies (Kviz et al., 1994; Riffle et al., 1989; Treiber et al., 1991; Unger & Johnson, 1995). Lack of social support could inhibit nurses from practicing health-promoting lifestyles. An investigation of the magnitude of support provided by others and different aspects of support may contribute more to health promotion interventions.

Age and years employed as an RN were the only two demographic variables significantly correlated to nurses' health-promoting lifestyle profile in this study. The findings are in agreement with prior studies by Rosenberg (1990), Duffy (1988) and Woodward and Wallston (1987). The relationship between the two significant demographic variables, age and years employed as an RN, and lifestyle could be the result of nurses applying their professional knowledge and experience to self-care activities. It might also be related to fact that younger people feel invulnerable and don't think anything can happen to them. In the current study, age and years employed as an RN were highly correlated ($r = .926$, $p < .001$). The result could be explained by the fact that most nurses in Taiwan practice as registered nurses after graduating from a nursing program.

It has frequently been assumed that people with a higher education level tend toward better health-promoting lifestyle. The result for these nurse subjects did not support this expectation. Since the majority were junior-college prepared nurses, it is not surprising that education level was not significantly related to a health-promoting lifestyle in this sample.

Research Question 2

Research question two is "What combination of predictor variables explains the variance in the practice of a health-promoting lifestyle?" In this study, the predictor variables of self-efficacy, perceived health status, perceived social support, and working evening shift accounted for 40.4% of the variability in a health-promoting lifestyle. The variables made statistically significant ($p \leq .001 \sim .07$) contributions to the regression

equation for lifestyle. The most powerful predictor of a health-promoting lifestyle for these nurse subjects was self-efficacy. In comparison to the populations in previous studies, self-efficacy was more important to nurses' health-promoting lifestyle in Taiwan because of its distinctive high beta value (.508) compared to the other predictors (-.093 ~ .135) (see Table 7). This was not the case other studies (Gillis, 1994; Stuifbergen & Becker, 1994). Further investigations are recommended to replicate this study with nurses working in different health care organizations in Taiwan to validate the influences of self-efficacy on nurses' health-promoting lifestyles.

Evening shift was correlated in the expected direction, but added only slightly to the amount of variance accounted for in the overall HPLP. Since night shift usually causes a totally different lifestyle in general, it is surprising that night shift was excluded from the regression equation. A probable reason may be that the delayed sleeping time resulted in evening shift nurses missing the most convenient day and evening times for many health-promoting activities.

Findings from Open-ended Questions

The purpose of the open-ended questions was to extend and validate the results of the quantitative approach in Phase One. The subjects identified a number of positive and negative influencing factors and their role models who practiced a health-promoting lifestyle. Support from professional colleagues was the most frequent positive influencing factor cited by subjects. According to the hierarchy of Chinese interpersonal relationships, family is the closest of all relationships and is supposed to be the primary source of

support (Wen & Shaw, 1992). Perhaps since most nurses in this study were unmarried and lived in the hospital dormitory, that made support from the work setting more important than their families. Besides, the different life schedule from rotating shifts may restrain the nurses' interaction with their families and make professional colleagues their major support.

Health value was the other frequent highly positive factor identified by this sample. In previous studies, health value was found to be positively correlated with a health-promoting lifestyle but the relationship was not statistically significant (Pender et al., 1990; Riccio-Howe, 1991). It is necessary to examine the relationship between health value and a health-promoting lifestyle among nurses in Taiwan in future studies.

Almost half of the subjects cited that lack of energy kept them away from a health-promoting lifestyle. It is necessary to find out what these nurses thought about a health-promoting lifestyle and why they lacked energy for it. Although working the evening shift was not a strong predictor for a health-promoting lifestyle from the quantitative phase, in the open-ended question, 39% subjects did identify rotating shift as a negative factor. Perhaps subjects did better with their lifestyles than what they thought or the types of questions (closed or open-ended) influenced how they evaluated lifestyles. If the negative influence of a health-promoting lifestyle mainly happened at the beginning of the rotation of the shift schedule, it is possible to have inconsistent results between current and long-term lifestyle evaluation.

Lack of perseverance and laziness were two personal factors cited by more than one quarter of the subjects. To find out what would be incentives for the practice of a

health-promoting lifestyle was very important to these nurses. More than half of the subjects cited professional colleagues as their role models in practicing a health-promoting lifestyle. A further investigation of a model of health-promoting lifestyles for nurses working on different shifts is suggested for future studies.

In summary, data from the open-ended questions did validate the findings from the quantitative part, that is, social support and rotating shift were identified by many subjects as influencing factors of a health-promoting lifestyle. Some factors such as health value, lack of energy, lack of perseverance, and laziness cited by the subjects extended the results of the previous portion.

Research Question 3

Research question three is "What other personal and environmental cues and characteristics influence the initiation and maintenance of health-promoting lifestyles?" From the qualitative approach, personal and environmental cues and characteristics of a health-promoting lifestyle among these nurse subjects were identified. Both the high and low HPLP groups repeatedly cited the same characteristics and events that affected their health-promoting lifestyle.

Personal Cues and Characteristics

Apparently subjects were knowledgeable about the health-promoting lifestyle behaviors necessary to maintain or improve their health based on their professional education. This differed from Rosenberg's (1990) study of 290 nurse employees of two medical centers in USA. The subjects in the current study did not identify "never having

smoked or quitting smoking" and "drinking not at all or only occasionally" as the ways to maintain or promote their health. Perhaps, drinking and smoking are culturally unacceptable for women in Taiwan. In this study, all subjects were female nurses who might neglect to cite the behaviors which were not common among them.

Subjects of both the high and low HPLP groups cited visiting the doctors when they felt sick as a means to maintain their health. Perhaps the nurses thought a regular physical examination was not necessary for their age or they had financial difficulty pursuing the examination because current National Health Insurance does not cover this item.

Western style nursing education in Taiwan did not keep these nurses away from traditional eastern health-promoting interventions. Some nurses practiced Chi Gong or Yoga and some of them took herbs to promote their physical functioning. The nurses mentioned that they did not know the detail about the mechanism of those herbs they took. Perhaps, on the one hand, they might be influenced by the common thought that herbs which came from nature might not cause serious problems (Chang, 1992); on the other hand they took herbs to please the providers-their parents. However, it is necessary to enhance nurses' knowledge of traditional health-promoting interventions in Chinese society.

A wide variety of stress management techniques were identified, especially in the low HPLP group. This finding was opposite to a previous study by Rosenberg (1990). Perhaps subjects in the low HPLP group suffered more stress so they used more techniques for it or they kept trying different techniques because they have never found

techniques that really helped. Talking with professional colleagues was the most frequent method identified in the low score group for stress management. However, if the professional colleagues that they usually talked with were not mature or experienced in problem-solving, the help would be very limited. It is necessary to find out the sources of stress, and develop more efficient stress management strategies for these nurses such as an arrangement of experience sharing between senior nurses with good health-promoting lifestyles and new nurses.

Subjects in the high HPLP group had initiated fewer lifestyle changes, but they maintained the changes longer than subjects in the low HPLP group. Perhaps subjects with high HPLP scores already pursued a health-promoting lifestyle and did not have to change. The main lifestyle change identified by the low score group was nutritional intake. The possible reason might be that it is easy to do and one soon sees the results. To accomplish change, personal cues such as self-motivation and a sense of being at risk contributed to the process. Many subjects identified a sense of responsibility as a personal characteristic that enabled them to be consistent. Based on Confucianism, children have the responsibility to maintain good health to express Shaiw Daw (filial piety) because one's body was given by parents (Chan, 1973). Perhaps the original power of maintaining a health behavior change of these nurses came from Shaiw Daw. Not surprisingly, subjects in the high score group identified more enabling characteristics than did the low score group. These enabling characteristics could reinforce health-promoting behavior and lead to participation in health-promoting behaviors as has been identified in previous research (Bandura, 1992; O'Leary, 1992; Rosenberg, 1990; Schwarzer, 1992).

Subjects in each group identified that a lack of energy, lack of perseverance and lack of partners kept them away from lifestyle changes. These findings validated the results of the open-ended questions in Phase One of the study. It is not surprising that more hindrances for lifestyle changes were identified by subjects in the low HPLP group. Factors cited solely by the low score group were indolence, peer pressure, not seeing results, and lack of time. A large body of research has examined the role of optimistic self-beliefs as a predictor of health behavior changes (Bandura, 1992; O'Leary, 1992; Schwarzer, 1992). This suggests that the nurses with low HPLP in this study needed more incentives and positive feedback to effect a health-promoting lifestyle. Also, a time management education program may be helpful in this concern.

Health was viewed as very important and the nurses felt in control of their health to a high degree, but acknowledged hereditary and environmental influences. Some benefits of a health-promoting lifestyle were cited, such as feeling better and having more energy. The success of past experiences was helpful in establishing one's self-efficacy and further sustaining participation in health-promoting behaviors (Bernier & Avard, 1986; Maibach & Flora, 1993). Subjects also identified being able to take care of their aging parents as a benefit from leading a healthy lifestyle. This result validated the previous inference of the motivation of maintaining a health behavior change among the nurses from the perspective of Shaiw Daw.

Environmental Cues and Characteristics

Environmental influences identified were both positive and negative. School education and media were most frequently cited by the subjects as positive influences. In Taiwan, physical activities are required for all students from elementary school to university. This arrangement is helpful for students to exercise regularly. Subjects in both groups also identified support systems as very helpful in maintaining health behavior change. This is consistent with the findings from the quantitative approach to this study and previous research mentioned. The location of home was the other positive influence cited by subjects in each group. Those nurses who lived close to the hospital could save more time and energy for pursuing health-promoting lifestyle behavior because they did not have to worry about traffic. Negative influences on a health-promoting lifestyle cited were pollution, lack of support, and job (overload, stress, high risk). These barriers to the practice of a health-promoting lifestyle need to be faced. However, the pollution problem involved broad and long-term consideration and can not be resolved merely from personal efforts.

Nurses are usually the expected caregivers in Chinese society. It is still not generally acceptable for nurses to ask for benefits for themselves. Nursing administrators and educators should play more active roles to provide support to nurses and find more resources to help nurses in the practice of a health-promoting lifestyle.

Job was identified as both a positive and a negative environmental influence. The positive influence came from professional colleagues' positive manner and increasing awareness while the negative influences were rotating shifts, overloading, poor

organizational climate and high risk work settings. Organizational climate and high risk work settings needs to be addressed. More subjects in the low score group identified job-related activities as a negative influence.

Good health was a learned behavior from family, job, education, and illness. Both professional colleagues and parents were identified as major role models by more than half of the subjects in Phase One. However, in Phase Two, more than half of the subjects in each group did not identify any role model for a health-promoting lifestyle. For the subjects in the high score group, they might be the best and the role models in their surroundings so they could not identify any role model. For the subjects in the low score group, they might usually associate with those who had similar lifestyles. Hence, they could not find a role model.

All subjects identified at least one incentive. Similar to Rosenberg's (1990) findings, incentives identified by the subjects in this study included a guarantee a significant improvement in health, flexible schedule, and convenience. The incentive cited in the current study was team work. Perhaps the nurses believed that, in team work, people might remind and support each other and this made the work easier.

Analysis of the interview data provided insights into how the two groups differed and how much they were alike. In this sample, the high score group had initiated fewer lifestyle changes, but maintained the changes longer than subjects in the low score group. They also identified more enabling characteristics than did the low score group. Subjects in the low score group used more stress management techniques, and identified more hindrances for lifestyle changes than the high HPLP group.

Both groups repeatedly mentioned support from professional colleagues and family as very helpful; whereas, lack of energy, lack of perseverance, and lack of partners were barriers to a health-promoting lifestyle. A sense of responsibility and the experiences of family and/or personal illness pushed the subjects' movement toward a health-promoting lifestyle. School education and media had important influences on their behaviors.

In summary, interview data partly validated the findings from Phase One. In many situations, the subjects in Phase Two of this study cited predictor variables investigated such as social supports and rotating shift. Subjects also stressed the importance of health value, energy, and perseverance in initiating and maintaining a health-promoting lifestyle as identified by the subjects in Phase One from open-ended questions. Furthermore, interview data extended the findings to other personal and environmental cues and characteristics of a health-promoting lifestyle.

A revised conceptual model (see Figure 2) was developed for testing in future studies, which included health value, energy, perseverance, colleague relationships, self-efficacy, perceived health status, perceived social support, age, years employed as an RN, and work shift as predictor variables and a health-promoting lifestyle as the criterion variable.

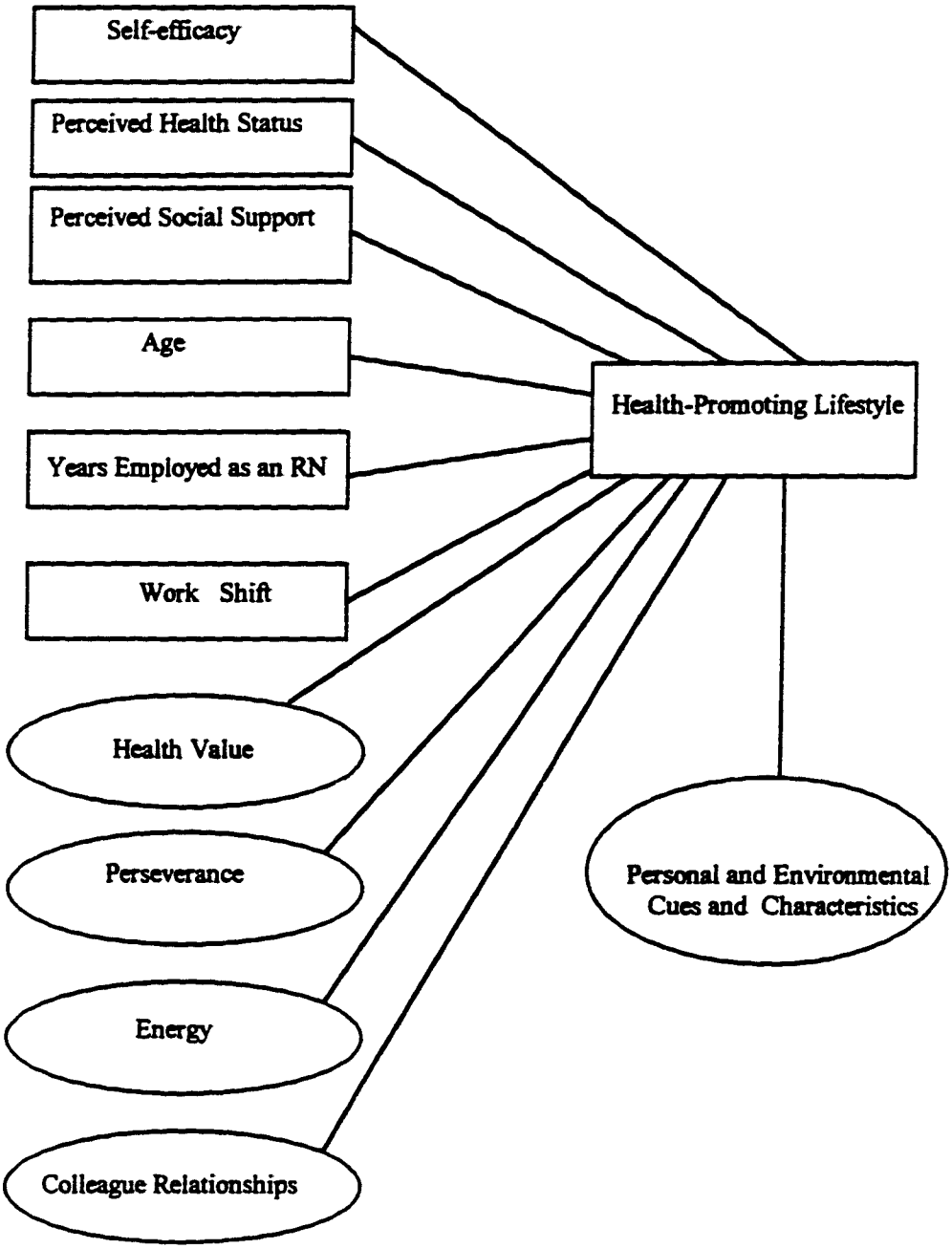


Figure 2. Revised Conceptual Model of Health Promotion among Nurses

CHAPTER 6

IMPLICATIONS, LIMITATIONS, AND SUMMARY

Chapter six contains implications for nursing research, administration, and education. Study limitations are also presented along with a summary statement.

Implications

Nursing Research

Based on the findings from this study, the following research is recommended:

1. Continue to refine, expand, and test models of health promotion among nurses such as that presented in Figure 2.
2. Continue to validate the Chinese version of the Self-efficacy Scale and develop other Chinese version instruments to measure health value, energy, perseverance, and colleague relationships.
3. Design studies to investigate the relationship between: (1) age and income and a regular physical examination; (2) stress management techniques and lifestyle management.
4. Design a study to explore models of health-promoting lifestyles for nurses working different shifts and rotating shifts.

5. Design experimental studies for investigating the effectiveness of interventions for enhancing a health promotion lifestyle. For example, a study to examine the effect of regular exercise on self-efficacy of nurses through an aerobics program is suggested.
6. Conduct longitudinal studies in the future relating nursing students' and nurses' health behaviors to nurses health. It is impressive that Graves and Thomas (1991) followed medical students' reactions to stress for up to 20 to 30 years. The findings suggested a relationship between psychologic sensitivities and physiologic reactivity that has important implications for a preventive approach to health care with medical students.
7. Replicate the study with different populations with or without rotating shifts such as doctors, social workers, administrators, educators and blue-collar workers in a corporate setting.
8. Using multiple populations for comparison, replicate the study with hospital nurses, public health nurses and nursing educators.

Nursing Administration

Some results of this study are related to nursing administration, such as the influences of self-efficacy, peer pressure, workloads, rotating shifts, organizational climate, high risk work setting, and support from professional colleagues on a health-promoting lifestyle of nurses.

Nursing administrators can utilize these results to evaluate current policies, make necessary adjustments, and develop strategies to help nurses establish a health-promoting lifestyle. A comprehensive inservice health promotion education program is suggested.

According to the findings of this study, the program designers should consider flexible schedules, convenient program times and places, and sufficient equipment. It is also suggested that a range of levels be provided, from simple to complicated, in order to foster one's self-efficacy. Lack of partners was one of the barriers to pursuing a health-promoting lifestyle. In an institution-based program, participants could be paired or encouraged to identify a support person to share their feelings about the activity. Based on the study finding of the importance of support from professional colleagues, program participants could be encouraged to share health promotion information and education with colleagues who are not participating, in hopes that the custom of practicing a health-promoting lifestyle may spread throughout the work force.

Nursing Education

The results of this study also have implications for nursing education. Since students are expected to act as exemplars when they complete their education and assume positions in the health-care system, nursing educators need to influence students' health-promoting behaviors. If nursing students start to take responsibility for their health-promoting lifestyles when they are at school, they may be more likely to maintain this healthy lifestyle during their later clinical practice, thus modeling and teaching a health promotion approach to health care for their patients. This emphasis on health promotion may minimize later burnout and impairment. Therefore, it is important for the administration of nursing schools to make health promotion a top priority and to allocate resources accordingly. Innovative changes in the curriculum should be encouraged, as well as the development of health promotion programs for nursing students, and faculty/staff.

Besides, nursing faculty themselves need to be more active exemplars in discussing and demonstrating positive health practices.

A specific suggestion for nursing educators in Taiwan would be strengthening their knowledge in traditional health promotion interventions and including this knowledge in nursing curriculum design. Sun, Chen, W. Chen, L., & Wang. (1995) compared the lifestyle advice between 1,430 general practice patient records and 640 cardiovascular disease (CVD) patients records from a Western-style medical hospital (WSMD), and 1,620 general practice records and 830 CVD patient records from a traditional Chinese medical hospital (TCMD) in China. Results indicated that TCMDs were more likely to provide nutrition, exercise, and stress management for their patients than WSMDs. On the other hand, WSMDs were more likely to provide smoking and alcohol consumption interventions for their patients than the TCMDs. It is time for nurses in Chinese society to learn and integrate their traditional health interventions into modern nursing.

Limitations

This study had several limitations. First, because the participants recruited were from one medical center, the findings from this study have limited generalizability. Second, the author's position as an instructor of the nursing college affiliated with the sample medical center can be identified as a limitation in that it could have restricted honest responses from the nurses in the study. This was one of the reasons triangulation was employed.

Summary

This study proposed and tested a conceptual model that related a health-promoting lifestyle to self-efficacy, perceived health status, perceived social support, age, marital status, education, work shift, work setting, and years employed as an RN. The results partly supported the relationships in the model. Analysis of the quantitative and qualitative data suggested a revised model with health value, energy, perseverance, self-efficacy, perceived health status, perceived social support, age, years employed as an RN, work shift as predictor variables; and a health-promoting lifestyle as the criterion variable. The model also suggests that a health-promoting lifestyle relates to other personal and environmental cues and characteristics. The purpose of this study was to determine factors that significantly influence a health promotion lifestyle among nurses in Taiwan. It is hoped that this study has provided the reader with insight into developing effective approaches to help nurses in initiating and maintaining a health-promoting lifestyle.

REFERENCES

Adams, C. H., & Sherer, M. (1982). Sex-role orientation and psychological adjustment: Comparison of MMPI profiles among college women and housewives. Journal of Personality Assessment, 46, 607-613.

American Nurses Association (ANA) (1995). Nursing's social policy statement. Washington DC: American Nurses Publishing.

American Nurses Association (ANA) (1991). Nursing's agenda for health care reform. Kansas City: American Nurses Association.

Bandura, A. (Ed.) (1977). Social learning theory. New Jersey: Prentice-Hall Inc.

Bandura, A. (1991). Self-efficacy mechanism in physiological activation and health-promoting behavior. In Madden, J. (Ed.), Neurobiology of learning, emotion and affect (pp. 229-269). New York: Raven Press.

Bandura, A. (1992). Self-efficacy mechanism in psychobiologic functioning. In R. Schwarzer (Ed.), Self-efficacy: Thought control of action (pp. 355-394). Washington, DC: Hemisphere.

Bandura, A. (1993). Social cognitive theory and exercise of control of HIV infection. In J. Peterson, & R. Diclemente (Eds.), Preventing AIDS: Theory and practice of behavioral interventions. New York: Plenum Press.

Bem, S. L. (1974). The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 42, 155-162.

Bernier, M., & Avard. J. (1986). Self-efficacy outcome and attrition in a weight reduction program. Cognitive Therapy and Research, 10, 319-338.

Brown, M. A., & Wybrant, K. M. (1988). Health promotion, education, counseling, and coordination in primary health care nursing. Public Health Nursing, 5, 16-23.

Brubaker, B. H. (1983). Health promotion: A linguistic analysis. Advances in Nursing Science, 5 (3), 1-14.

Butterfield, P. G. (1990). Thinking upstream: Nurturing a conceptual understanding of the societal context of health behavior. Advances in Nursing Science, 12 (2), 1-8.

Callaghan, P. (1995). A preliminary survey of nurses health-related behaviors. International Journal of Nursing Studies, 32 (1), 1-15.

Chan, W. (1973). A source book in Chinese philosophy. New Jersey: Princeton University Press.

Chang, S. (1992). Chi ping yu wen hwa (The disease and culture). Taipei: Dau Shen Press.

Chen, K. (1996). Missionaries and the early development of nursing in China. Nursing History Review, 4, 129-149.

Chen, M. Y., Yao, C. C., Hsiau, H. S., Wang, E. K., Chiou, H. J., & Liao, J. C. (1997). The development of Chinese version Health Promoting Lifestyle Profile [Chinese]. Chang Gung Nursing [Taiwan, ROC], 8 (1), 14-24.

Chen, M. Y., Liao, J. C., Liao, J. H., & Chou, C. C. (1993). Kung wei hu li jen yuan chien kang tsu chin sheng huo fang shih de chu buh tan tao [The preliminary study of health-promotion life-styles of public health nurses]. Chinese Nursing Research, 2 (1), 41-54.

Chen, Y. C. (1991). Hu li shueh daw lun (The introduction of nursing). Taipei, Taiwan: Hwei-Hwa.

Chen, Y. C. (1994). Hu li ben tu hwa (Nationalized nursing). Paper presented at the meeting of the Nationalized Clinical Nursing Conference, Taoyuan, Taiwan, ROC.

Chen, Y. C., Yu, Y. M., Jiang, D. L., Chen, S. G., Chang, D. R., Lin, Y. J., & Chen, T.Y. (1990). Pei he chuan ming chien kang bow hsien shih shih chi hu li jen li kung hsu kuei hwa [The planning of nursing manpower: Its supply and demand during the implementation of National Health Insurance Systems in the Republic of China]. Taipei: Human Resources Planning Department, Council for Economic Planning & Development, Executive Yuan.

Chen, Y. D. (1996). Conformity with nature: A theory of Chinese American elders' health promotion and illness prevention processes. Advanced Nursing Science, 19 (2), 17-26.

Clarke, J. N. (1992). Feminist methods in health promotion research. Canadian Journal of Public Health, 83, Supplement1, S54-57.

Close, A. (1988). Patient education: A literature review. Journal of Advanced Nursing, 13, 203-213.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. Psychological Bulletin, 98, 310-57.

Contento, I. R., & Murphy, B. M. (1990). Psycho-social factors differentiating people who reported making desirable changes in their diets from those who did not. Journal of Nutrition Education, 22, 6-14.

Council for Economic Planing and Development (CEPD), ROC (1995). Taiwan Statistical Data Book. Taipei, Taiwan: Author.

Cowman, S. (1993). Triangulation: A means of reconciliation in nursing research. Journal of Advanced Nursing, 18 (5), 788-92.

Cox, C. L., & Roghmann, K. (1984). The interaction model of client health behavior: First empirical test. Research of Nursing & Health, 7, 275-285.

Delaney, F. G. (1994). Nursing and health promotion: Conceptual concerns. Journal of Advanced Nursing, 20, 828-835.

Department of Health of the Executive Yuan (DHEY), ROC (1992). Hu li jen yuan fa chi chi hsiang gwen fa kuei [Nursing Law & Related Regulations]. Taipei, Taiwan: Author.

Department of Health of the Executive Yuan (DHEY), ROC (1994). Toward the goal of health for all- A health white paper. Taipei, Taiwan: Author.

Department of Health of the Executive Yuan (DHEY), ROC (1995). Public health in Republic of China. Taipei, Taiwan: Author.

Donoghue, J., Duffield, C., Pelletier, D., & Adams, A. (1990). Health promotion as a nursing function: Perceptions held by university students of nursing. International Journal of Nursing Studies, 27 (1), 51-60.

Duffy, M. E. (1988). Determinants of health promotion in midlife women. Nursing Research, 37 (6), 358-362.

Edelman, C. L., & Mandle, C. L. (1990). Health promotion throughout the lifespan. St. Louis: The C. V. Mosby Company.

Fincham, J. & Smith, M. (1988). Pharmacists' views about health promotion practices. Journal of Community Health, 13 (2), 115-23.

Frank-Stomberg, M., Pender, N. J., Walker, S. N., & Sechrist, K. R. (1990). Determinants of health-promoting lifestyle in ambulatory cancer patients. Social Science and Medicine, 31, 1159-68.

Frauman, A. C. & Nettles-Carlson, B. (1991). Predictors of a health-promoting life-style among well adult clients in a nursing practice. Journal of the American Academy of Nurse Practitioners, 3 (4), 174-179.

Gillis, A. J. (1993). Determinants of a health-promoting lifestyle: An integrative review. Journal of Advanced Nursing, 18, 345-353.

Gillis, A. J. (1994). Determinants of health-promoting lifestyle in adolescent females. Canadian Journal of Nursing Research, 26 (2), 13-28.

Goodstadt, M. S., Simpson, R. I. , & Loranger, P. O. (1987). Health promotion: A conceptual integration. American Journal of Health Promotion, 1, 58-63.

Gorin, S. S. (1992). Student nurse opinions about the importance of health promotion practices. Journal of Community Health, 17 (6), 367-75.

Government Information Office (GIO), ROC. (1995). The Republic of China on Taiwan. Taipei, Taiwan: Author.

Graves, P., & Thomas, C. (1991). Habits of nervous tension and suicide. Suicide Life Threat Behavior, 21, 91-105.

Green, L. W. (1984). Health education models. In J. D. Matarrazo, S. M. Weiss, J. A. Herd, N. E. Miller, & S. M. Weiss (Eds.), Behavioral health: A handbook of health enhancement and disease prevention (pp. 181-198). New York: Wiley.

Green, L. W., & Kreuter, M. W. (1991). Health promotion planning: An educational and environmental approach. (2nd ed.). Mountain View, CA: Mayfield.

Gregory, E. K. (1991). Health and nursing practice behaviors of registered nurses related to completion of health promotion/disease prevention course. Unpublished doctoral dissertation. Texas Woman's University.

Henderson, V. (1978). The practice of nursing and preparation of the nursing. In V. Henderson & G. Nite (Eds.), Principles and practice of nursing (6th ed., pp. 3-121). New York: Macmillan.

Hills, M. D., & Lindsey, E. (1994). Health Promotion: A viable curriculum framework for nursing education. Nursing Outlook, 42 (4), 158-162.

Hinkle, D. E., Wiersma, W., & Jurs, S. G. (1994). Applied statistics for the behavioral sciences (3rd ed.). Boston: Houghton Mifflin.

Kalisch, P. A., & Kalisch, B. J. (1995). The advance of American nursing (3rd

ed.). Philadelphia: J. B. Lippincott.

Kaplan, R. M., Atkins, C. J. & Reinsch. S. (1984). Specific efficacy expectations mediate exercise compliance in patients with COPD. Heatlh Psychology, 3, 223-242.

King, I. M. (1971). Toward a theory for nursing. New York: Wiley.

Krippendorff, K. (1980). Content analysis: An introduction to its methodology. Beverly Hills, CA: Sage.

Kviz, F. J., Crittenden, K. S., Madura, K. J., & Warnecke, R. B. (1994). Use and effectiveness of buddy support in a self-help smoking cessation program. American Journal of Health Promotion, 8, 191-201.

Laffrey, S. (1990). An exploration of adult health behaviors. Western Journal of Nursing Research, 12 (4), 434-447.

Lai, L. M. (1992). Taipei wei sheng suo kong wei hu li jen yuan tui tuei chan chien kang tsu chin ho dong de chiao se jen chih, tai to, chi yi yuan tiao cha yen chiu [Study on the role perception, attitude, and intention to health promotion of public health nurses in Taipei]. Unpublished master thesis, National Taiwan Normal University.

Lawrence, D., & Schank, M. J. (1993). Health status, health perceptions, and health behaviors of young adult women. International Journal of Nursing Studies, 30 (6), 527-535.

Lee, D. J., & Markides, K. S. (1990). Activity and mortality among aged person over an eight-year period. Journal of Gerontology, 45, 539-542.

Leventhal, E. A., & Prohaska, J. O. (1986). Age, symptom interpretation, and health behavior. Journal of the American Geriatrics Society, 34, 185-189.

Li, D., Wei, X., Tang, C., & Chen, S. (1990). A comparative study on the shift nurses' workloads at intensive care units and general wards. Acta Psychologica Sinica, 22 (3), 283-289.

Lovato, C. Y., & Green, L. W. (1990). Maintaining employee participation in workplace health promotion programs. Health Education Quarterly, 17, 73-88.

Maibach, E., & Flora, J. (1993). Symbolic modeling and cognitive rehearsal: Using video to promote AIDS prevention self-efficacy. Communication Research, 20, 517-545.

Mason, J. O. & McGinnis, J. M. (1990). "Healthy people 2000": An overview of the National health promotion and disease prevention objectives. Public Health Reports, 105 (5), 441-446.

McAllister, G., & Farquhar, M. (1992). Health beliefs: A cultural division? Journal of Advanced Nursing, 17, 1447-1454.

McAuley, E. & Jacobson, L. (1991). Self-efficacy and exercise participation in sedentary adult females. American Journal of Health Promotion, 5 (3), 185-191.

McBride, A. (1994). Health promotion in hospitals: The attitudes, beliefs and practices of hospital nurses. Journal of Advanced Nursing, 20, 92-100.

Mitchinson, S. (1995). A review of the health promotion and health beliefs of traditional and project 2000 student nurses. Journal of advanced Nursing, 21, 356-363.

O'Donnell, M. (1986). Definition of health promotion. American Journal of Health Promotion, 1, 4-5.

O'Leary, A. (1992). Self-efficacy and health: Behavioral and stress-physiological mediation. Cognitive Therapy and Research, 16, 229-245.

Palank, C. L. (1991). Determinants of health-promotive behavior: A review of current research. Nursing Clinics of North America, 26 (4), 815-833.

Patton, M. Q. (1990). Qualitative evaluation and research methods (2nd ed.). Newbury Park: Sage.

Pender, N. J. (1987). Health promotion in nursing practice (2nd ed.). Norwalk, CT: Appleton & Lange.

Pender, N. J. (1989). Expressing health through lifestyle patterns. Nursing Science Quarterly, 2 (4), 115-122.

Pender, N., Walker, S. N., Sechrist, K. R. & Frank-Stromberg, M. (1990). Predicting health promoting lifestyles in the workplace. Nursing Research, 39 (6), 326-332.

Poston, I. , Bowman, J. M. & Rouse, J. O. (1994). Health behaviors and academic success. Nurse Educator, 19 (2), 24-27.

Rathus, S. A. (1973). A 30-item schedule for assessing assertive behavior. Behavior Therapy, 4, 398-406.

Redland, A. R. & Stuifbergen, A.K. (1993). Strategies for maintenance of health-promoting behaviors. Nursing Clinics of North America, 28 (2), 427-442.

Riccio-Howe, L. A. (1991). Health values, health locus of control and cues to action as predictors of adolescent safety belt use. Journal of Adolescent Health, 12, 256-262.

Richter, J. M., Malkiewicz, J. A., & Shaw, D. (1987). Health promotion behaviors in nursing students. Journal of Nursing Education, 26 (9), 367-71.

Riffle, K. L., Yoho, J., & Sams, J. (1989). Health promoting behaviors, perceived social support, and self reported health of Appalachian elderly. Public Health Nursing, 6 (4), 204-211.

Rosenberg, M. J. (1990). Predictors of healthy lifestyles among professional nurses. Unpublished doctoral dissertation, Northern Illinois University, Chicago.

Rubinson, L., & Neutens, J. J. (1987). Research techniques for the health sciences. New York: Macmillan.

Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviors: Theoretical approaches and a new model. In R. Schwarzer (Ed.), Self-efficacy: Thought control of action (pp. 217-242). Washington, DC: Hemisphere.

Sherer, M., Maddux, J. E., Mercadante, B., Prentice-Dunn, S., Jacobs, B. & Rogers, R. W. (1982). The self-efficacy Scale: Construction and validation. Psychological Reports, 51, 663-671.

Smith, J. P. (1984). Prevention by example. Nursing Mirror, 159 (13), 17-18.

Sobal, J., Valente, C., Muncie, H., Levine, D. & DeForge, B. (1985). Physicians' beliefs about the importance of 25 health promoting behaviors. American Journal of Public Health, 75, 1427-28.

Soeken, K. L., Bausell, R. B., Winklestein, M., & Carson, V. J. (1989). Preventive behavior: Attitudes and compliance of nursing students. Journal of Advanced Nursing, 14, 1026-1033.

Strauss, A. L., & Corbin, J. (1990). Basics of qualitative research. Newbury Park: Sage.

Strecher, V., DeVellis, B. M., Becker, M. H. & Rosenstock, I. M. (1986). The role of self-efficacy in achieving health behavior change. Health Education Quarterly, 13, 73-91.

Stuifbergen, A. K., & Becker, H. A. (1994). Predictors of health-promoting lifestyles in persons with disabilities. Research in Nursing & Health, 17, 3-13.

Sun, W. Y., Chen, W. W., Chen, L., & Wang, G. (1995). Differences of lifestyle advice between traditional Chinese medical doctors and Western-style medical doctors in People's Republic of China. Patient Education and Counseling, 25 (3), 311-6.

Treiber, F., Baranowski, T., Braden, D., Strong, W., Levy, M., & Knox, W. (1991). Social support for exercise: Relationship to physical activity in young adults. Preventive Medicine, 20, 737-750.

Ulmer, D. (1984). Societal influences on health and lifestyles. Western Journal of Medicine, 141, 793-798.

Unger, J. B. & Johnson, C. A. (1995). Social relationships and physical activity in health club members. American Journal of Health Promotion, 9 (5), 340-3.

U. S. Department of Health and Human Services (DHHS). (1991). Healthy people 2000: National health promotion and disease prevention objectives. (DHHS Publication No. (PHS) 91-50212). Washington, DC: U.S. Government Printing Office.

U. S. Public Health Service. (1990). Healthy people 2000: National health promotion and disease prevention objectives. DHHS Pub. No. 91-50212. Washington, D.C.: U. S. Government Printing Office.

Vickery, C. & Cotugna, N.(1990). Dieticians' beliefs about the importance of health promotion practices. Journal of Community Health, 15 (5), 319-27.

Wallack, L., & Winkleby, M. (1987). Primary prevention: A new look at basic concepts. Social Science Medicine, 25, 923.

Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The health-promoting lifestyle profile: Development and psychometric characteristics. Nursing Research, 36 (2), 77-81.

Wang, S. H. & Chiew, C. R. (1992). Fu nu chien kang tsu chin shing wei ji chi hsiang guen ying su de tan tau [A study of women's health promoting behaviors and influence factors] Public Health, 19 (3), pp 251-265.

Ware, J., Brook, R., Davies, A., & Lohr, R. (1981). Choosing measures of health status for individuals in general populations. American Journal of Public Health, 7, 620-625.

Weitzel, M., & Waller, P. (1990). Predictive factors for health promotive behaviors in white, Hispanic, and black blue-collar workers. Family & Community Health, 13 (1), 23-34.

Wen, C. Y. & Shaw, S. H. (1992) (Eds.). Chung kuo jen: kuen nien yu shing wei (3rd. ed.). [Chinese: View and Behavior]. Taipei, Taiwan, ROC: Chu Liu.

Woodward, N. J., & Wallston, B. A. (1987). Age and health care beliefs: Self-efficacy as a mediator of low desire for control. Psychology and Aging , 2 (1), 3-8.

World Health Organization (1995). WHO: Organization descriptions [on-line]. Available Telnet: gopherc.who.ch

Yang, Y. C. (1996, March). Lin chuang hu li yeh wu hsien kuang, fa chan fong hsiang yu tse lueh/wen ti yu wei lai cheng tse [The recent development and strategies for clinical nursing/problems and future policies]. Paper presented at the annual meeting of the National Nurses Association of ROC for member representatives. Taipei, Taiwan, ROC.

Yao, C. C (1996). [Validation of Chinese Version Self-Efficacy Scale]. Unpublished raw data.

Yarcheski, A. & Mahon, N. E. (1989). A causal model of positive health practices: The relationship between approach and replication. Nursing Research, 38 (2), 88-93.

Yin, T. C. (1991). Kung kung wei sheng hu li shueh [Public health nursing]. Taipei, Taiwan: Hwei Hwa.

APPENDIX A

LETTERS OF PERMISSION TO USE INSTRUMENTS

The Institute for Rehabilitation and Research (TIRR)

1333 Moursund, Houston, Texas 77030-3405
In the Texas Medical Center
Telephone (713) 799-5000, 797-5790 (TDD)
Fax (713) 799-7095

March 21, 1996

Chou Chuan-Chiang Yao
2515 Chicago St. #16
San Diego, CA 92110

Dear Mr. Yao:

I am writing to give you formal permission to use the Self-efficacy Scale in your dissertation. I have enclosed two copies of the scale. One copy is marked with scoring instructions, the other may be reproduced for use in your research.

Thank you for your interest. I hope these materials are helpful to you.

Sincerely,

Mark Sherer, Ph.D., ABPP
Director of Neuropsychology

MS/tbg

Enclosures

The Institute for Rehabilitation and Research (TIRR)

1333 Moursund, Houston, Texas 77030-3405
In the Texas Medical Center
Telephone (713) 799-5000, 797-5790 (TDD)
Fax (713) 799-7095

The copyright of the Self-efficacy Scale is retained by Psychological Reports. In order to get permission to reproduce the scale for publication you should contact the editor, Carol Ammons, Ph.D. at the following address:

Psychological Reports
Box 9229
Missoula, Montana 59807

For your study, you have my permission to translate the English version into Chinese.

Mei-Yen Chen
Associate Professor
Chang Gung Institute of Nursing
261, Wen Hwa 1 Rd. Kwei-Shan
Taoyuan, Taiwan
Tel/Fax: 03-328-6777

September 8, 1996

Ms. Chou Chuan-Chiang Yao
2515 Chicago St. #16
San Diego, CA 92110

Dear Ms. Yao:

This is a letter giving you permission to use the Chinese version Health Promoting Lifestyle Profile.

Enclosed please found a copy of the instrument and scoring instructions. Please reference the instrument as indicated.

Best wishes for success in your research.

Sincerely,

Mei-Yen Chen, MSN
Associate Professor
Chang Gung Institute of Nursing

APPENDIX C

DOCUMENT OF PERMISSION FOR STUDY IN A MEDICAL CENTER

(translated from Chinese)

APPLICATION FORM (translated from Chinese)
For Nursing Research Project Supported by _____Hospital
Date: April 26, 1996

Name: Chou Chuan-Chiang Yao Institution: Chang Gung Ins. of Nursing Title: Lecturer

Phone: (H) 03-328-3095 Address: 12F, 34, Ln. 364, Sec. 1, Keelung Rd. Taipei

Subject: Determinants of Health-Promoting Lifestyle among Nurses in Taiwan
-A doctoral dissertation

Project Duration: June 1, 1996-Feb. 28, 1997

Please indicate the unit(s) needed for supporting the study: Medical-Surgical Wards, Psychiatric Ward, Physical Examination Ward, ER, ICUs.

Please indicate what kind of support you need: 1. Giving permission to introduce the project in nurses' in-service education classes and ask for volunteers for the reliability and validity tests of the research instruments. 2. Providing a name list of the nurses working in the selected units. 3. Giving permission to contact with the nurse subjects for this study.

Project Findings Presentation:
(1) Written Report: x Addressing the support from ___ Hospital.
x Providing two copies of the project report to the Division of Nursing Research and Dept. of Nursing.
(2) Oral Presentation: x Arrange an oral presentation together with the Division of Nursing Research at _____

Signature of the applicant: _____

****

Preliminary Evaluation: x Approve _ Reject Suggestion:

Division of Nursing Research: _____

Synthesis of the comments from the project introduction meeting in Department of Nursing:

1. The investigator will introduce the project to all selected units and distribute the questionnaires in the morning meeting.
2. Two groups of 10 subjects each that scored at opposite ends of the range, very high or very low on the HPLP, will be chosen to participate the personal interviews.
3. The investigator should get the permission from the subjects before the personal interviews.

_____
Division of Nursing Research, Department of Nursing

Final Evaluation: x Approve _ Disapprove

_____
Director, Department of Nursing

x Approved by the Nursing Affairs Committee on June, 1996

_____
Chair, Nursing Affairs Committee

APPENDIX D

COVER LETTERS

(translated from Chinese)

Phase One

You have been randomly selected to take part in a research project. This project has been approved by the Chang Gung Medical Center Nursing Research Committee and the University of San Diego.

The project is being directed by Chou Chuan-Chiang Yao, a doctoral student at the University of San Diego completing her dissertation. The purpose of this study is to investigate factors that influence health promotion. Your involvement consists of completing a questionnaire that requires about thirty minutes of your time. A small number of participants will be asked to participate in later interviews about health-promoting behaviors.

Participation in this study would be greatly appreciated, but is entirely voluntary. There is no penalty if you choose not to participate. There are no other agreements to anything other than participation in the study. All information received will be coded to guarantee confidentialy. Any publication of findings will employ aggregate data only.

If you agree to participate in this research project, please complete the questionnaire. Upon completion of the questionnaire, please check to see that you have answered all questions. Please return the questionnaire to the assigned boxes at the nursing station. The researcher will collect the documents once a day for one week (from 1st October to 7th October 1996).

If you have any questions regarding the study, please contact Chou Chuan-Chiang Yao, phone number, 328-3095.

Thank you for your participation in this study.

Phase Two

You have been selected to take part in a research project.This project has been approved by the Chang Gung Medical Center Nursing Research Committee and the University of San Diego.

The project is being directed by Chou Chuan-Chiang Yao, a doctoral student at the University of San Diego completing her dissertation. The purpose of this study is to investigate factors that influence health promotion. Your involvement consists of participating in a face-to-face personal interview that requires about sixty minutes of your time and the interview will be audio tape recorded.The interviews will take place between October 15, 1996 and November 30, 1996.

Participation in this study would be greatly appreciated, but is entirely voluntary. There is no penalty if you choose not to participate. There are no other agreements to anything other than participation in study. All documents and tapes for this study will be preserved in a locked private cabinet by the researcher and destroyed after the end of the study. Any publication of findings will employ aggregate data only.

If you agree to participate in this research project, please complete the demographic form.

If you have any questions regarding the study, please contact Chou Chuan-Chiang Yao, phone number, 328-3095.

Thank you for your participation in this study.

APPENDIX E

DEMOGRAPHIC INFORMATION (translated from Chinese)

Please complete all items below that best describe you and your job by entering the most appropriate number:

1. Age: _____

2. Marital Status: _____
   1= Now Single (including never married, separated, divorced, or widowed)
   2= Now Married

3. Education: _____
   1= Vocational School
   2= Junior College
   3= University
   4= Graduate School

4. Years employed as RN:_____

5. Current Shift:_____
   1= Day
   2= Evening
   3= Night
   4= Irregular
   5= other_____

6. How would you rate your overall health at the present time? _____
   1= very poor
   2= poor
   3= fair
   4= good
   5= excellent

7. How would you rate your overall social support at the present time? _____

   1= very poor
   2= not enough
   3= ok
   4= good
   5= very good

8. What is beneficial for you to practice a healthy lifestyle?

9. What is obstructive for you to practice a healthy lifestyle?

10. Who is/are your role model(s) in practicing a healthy lifestyle?

APPENDIX F

SAMPLE ITEMS OF QUESTIONNAIRES

(translated from Chinese)

Sample questions of Chinese version Self-efficacy Scale (SES)

Directions: This questionnaire contains statements regarding your personal attitudes and traits. Read each statement and decide to what extent it describes you. Please indicate your own personal feelings about each statement below by "x" that best describes your attitude or feeling.
Note. DS = Disagree Strongly, D = Disagree, N = No opinion, A = Agree, AS = Agree Strongly.

	DS	D	N	A	AS
15. When I undertake some unpleasant task, I tend to persist in the work till I finish it	___	___	___	___	___
20. I can not properly handle problems which are beyond my expectation	___	___	___	___	___

Sample questions of Chinese version Health-Promoting Lifestyle Profile (HPLP)

Directions: This questionnaire contains statements regarding your present way of life. Please respond to each item as accurately as possible. Indicate the regularity with which you engage in each behavior by "x".
Note. N= Never, S = Sometimes, O = Often, R = Routinely.

	N	S	O	R
10. Have my blood pressure checked and know the result	___	___	___	___
21. Keep in touch with significant others	___	___	___	___

APPENDIX G

INTERVIEW PROTOCOL (translated from Chinese)

1. What things do you usually do to maintain or improve your health? (e.g. nutrition, exercise, stress management) Do you do them regularly?
2. Have you made any recent lifestyle changes? If so, how long have you maintained these changes?
3. How did you feel when making a lifestyle change? Did you start and continue or start and stop several times?
4. What kind of experience taught you to have good health practices?
5. Were there a person or persons who had an impact on you to make or not make a change? How did they influence you?
6. Did any one serve as a role model for you?
7. Are there any other factors that helped you to change or influence your health behaviors?
8. What personal feelings can you identify about yourself that helped you to make the changes? Or hindered you from making changes?
9. If you accomplished a change, what do you feel helped you the most? If you did not, what hindered you the most?
10. What personal characteristics enable you to be consistent?
    How important is health to you?
    Extent you feel in control of your health?
    Recognize benefits and barriers of leading a healthy lifestyle?
    How did you overcome barriers to leading a healthy lifestyle?
11. Do your surroundings and environment influence your ability to be consistent?
12. If you could be offered one incentive that would encourage you to change, what would that be?
13. Overall, do you consider yourself healthy or unhealthy? On a scale of 1-10, with 1 being unhealthy and 10 being healthiest, rate yourself.
14. How would you help others who have tried to improve their lifestyle and were unsuccessful?
15. Is there anything else you would like to share with me about practicing a health promoting lifestyle?

APPENDIX H

DEMOGRAPHIC DATA FOR COMPARISON OF GROUPS

Variable	N = 218	(%)	Low HPLP N = 10 Response	High HPLP N = 9 Response
Age				
Mean =	25.2		24.7	29.1
Marital status				
Unmarried	185	(85)	10	8
Married	33	(15)	0	1
Nursing Education				
Vocational school	6	(3)	0	0
Junior college	174	(79)	9	7
University	36	(17)	1	2
Graduate school	2	(1)	0	0
Years employed as an RN				
Mean =	3.5		3.35	7.33
Shift				
Day	93	(43)	4	5
Evening	61	(28)	3	1
Night	55	(25)	2	3

APPENDIX H (Continued)

Variable	N = 218	(%)	Low HPLP N = 10 Response	High HPLP N = 9 Response
Irregular	9	(4)	1	0
Work Setting				
Physical Exam. U.	16	(7)	-	-
Psychiatric W.	12	(6)	-	-
Surgical W.	67	(31)	-	-
Medical W.	37	(17)	-	-
ICU	42	(19)	-	-
ER	44	(20)	-	-

Note. For confidentiality, work setting for subjects of both low and high HPLP group were not shown.

APPENDIX I

TABLE I_1-I_2

Table I1

Correlation Matrix for Predictor Variables and Subscales of HPLP (N = 218)

	SELF	HRS	INSU	EXE	STM	NUR
SES	.651***	.446***	.422***	.285***	.435***	.294***
PHS	.350***	.198**	.141*	.268***	.217***	.249***
PSS	.443***	.179**	.403***	.197**	.242***	.137*
AGE	.117	.270***	-.015	.146*	.074	.180**
MRS	.051	.090	-.036	-.083	.113	.264***
ED	.013	.054	.013	-.019	.001	-.052
SHFT	.023	.030	-.073	.043*	-.031	-.164**
UNIT	.068	-.018	.065	.017	-.042	-.238***
YRN	.051	.090	-.036	-.083	.113	.264***

Note. SELF = Self actualization; HRS = Health responsibility; INSU = Interpersonal support; EXE = Exercise; STM = Stress management; NUR = Nutrition; SES = Self-efficacy Scale; PHS = Perceived health status; PSS = Perceived social support; MRS = Marital status; ED = Education; YRN = Years employed as an RN; SHFT = Shift; UNIT = Work setting

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

Table 12

Variance in Subscales of Health-Promoting Lifestyle Explained by Self-efficacy, Perceived Health Status, and Perceived Social Support (N = 218)

Subscale (criterian)	Predictor Variables	Cumulative R^2	R^2 Change	Simple r	Univariate [a] F	Sig F
Self actualization	SES	.424		.651	159.244	<.001
	PSS	.456	.032	.676	90.285	<.001
	PHS	.469	.013	.685	63.121	<.001
Health responsibility	SES	.198		.446	53.492	<.001
	AGE	.238	.040	.488	33.590	<.001
	UNIT(M) [b]	.257	.019	.507	24.734	<.001
Interpersonal support	SES	.178		.422	46.811	<.001
	PSS	.238	.050	.488	33.589	<.001
Exercise	SES	.081		.285	19.104	<.001
	PHS	.116	.035	.341	14.119	<.001
	MRS (U) [c]	.135	.019	.368	11.162	<.001
	AGE	.157	.022	.396	9.879	<.001
Stress management	SES	.190		.435	50.512	<.001
Nutrition	SES	.087		.294	20.492	<.001
	SHFT (E) [d]	.152	.065	.390	19.238	<.001
	UNIT(ICU)	.198	.046	.445	17.565	<.001
	PHS	.222	.024	.472	15.236	<.001
	UNIT (PE)	.239	.017	.489	13.320	<.001
	UNIT (M)	.255	.016	.505	12.060	<.001

Table 12 (Continued)

Subscale (criterian)	Predictor Variables	Cumulative R^2	R^2 Change	Simple r	Univariate [a] F	Sig F
	UNIT (P)	.271	.016	.520	11.130	<.001

Note. SES = Self Efficacy Scale PHS = Perceived Health Status

PSS = Perceived Social Support MRS = Marital Status

YRN = Years Employed as an RN SHFT = Shift UNIT = Work Setting

[a]Univariate F values reflect the importance of each variable after all have entered the equation. [b]Dummy variable created by dividing UNIT(work setting) into PE (physical examination), P (psychiatric), S (surgical), M (medical), ICU, and ER. [c]Dummy variable created by dichotomizing MRS (marital status) as M(married)/U(unmarried). [d]Dummy variable created by dividing SHFT (shift) into D (day), E (evening), N (night), and I (irregular).

APPENDIX J

TABLE J1-J17

Table J1

Groups' Comparison of Scores on Percived Health Status, Perceived Social Support, the Self-efficacy, and Health-Promoting Lifestyle

	Low HPLP N = 10 Response		High HPLP N = 9 Response			
Variable	Mean	SD	Mean	SD	T	p
Perceived Health Status (5=Excellent, 1=Very poor)	3.000	.943	4.000	.707	2.63	.018*
Perceived Social Support (5=Very good, 1=Very poor)	3.100	.738	4.444	.527	4.60	.000**
Self-efficacy	69.000	10.044	89.000	6.062	5.31	.000**
Health-Promoting Lifestyle						
Total scale	44.400	11.037	87.111	14.987	7.01	.000**
Subscale						
Self actualization	10.000	3.801	18.333	3.202	5.18	.000**
Health responsibility	5.700	3.057	17.222	3.528	7.57	.000**
Interpersonal support	9.600	3.627	15.333	2.646	3.96	.001**
Exercise	3.500	1.958	9.111	4.676	3.35	.007*
Stress management	10.200	3.967	16.000	2.828	3.70	.002*
Nutrition	5.400	.699	11.111	2.934	5.69	.000**

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

Table J2

Exercise Practices of High HPLP and Low HPLP Groups

Type of Exercise	Low HPLP N = 10 Response	High HPLP N = 9 Response
Jogging	0	2
Walking	1	1
Chi Gong (Feat of Strength)	0	1
Yoga	0	1
Swimming	1	4
Bowling	1	0
Badminton	1	3
Hiking	2	2
Calisthenics	3	1
Dancing (Disco)	0	1
Using a Hula Hoop	3	0

Note. Some subjects participated in more than one type of exercise.

Table J3

Comparison of High HPLP and Low HPLP Groups' Stress Management

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Going out/shopping	2	0
Talking with		
Professional colleagues	7	2
Family	4	1
Boyfriend	3	1
Reading	6	2
Writing diary	1	0
Music	5	1
Television	1	0
Movie	2	0
KTV, MTV [a]	3	0
Napping	1	0
Crying	1	0
Eating	2	0
Taking a shower	1	0
Thinking	0	4
Relaxing (reverie)	1	1
Worshipping god	0	1
Travel	2	2

Note. Some subjects identified more than one stress management technique.

[a] Participation in Keraokei.

Table J4

Lifestyle Changes by HPLP Group

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Nutrition	3	0
Exercise (-)	2	0
Weight control (gain) (loss)	1 0	0 2
Stress management	1	0
Self actualization	0	1

Note. Not all subjects identified lifestyle changes.

Table J5

Comparison of High HPLP and Low HPLP Groups on Factors That Helped or Hindered Change

Factors	Low HPLP N = 10 Response	High HPLP N = 9 Response
Supported change		
Family support		
Parents	4	4
Husband	0	1
Children	0	1
Friends support		
Professional colleagues	4	1
Boyfriend	4	0
Physically feeling good	1	5
Personal attributes		
Very motivated	1	6
Sense of being at risk	4	5
Strategies		
Setting goals	1	2
Asking friends to be reminders	2	0
Hindered change		
Personal attributes		
Indolent	2	0
Lack of perseverance	1	2

Table J5 (Continued)

Factors	Low HPLP N = 10 Response	High HPLP N = 9 Response
Lack of energy	5	4
Lack of time	2	0
Not seeing result	1	0
Psychosocial		
Peer pressure	1	0
Lack of partners	5	1

Note. Some subjects identified more than one factor.

Table J6

Personal Characteristics That Enable Subject Consistency

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Determination		
Self-discipline	1	1
Commitment		
Self-directed	0	2
Independence	0	3
Motivation		
Self-motivated	1	6
Persevere	0	1
Self-Perception		
Sense of responsibility	6	5
Caring for self	2	3
Compulsive	0	1
Strategies		
Goal setting	1	2
Setting priorities	0	2
Organized	2	3
Using resources available	3	4
Having time	0	1

Note. Many subjects identified more than one characteristic.

Table J7

Extent Subjects Felt in Control of Health

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Extent of Control		
A lot/hereditary attached numerical value (e.g., 100%, 90%, 80-90%)	7	7
A lot	1	2
Pretty much	2	0

Table J8

Comparison of High HPLP and Low HPLP Groups' Perceived Benefits of Leading a Healthy Lifestyle

Benefit	Low HPLP N = 10 Response	High HPLP N = 9 Response
Immediate		
Physical		
Feel better	1	5
More energy	1	3
Can keep proper body weight	2	2
Staying healthy	1	2
More comfortable	0	1
Psychological		
Feeling good about myself	1	2
Feeling good reinforces continuation of good health-promoting lifestyle	1	2
Accomplish more	1	1
Emotionally better	1	1
Higher self-confident	1	2
Improved quality of life	0	1
Future		
Physical		
Healthier when older	1	2

Table J8 (Continued)

Benefit	Low HPLP N = 10 Response	High HPLP N = 9 Response
Psychological		
Being able to take care of aging parents	1	1

Note. Subjects identified more than one benefit.

Table J9

Comparison of High HPLP and Low HPLP Groups' Perceived Barriers of Leading a Healthy Lifestyle

Barrier	Low HPLP N = 10 Response	High HPLP N = 9 Response
Lack of preverance	7	5
Lack of energy	5	2
Lack of knowledge	1	0
Lack of partners	2	0
Stress	3	1
Scheduling	5	1
Peer pressure	2	0
Dinner party	3	2

Note. Subjects identified more than one barriers.

Table J10

Strategies to Overcome Barriers to a Health-Promoting Lifestyle

Strategies	Low HPLP N = 10 Response	High HPLP N = 9 Response
Set realistic goals	1	2
Schedule	3	0
Getting information	2	2
Hang out with people who practice healthy lifestyle	1	0
Announce personal health promotion plan to everybody	1	1

Note. Only 13 subjects identified strategies.

Table J11

Experiences That Taught Good Health in High HPLP and Low HPLP Groups

Experience	Low HPLP N = 10 Response	High HPLP N = 9 Response
Family		
Parents	4	2
Siblings	1	1
Professional colleagues	4	0
Boyfriend	3	0
Job		
Working at a special area	1	1
Education		
Nursing/college	10	9
Reading	2	1
Media	6	6
Illness		
Self	4	1
Family	3	3
Professional colleagues	1	2

Note. Some subjects identified more than one experience as having taught good health practices.

Table J12

Comparison of High HPLP and Low HPLP Groups' Perception of How Individuals Influence Health-Promoting Lifestyle

Method of Impact	Low HPLP N = 10 Response	High HPLP N = 9 Response
Encouragement	3	3
Increasing awareness	1	1
Illness	2	2
Example	1	0
Making them want to be around	1	1
Peer pressure	3	1

Note. 1. Not all subjects identified how individuals impacted on them.

2. Some subjects identified more than one method of impact.

Table J13

Role Models for Professional Nurses

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Family	0	2
Friends	2	2
Nursing Colleagues	1	0
None	7	5

Table J14

Comparison of Factors That Influenced Health-Promoting Lifestyle

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Helped to change to a healthy lifestyle		
Family illness	3	3
Personal illness	4	1
Media	6	6
Overweight	2	2
Hindrance to change to unhealthy behaviors		
Reminded by parents	2	1
Reminded by siblings	0	1
Reinforced by media	2	1
Felt bad	5	3

Note. Some subjects identified more than one influence factor.

Table J15

High HPLP and Low HPLP Groups' Perception of Environmental Influences on Ability to be Consistent

Factors	Low HPLP N = 10 Response	High HPLP N = 9 Response
Positive influences		
Job related activities	6	4
Family support	4	4
Available information/resources	0	3
Can avoid temptation	1	4
Location of home	3	5
School	8	8
Teamwork	3	0
Media	6	6
Children	0	1
Negative influences		
Lack of teamwork	2	1
Lack of time	2	0
Pollution	3	2
Transportation	0	1
Setting of living	2	0
Job (overloading, stress, high-risk)	6	6

Note. Subjects identified more than one factor.

Table J16

Incentives That Encourage Change among Professional Nurses

Category	Low HPLP N = 10 Response	High HPLP N = 9 Response
Personal		
Supportive attitude	1	0
Having a healthy role model	3	0
Sure that I would look great, feel great, and have lots of energy	2	5
Schedule		
Flexible schedule	3	1
Convenience	2	1
Activity pattern		
Team work	2	1
Information		
Variety of topics	2	1

Note. Some subjects identified more than one incentive.

Table J17

Comparison of High HPLP and Low HPLP Groups' Strategies to Help Others Improve Their Lifestyle

Strategies	Low HPLP N = 10 Response	High HPLP N = 9 Response
Support/Encouragement		
Provide support	2	1
Positive reinforcement	2	0
Encourage	2	1
Show how it will benefit them	1	0
Education		
Provide information	0	1
Use a variety of approaches	0	1
Teach decision-making skills	5	2
Goal Setting		
Set a goal easy to achieve	1	1
Go step by step	1	2

Note. All subjects responded with at least one strategy.