

HEALTH AND NURSING PRACTICE BEHAVIORS OF REGISTERED
NURSES RELATED TO COMPLETION OF HEALTH PROMOTION/
DISEASE PREVENTION COURSE

A DISSERTATION
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TEXAS WOMAN'S UNIVERSITY

COLLEGE OF NURSING

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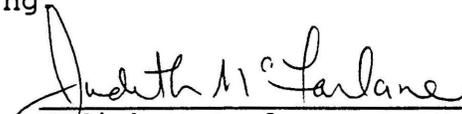
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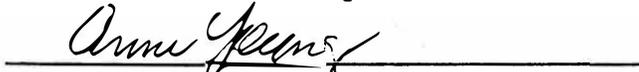
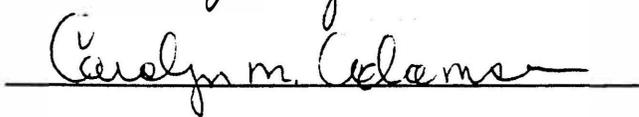
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To the Dean for Graduate Studies and Research:

I am submitting herewith a dissertation written by Elizabeth Kennedy Gregory entitled "Health and Nursing Practice Behaviors of Registered Nurses Related to Completion of Health Promotion/Disease Prevention Course." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing


Judith McFarlane, DrPH
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We have read this dissertation and
recommend its acceptance:

Accepted


Dean for Graduate Studies and
Research

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DEDICATION

To Charles and his goal to run
in the Boston Marathon.

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The members of my research committee have been so encouraging and supportive to me. For their helpful suggestions and patience, I wish to thank Dr. Judith McFarlane, Chair, Dr. Anne Young, and Dr. Carolyn Adamson.

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HEALTH AND NURSING PRACTICE BEHAVIORS OF REGISTERED
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ABSTRACT

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This study was designed to examine the question: Following a 30-hour course in health promotion and disease prevention (HP/DP), do registered nurses (RNs) record a greater magnitude of change in practiced health behaviors and incorporate more HP/DP concepts in their nursing practice when compared to RNs that do not complete the course? A two-group, before-after, quasi-experimental research design was used to determine if RNs who attended a course in HP/DP increased their personal health behaviors and teaching of health behaviors to clients. The curriculum was developed by the Division of Nursing, United States Department of Health and Human Services, and it was taught at Texas Woman's University. The experimental group contained 98 course participants and the control group contained 32 colleague-selected peers. The Health Promotion and Disease Prevention Curriculum: A Continuing Education

Program for Nurses [1988] was the teaching treatment. The Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) collected data on personal health behaviors of participants and the extent of HP/DP teaching in nursing practice. Demographic data sheets were also used.

Data analysis for hypotheses addressing personal health behaviors, collection of health information, and teaching about health behaviors was by two-way analysis of variance. Significant ($p \leq .05$) differences were found between the groups for personal health behaviors and teaching about health behaviors. It was also hypothesized that personal health behaviors would be correlated with client teaching about those health behavior practices. Chi-square analysis yielded a significant correlation between physical activity and teaching about exercise.

Findings indicated that RNs who attended the course in HP/DP did record more personal health behaviors, collect more health education materials, and teach more about health behaviors than RNs who did not attend the course. The course in HP/DP developed for RNs should be offered to RNs with an expected increase in self-practices health promoting behaviors and teaching of those health behaviors to clients.

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CHAPTER 1
INTRODUCTION

There are individual, community, and national quests for that illusive quality called health. Although health and illness have been widely discussed and described in literature, for many people, health continues to be an illusive "out there" concept rather than an internal, personal responsibility accomplished through lifestyle behaviors. The behaviors of an individual, particularly health promoting and disease preventing behaviors, affect personal lifestyles and, therefore, personal health. While health maintenance is a personal responsibility, not enough attention is paid to the understanding of and/or attention to health promoting and disease preventing behaviors--skills necessary for enhancing personal health.

The concepts of health promotion and disease prevention have received increased attention from health care practitioners in recent years (Green, Wilson, & LoVato, 1986). The efforts of health professionals to increase health awareness were promoted at the federal level in Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (U. S. Department of Health, Education and Welfare [DHEW] 1979). This report outlined the

dramatic gains in health of the American people, reviewed present preventable threats to health, and identified lifestyle-related risk factors as areas in need of improvement to decrease morbidity and prevent premature mortality. The federal government continues to promote health with its stated health objectives for 1990 (U.S. Department of Health and Human Services [DHHS], 1986) and for the year 2000 (DHHS, 1989b).

Deaths from communicable diseases decreased during the early 1900s, thus individuals in the United States are living longer (DHEW, 1979). Currently, more deaths have been reported from chronic diseases, primarily cardiovascular diseases (DHEW, 1979; DHHS, 1988, 1989b). Heart disease contributes 38.35% to the total deaths in the United States and is the leading cause of death (DHHS, 1988, 1989b). Other major causes of premature deaths are injuries and cancer (DHHS, 1988, 1989b).

Preventing heart disease and cancer requires educating the public to the lifestyle practices that promote health and reduce the risk of chronic disease and disability. These problems require a different approach than the development of vaccines and antibiotics which helped eliminate communicable diseases as the leading causes of

premature deaths. The focus of health care becomes the need to prevent, rather than to cure, these diseases and to offer education to prevent injuries (DHEW, 1979; DHHS, 1989b). Since the 1950s, public health services have been oriented toward prevention of disease, yet the public at large has not taken advantage of early detection or disease prevention programs (DHHS, 1989b; Green et al., 1986). The American public has not fully accepted responsibility for its own health behaviors (DHEW, 1979; DHHS, 1980, 1985).

Many researchers (Becker, Drachman, & Kirscht, 1974; Becker et al., 1977; DHEW, 1979; Green et al., 1986; Pender & Pender, 1986) have reported studies on compliance to health care regimens. These researchers studied individuals who were ill, as well as individuals who were asymptomatic, and their perceptions of the need for active participation in personal health. Individuals who thought behavior affected state of wellness were more likely to participate in health promoting behaviors.

Health promotion at the federal level and disease prevention, recognized as a goal for America, represent a special area of nursing knowledge and skills which must be directed toward all persons without regard to age, gender, ethnicity, or socioeconomic level. A positive role model in the form of the health care provider is a component in

client behavioral change (Becker et al., 1977; Holcomb et al., 1985; Pender, 1987). Pender emphasized that the skills of a registered nurse engaged in health promoting activities with clients must include working with the perceptions of the client. The registered nurse with more developed personal wellness behaviors may be more effective as a change agent for clients. Therefore, the purpose of this study was to determine if registered nurses who completed a course in health promotion and disease prevention indicated more positive personal health behaviors and incorporated health promotion and disease prevention concepts in their nursing practice.

The Commission on Nursing Research of the American Nurses' Association (1981) recommended as a priority nursing research that would generate knowledge to guide practice in promoting health and preventing health problems throughout the lifespan. To prevent disease and promote health, registered nurses need to acquire a unique set of skills based on the science of public health, nursing practice, and behavioral and learning theories. To that end, Texas Woman's University (TWU), College of Nursing, was awarded a contract from the Division of Nursing, Health Resources and Service Administration, Department of Health and Human Services, for development and implementation of Health

Promotion and Disease Prevention: A Continuing Education Program for Registered Nurses ([1988]).

Problem of Study

While many health care providers in the United States have now focused on health promotion and wellness as concepts (DHEW, 1979; DHHS, 1980, 1985), there has not appeared to be a great deal of sustained behavior change in the general public toward health promoting behaviors that enhance wellness (Green et al., 1986). Since an individual's perception of the health care provider has been reported (Becker, 1974; Pender, 1987) to make a difference for individuals toward taking responsibility, the focus of this study was on health behaviors and nursing practice in health promotion/disease prevention of registered nurses who participated in the TWU educational program. The question was as follows: Do registered nurses with increased knowledge of health promotion and disease prevention have more positive health behaviors and incorporate more health promotion and disease prevention concepts into nursing practice?

Rationale for the Study

Health promotion advocates have traditionally believed that if accurate health information was provided to an

individual, that individual would change an attitude and behavior in that area (Beery et al., 1986; Green et al., 1986; Pender, 1987). Ability to attain or maintain a high level of well-being (health) has been related to personal resourcefulness through learned behaviors (Rosenstock, 1988). Health promotion behaviors taught by and modeled by a health care provider are considered more successful than lectures or written materials (Holcomb et al., 1985; Pender, 1987). This study was focused on the health behaviors and health promoting skills of registered nurses in their role as health care providers.

The impetus for personal involvement in health promotion or wellness lifestyle began with the self-care movement and consumerism activities during the decades of the 1960s and 1970s (Green et al., 1986). The authors considered health promotion to be a long-term trend, not a fad, since these trends began in many places at the same time. The health promotion and disease prevention focus in the United States began from many sectors and does not appear to be diminishing in appeal (Anderson & McFarlane, 1988; Beery et al., 1986; Green et al., 1986).

Surgeon General Richmond (DHEW, 1979) wrote that if a difference were to be made to further improvements in America's health, individuals would have to participate.

Health promotion broadly describes health-directed behaviors termed lifestyle. These lifestyle behaviors frequently include tobacco avoidance, moderation with or avoidance of alcohol and caffeine, diet and weight control, physical exercise, stress reduction, and use of seat belts (Beery et al., 1986; DHHS, 1989b; Sobal, Valente, Muncie, Levine, & DeForge, 1985). Lifestyle behaviors are difficult to change (Pender, 1987; Rosenstock, 1988). Health care providers must be aware of the lifestyles of clients as well as anticipated behavioral changes that will enhance wellness. Any health protection/promotion plan that professional nurses use with their clients must include client participation in the planning (Pender, 1987). It is important to capitalize on current, positive health behaviors and knowledge to prevent overloading the client with a perception of need for major life changes. The ultimate aim of health promotion activities is to make permanent changes in a client's lifestyle (Pender, 1987).

Registered nurses have, in many situations, a unique opportunity to see clients on an ongoing basis. This opportunity becomes important because access to health instruction can be an impediment to seeking health care information (Becker, 1974). Furthermore, it usually takes

more than one visit for clients to feel comfortable about sharing information on personal behaviors (Pender, 1987).

Registered nurses are more available to clients. In addition, the nurse who not only understands health promotion and disease prevention but whose attitude also reflects personal health behaviors would be more effective in promoting wellness (Clark, 1986; Pender, 1987). Becker (1974) and Pender (1987) identified the client's perception of the health care professional as an influencing factor toward behavior changes. Health care professionals are regarded as role models in health matters for clients and community, and personal health habits are believed to influence counseling activities (Holcomb et al., 1985). A registered nurse who is a positive role model for clients may have increased influence in establishing or maintaining health promoting behaviors for clients.

The National Institutes of Medicine (1983), in their national report on nursing education, indicated a need for a course in health promotion and disease prevention for registered nurses. As previously noted, a Department of Health and Human Services, Health Resources and Services Administration, Nursing Practice Branch, contract was awarded to Texas Woman's University to meet that educational need. The curriculum was developed and taught to 159

registered nurses in 1987. This researcher sought to measure the impact of the curriculum on the personal health behaviors of the registered nurses enrolled in the course and the extent of increase in health promotion and disease prevention education in their professional practice.

Conceptual Framework

The Gregory Health Behavior Model (GHBM) served as the conceptual framework for this study. The model was developed to guide application of the nursing process when assisting clients in the selection of health promoting behaviors. The GHBM demonstrates the active role of the client toward acquisition or maintenance of individual health behaviors. The registered nurse is depicted as a resource available to the client. The GHBM provides a frame of reference for personal health and the metaparadigms that are basic to nursing: environment, health, nursing, and person.

The four concepts (metaparadigms) as used in the GHBM are defined as follows:

1. Environment: internal and external stimuli for an individual which influences life (Becker, 1974; Neuman, 1980).

2. Health: a continuum from illness to high level wellness for each individual that may be affected by personal behaviors or choices (King, 1971).
3. Nursing: assisting clients toward acquisition and/or maintenance of personal health through care and education (Murray & Zentner, 1979; Pender, 1987).
4. Person: a human, dynamic open system which changes as a result of input from the environment; personal health behaviors may or may not be affected by external influences (Orem, 1979).

Theoretical Basis of Gregory Health Behavior Model (GHBM)

The GHBM was developed to provide a conceptual framework to guide the application of the nursing process when assisting clients toward the establishment or enhancement of health promoting behaviors. Although concepts from other models (Becker, 1974; Becker et al., 1974; Becker et al., 1977; Neuman, 1980; Pender, 1987; Rosenstock, 1974) helped to form the framework for the GHBM, the theory underlying the model was von Bertalanffy's (1968) general systems theory. The GHBM is a systems model in which conceptualization of a whole (the person) is composed of parts in interaction within personal boundaries and with the surrounding environment (Figure 1). The more

open the system, as with persons, the more variables affect interactions and outcomes.

The GHBM depicts person, a system, as a planet. Person can be considered an individual or a family unit. The planet serves as the internal environment. Satellites and planets depicting nursing and other health care professionals, such as physicians, nutritionists, and therapists, revolve around the person/planet.

The external environment, represented as an all-encompassing system, is depicted as the sky. It contains the physical, social, cultural, and spiritual factors that have influence on a person. While the external environment is presumed to be orderly, occasionally matter, stressors, disturbs the equilibrium or balance of the person. Health is depicted as the prescribed or expected orderly orbit of the person/planet. The person/planet moves within a prescribed circular boundary that is a continuum with illness on the inside and high level wellness at the outside. Each orbit of the person/planet is independent of the other rotations within prescribed boundaries. Illness brings the person/planet closer to the inside edge of the health continuum. Higher levels of wellness allow for more expanded rotations into the total environment and increased opportunities for interactions with the total environment.

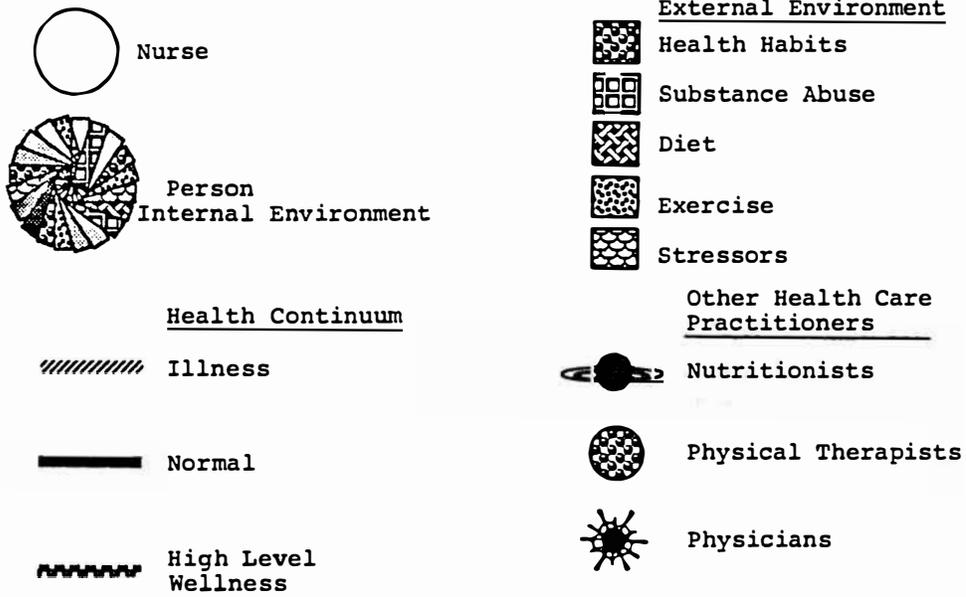
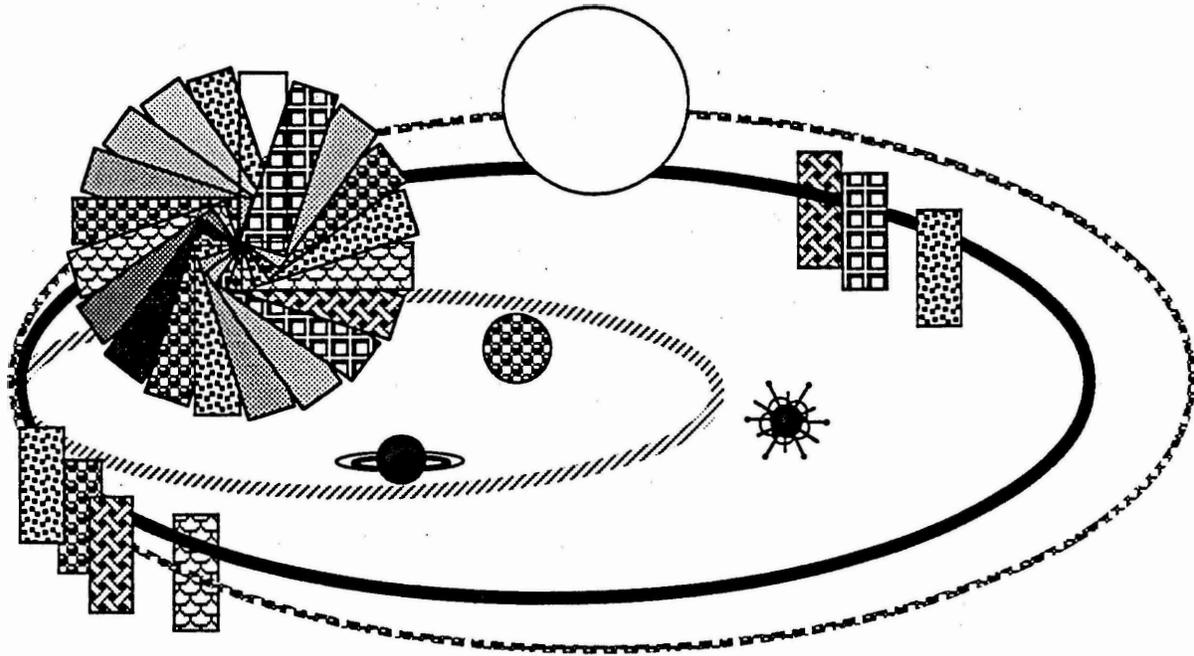


Figure 1. Gregory Health Behavior Model ©

This model was designed to portray nurse-client interaction to assist the client to high level wellness. The individual interacts with the nurse as needed to acquire knowledge and reinforce or change attitudes and behaviors. Interaction may or may not result in a health behavior. The nurse provides information, is the coordinator of health care needs, the facilitator toward action, and the caregiver as needed to reach the health behavior. The action can only be called a health behavior if the individual is the active party; otherwise it is called health care. The ultimate aim of nursing is for individuals to practice health behaviors which are independent of the nurse. Varying degrees of independence can be manifested in health promoting practices. A degree of and not full independence may be the only achievable outcome for an individual with health deficits. That outcome would be the mutual goal for that individual and the nurse. While some individuals will attain high level wellness without nursing intervention, it is postulated that the health promoting behavior modeled, taught by, or discussed with a registered nurse will facilitate the acquisition and maintenance of health promoting behaviors.

Gregory Health Behavior Model
Applied to Nursing Process

The GHBM is implemented within the framework of the nursing process. The four steps in the nursing process as defined in the model are shown in Figure 2.

The focus of assessment in the model is the recognition of the internal and external influences on health promotion and disease prevention behaviors for the person/client. Data on behaviors can be analyzed to establish a nursing diagnosis; then the planning of interventions with the person/client can occur. The etiologic components of a nursing diagnosis result from perceived and/or measurable parameters which supply information on personal choices. The response component of the nursing diagnosis would be the output from the system, those choices which may or may not be health promoting or disease preventing. The nursing intervention(s) occurs in cooperation with the persons/clients by use of their internal and external resources (Neuman, 1980; Pender, 1987). Interventions would assist clients in the initiation or maintenance of health promotion and disease prevention behaviors and, therefore, toward increased levels of wellness. Selected personal health behaviors of clients would be evaluated for positive changes in wellness lifestyle behaviors.

STEPS OF NURSING PROCESS	DESCRIPTION
ASSESSMENT	Recognition of internal and external influences on health promotion and disease prevention behaviors for the client.
ANALYSIS AND PLANNING	Identification of variables affecting client behavior or outcomes because of environmental input and development of a mutually agreed upon plan of client goals and behaviors to change outcomes.
INTERVENTION	Interventions are focused on changing or maintaining health promoting and disease preventing behaviors that contribute to a higher level of wellness.
EVALUATION	Evaluation is based on a measurement of acquired skills that contribute to health promotion and disease prevention for the client.

Figure 2. Application of the Gregory Health Behavior Model to the Nursing Process

Assumptions

Based on the conceptual framework used in this study, the following assumptions were made:

1. Person is a dynamic whole (open system) interacting with the environment (von Bertalanffy, 1968).
2. It is the world of the perceiver and not the physical environment that determines what the person will do; an individual lives in a life space that contains positive, negative, and neutral value regions (Rosenstock, 1974).
3. Choices made by the person influence health (Becker et al., 1974).
4. Individuals move cyclically from decision making to the action phase and back; influences consistently modify behaviors (Pender, 1987).
5. Health promoting and disease preventing behaviors actively and positively affect personal health (Becker et al., 1974; Pender, 1987).
6. Health promotion and disease prevention goals are a framework of education aimed at reducing stress factors and adverse conditions which either affect or could affect personal lifestyle (Neuman, 1974).

Hypotheses

The following hypotheses were formulated for this study:

- H₁: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than registered nurses who do not attend the course.
- H₂: Registered nurses will record more gathering of health information in their nursing practice following a health promotion/disease prevention course than registered nurses who do not attend the course.
- H₃: Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than registered nurses who do not attend the course.
- H₄: Registered nurses who complete a health promotion/disease prevention course will have a significant correlation between health behaviors and teaching of health promotion/disease prevention in their nursing practice when compared with registered nurses who do not attend the course.
- H₅: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.

- H₆: Registered nurses will record more gathering of health information following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.
- H₇: Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.
- H₈: Registered nurses who complete a health promotion/disease prevention course will have a significant correlation between health behaviors and teaching of health promotion and disease prevention in nursing practice when compared with colleague-selected registered nurses who do not attend the course.

Definition of Terms

The following terms were defined for this study:

1. Health promotion/disease prevention course: a 30-hour continuing education course in health promotion and disease prevention which is a program of instruction for registered nurses on three separate occasions at Texas Woman's University during 1987 (Health Promotion and Disease Prevention, [1988]).

2. Practiced health behaviors: actions taken by a person to maintain, attain, or regain good health and prevent illness (Mosby's Medical and Nursing Dictionary, 1986). For the purposes of this study, health behaviors were the frequency of practiced health behaviors as measured by the Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986).
3. Registered nurse: a graduate nurse who has passed a state board examination and has been registered and licensed to practice nursing (Random House, 1966). Operationally defined, a registered nurse is a female who identified herself as a registered nurse and applied for admission into and completed the health promotion/disease prevention course at Texas Woman's University during 1987.
4. Teaching of health promotion/disease prevention: to provide another with the knowledge and skills to decrease or defer morbidity and prevent premature mortality (DHEW, 1979). Teaching of health promotion/disease prevention was operationalized as the frequency of teaching a behavior measured by the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986).

Limitations

The limitations of this research investigation included:

1. A convenience sample of employed, registered nurses who elected to participate in a course in health promotion and disease prevention was used. Since this was a convenience, self-selected sample, pretest findings might have been higher for this group than for the population. The primary difficulty with the use of convenience samples is that this technique does not allow generalizability to the population (Polit & Hungler, 1983).
2. Participants were asked to identify a nurse peer in the same work setting as a control subject for the pretests and posttests. This action provided control subjects of similar age and work experience for the study. The identification process might have prompted control subjects to seek course information from their experimental peer. That activity would be reflected in higher-than-anticipated posttest scores for the control.

Summary

Health promotion and disease prevention education needs to reach the general population and be assimilated into personal lifestyle behaviors before the health objectives

for the year 2000 (DHHS, 1989b) will be a reality. There is a need for training of registered nurses in health promotion and disease prevention skills that will facilitate client education. To this end, in 1986, the Department of Health and Human Services, Division of Nursing, awarded a 24-month contract to Texas Woman's University College of Nursing to develop and implement a continuing education program in health promotion and disease prevention for registered nurses.

Health behaviors of registered nurses who participated in the course were examined. The purpose was to evaluate the personal health promotion and disease prevention behaviors of the participants and to determine the extent of their nursing practice devoted to health promotion and disease prevention concepts. The Gregory Health Behavior Model (GHBM), based on von Bertalanffy's (1968) general systems theory and concepts delineated in today's major nursing models (Becker et al., 1974; Becker et al., 1977; Neuman, 1980; Pender, 1987), served as the conceptual framework for this study.

CHAPTER 2

REVIEW OF LITERATURE

Related literature was reviewed and categorized into four parts. The history of health promotion is followed by a discussion of specific health behaviors measured in this study and the role of nurses in health promotion. Finally, a nursing curriculum for health promotion is discussed.

History of Health Promotion

Anderson (1987) called the current health of Americans "suboptimal." In 1973, a task force was convened to analyze preventive medicine. The group concurred on the relationship of lifestyle to health and made recommendations to the government for practices and programs to enhance health. The outcome, Healthy People (U.S. Department of Health, Education and Welfare [DHEW], 1979), described past and current causes of premature death in the population and outlined five major goals for reducing premature mortality and morbidity in five age groups. Premature death was defined as dying before the age of 65 (DHHS, 1989a).

People are living longer now than in the early 1900s when communicable diseases were the leading cause of premature death. Degenerative diseases replaced infectious

diseases as leading causes of death as early as 1940 (Anderson, 1987). However, now personal behaviors contribute significantly to early morbidity and mortality (DHEW, 1979; U.S. Department of Health and Human Services [DHHS], 1980, 1989a). Michaels (1983) reported a trend in the literature during the 1970s concurring that responsibility for personal health was more important than curative medicine. A review of the 1986 morbidity records showed that 12.1 million years of potential life were lost due to premature deaths (DHHS, 1989a). Most of these deaths were due to lifestyle practices.

In 1980, the Public Health Services (PHS) published Promoting Health/Preventing Disease: Objectives for the Nation, a list of 226 measurable health promotion and disease prevention objectives for the nation (DHHS, 1980). The Midcourse Review (DHHS, 1986) reported the progress on the 226 national health objectives. As of 1985, 13% had been achieved, 34.5% were on track, 26.5% were unlikely to be achieved, and there were no data to measure the progress for the remaining 26% (DHHS, 1986).

The population is living longer as a whole, but premature deaths continue to occur with 7 of the 10 leading causes of death being lifestyle related (DHHS, 1988). The focus of health care has been shifting to the need to

prevent, rather than to cure, these diseases and to increase awareness of preventable injuries (DHEW, 1979; DHHS, 1989b). The major causes of premature death are heart and blood vessel disorders, cancer, and injuries (DHHS, 1989a). Preventing these causes of premature death requires education of the public to adopt lifestyle practices that promote health and reduce the risk of chronic disease and disability. Matarazzo (1984) called these major causes of death "behavioral pathogens," since the etiological factors are personal habits and lifestyle behaviors, not external pathogens.

When ill, individuals utilize the services of health care workers. Physicians and other health care workers are respected sources of prevention information as well as curative medicine (DHHS, 1989b). Consumers are used to seeking help when ill, and they need to be encouraged to seek health promoting help (Hill & Smith, 1985).

The major health care focuses in the United States are maintaining or improving the public health through prevention measures and increasing the self-responsibility of individuals for personal health (American Nurses' Association [ANA], 1980). The American public has not fully accepted responsibility for its own health behaviors (DHEW, 1979; DHHS, 1980, 1985, 1989b). Yet, some progress is

noted. There is increased consumer interest in personal behaviors that maintain and promote health (Anderson & McFarlane, 1988; Green, Wilson, & LoVato, 1986). Since self-care is the dominant health care mode in American society (Pender, 1987), consumers need the tools for health promotion and disease prevention to maintain or improve health.

Health care is a euphemism in medical practice that only concerns itself with care of the sick (Anderson, 1987). The Gross National Product (GNP) for health care in 1986 was 10.9% (DHHS, 1989a); as the decade closes, it has climbed to nearly 12% (Thompson, 1989). There is increased emphasis on high technology to cure conditions associated with lifestyle, such as, in many cases, treatment of preventable diseases. Published advances in science and technology encourage thinking that health, like a material possession, is purchasable. The expense of health care is a societal burden, rather than an individual expense (Matarazzo, 1984). Individuals with more debilitating or chronic illnesses may rely on public support and cease to be a productive member of society. The personal expense to a chronically ill individual includes a restrictive lifestyle. Prevention of morbidity/mortality, not treatment of illness, is the most cost effective strategy to be employed (Anderson, 1987; Matarazzo, 1984).

In the history of medicine, prevention of illness has always been more effective than treatment (Matarazzo, 1984). It is difficult to measure the value of health promotion teaching or risk reduction programs (Iverson & Mullen, 1983; Ray & Flynn, 1982). Studies would have to be longitudinal to measure change. Since most health education-risk reduction programs are short in length, it is difficult to measure meaningful change in health status, so changes in behavior are reported (Iverson & Mullen, 1983). Since the effects of health promotion behaviors are not immediate or measurable, these practices do not receive the attention they deserve (Matarazzo, 1984). While little research has been done on the effects of and compliance with modifying behavioral risk factors, that compliance remains the goal of health promotion and disease prevention programs (Rosenstock, 1988).

Sheppard (1989) reported on several longitudinal studies of lifestyle change following increases in physical exercise. Positive behavior change correlations are weak with the exception of positive dietary changes following an exercise program (Sheppard, 1989). One longitudinal study of a tobacco and alcohol avoidance program for sixth and seventh graders, reported by Hansen, Malotte, and Fielding (1988), showed that 4 years later there was a decrease in

the prevalence of expected tobacco use, but not in alcohol use. In another study, Rakowski (1987) examined the persistence of personal health practices over a 1-year period and concluded that there was a strong tendency to persist in behaviors from "force of habit." According to Kronenfeld et al. (1987), employees in North Carolina participated in a 1-year longitudinal study for before-after comparison of smoking, exercise, nutrition, stress, and alcohol use variables. The experimental group reported a decrease in alcohol and tobacco use and a significant increase in exercise.

Lifestyle behaviors cumulatively affect personal health and may contribute to premature death if the behaviors have a negative effect on the body. Health care professionals have measured and reported positive health behaviors in numerous studies. Although the American public has become more aware of their role in personal health behaviors, generating sustained action toward positive health promotion must still be achieved.

Health Behaviors

Individual health behaviors influence the achievement of health promotion and disease prevention. Behavior is the result of habit and custom, not an evaluation of processes and outcomes (Ostwald & Kunston, 1989). Change does not come merely from learning factual information, but from

social groups as well (Ostwald & Kunston, 1989). Health behavior was defined by Kasl and Cobb (1966) as "An activity undertaken by a person believing himself to be healthy for the purpose of preventing disease and detecting it in an asymptomatic state" (p. 246). The term lifestyle is used to describe any long-term patterns of behavior (Matarazzo, 1984). This term includes personally alterable factors, personal decisions and habits that create or decrease risk of disease. Positive health behaviors in an adult are a complex measure of lifestyle behaviors that are very individual. The behaviors reflect perception of potential problems and active coping (Becker, 1974; Matarazzo, 1984; Pender, 1987).

The terms health promotion, health protection, and disease prevention are used to cover the global concepts that are health behaviors (DHHS, 1980, 1986, 1989a). Pender (1987) included health protection in prevention. There are specific differences in terms that all contribute to the concept of health behavior.

Health promotion is health care directed toward processes that encourage maintaining or altering personal habits (Grasser & Craft, 1984). This term includes activities to increase a level of well-being and actualizing the health potential of individuals and society (Pender,

1987). Pender addressed the proliferation of terms describing health promotion that indicate the increasing interest in health promotion: risk-avoidance, risk-reduction, health-protecting, health-promoting, and wellness behavior. Michaels (1983) used health promotion and health education interchangeably, since education programs promote health. The World Health Organization (WHO)(1988) described health education as the part of health care concerned with promoting healthy behaviors. WHO stated that people cannot be forced to change lifestyle behaviors, so health education provides a method for helping individuals understand behaviors and choose actions to improve or maintain health. Health education serves as a guide to improve the functional level of an individual, rather than as a treatment for a specific health problem. An increase in physical activity is often cited as a health promoting activity.

Health protection generally refers to positive environmental actions (DHHS, 1989b). Environmental health is filled with achievements in disease prevention. For example, lead emissions, which are toxic to humans, decreased almost 60% between 1985 and 1986 (DHHS, 1989a). That is attributed mostly to the decrease in lead in gasoline.

Disease prevention includes specific measures to decrease morbidity and mortality of particular agents. While it overlaps with health promotion, prevention protects health (Pattishall, 1987). Pender (1987) called disease prevention avoidance behaviors. She separated prevention into three areas: primary, decreasing probability toward specific illnesses; secondary, early diagnosis and intervention; and tertiary, stabilizing an individual within the constraints of a disability (Pender, 1987). Disease prevention includes increasing awareness of lifestyle factors that contribute to death and illness. For example, the three major modifiable risk factors for cardiovascular disease are high blood pressure, elevated cholesterol, and smoking (DHHS, 1989b). Also, oral disease is one of the more prevalent health problems in the United States. Education of health care professionals and the public are needed to decrease the incidence of periodontal disease in the adult population (DHHS, 1989b).

Health promotion activities and information developed for the adult learner are necessary to encourage permanent changes in personal health behaviors. The WHO (1988) campaign, Health for All, encourages health care providers to understand behavioral "whys" in order to select the best educational method for the problem at hand. WHO outlined

four primary reasons for behavior: thoughts and feelings, respect for the information giver, available resources, and cultural influences. Health care professionals should initiate conversations on health promotion and disease prevention with clients (Clark & Sandler, 1989; Pender, 1987). Registered nurses, the largest group of health care providers, are regarded as role models in health matters for clients and the community (Chapman, 1983; Holcomb et al., 1985; Pender, 1987). Registered nurses are accessible to many individuals at occupational, school, and public health settings, and with training in health promotion, they will be excellent resources for clients.

Health Behaviors and Health Promotion

The lifestyle behaviors frequently cited as contributors toward health promotion and disease prevention include (1) tobacco avoidance, (2) moderation with or avoidance of alcohol and caffeine, (3) diet and weight control, (4) physical exercise, (5) diagnostic tests for early detection of certain disorders or diseases, and (6) the use of seat belts (DHEW, 1979; Iverson & Mullen, 1983; Pender, 1987; Sobal, Valente, Muncie, Levine, & DeForge, 1985; DHHS, 1989b). An overall goal for the American people is to maintain desirable weight; avoid too much fat, sugar and sodium; eat a variety of foods, particularly starch and

fiber; and moderately, if at all, consume alcohol (DHHS, 1989b).

It is difficult to measure the benefits of healthful behaviors, except to look at mortality/morbidity projections and measure any decrease (Matarazzo, 1984). Several areas in preventive health care have been measured, for example, breast examinations, blood pressure screenings, and Pap tests. There have been small increases in client use of these tests from 1973 to 1985. For example, breast exams increased from 66% to 70%, blood pressure readings increased from 76% to 79%, and Pap tests increased from 64% to 65% (Makuc, Freid, & Kleinman, 1989).

There is an indication of a decrease in the consumption of tobacco with the decrease in sales of these products. The American Cancer Society (1989) reported that the per capita consumption of cigarettes decreased from 4,141 in 1974 to 3,121 in 1988.

In reviewing the literature, a particular focus was placed upon the specific behaviors measured in the current study. These behaviors include (1) tobacco, alcohol, and seat belt usage, (2) diet, (3) exercise, (4) frequency of blood pressure check, breast self-examination, and Pap test. Because only females were studied, data from the literature that is specific to females is reported when available.

Tobacco Use

Warner (1989b) noted that the year 1988 marked the 75th anniversaries of the American Cancer Society (ACS) and Camel cigarettes ("75 years and still smokin'"). It was also the 25th anniversary of the Smoking and Health Report of the Advisory Committee to the Surgeon General of the United States released in 1964. Cigarette smoking has been called the primary contributor to premature death in the United States since it is a major risk factor in heart disease, cancer, and chronic obstructive pulmonary disease (COPD)(National Center, 1989). Of lung cancer deaths, 85% in men and 75% in women are attributed to smoking (ACS, 1989); 40% of male and 28% of female smokers die prematurely. There are still more than 50 million Americans using tobacco products, but the numbers would have been higher without antismoking campaigns (Warner, 1989a). Warner (1989a) calculated that about 12% more tobacco-related fatalities would have occurred without an anti-smoking campaign. In 1965, 34% of women smoked cigarettes; that figure was 27% in 1987. Similarly, 52% of men smoked in 1965, compared to 31.5% in 1987 (DHHS, 1989a).

Most of the 50 million Americans who still smoke report attempts to stop smoking, increased daily consumption of cigarettes, and starting at earlier ages than previous

studies indicated (DHHS, 1989a; Warner, 1989b). The low tar and nicotine products have encouraged smokers to smoke more, inhale more deeply, and take more puffs per cigarette (Warner, 1989a). The uninterrupted escalation of lung cancer deaths over the last 50 years has abated (Warner, 1989b; DHHS, 1989b). A decline in tobacco-related deaths will continue in the near future for men (ACS, 1989). However, the number of women dying from the effects of cigarette smoking has increased until it has become the leading cause of cancer death in women aged 55-74 (ACS, 1989). That trend will continue with the population of women who began smoking after World War II.

Cinelli and Glover (1988) reported that almost 25% of nurses in their study smoked cigarettes. Wagner (1985) found that 28% of nurses in western New York smoked. These findings are consistent with other reports that 27% of females smoke cigarettes (DHHS, 1988). The 1990 health objective (DHHS, 1980) on tobacco use stated that 25% of the population will use tobacco products and only 15% by the year 2000 (DHHS, 1989b). Scherer (1989) reported on a survey of smoking habits of North Carolina nurses that was done in 1981 and repeated in 1987. Findings indicated that the 32% of nurses smoking in 1981 dropped to 19% in 1987. More than 90% of the nurses currently smoking in this study

had tried to quit with more than half having tried to quit three or more times. The primary reason for attempting smoking cessation was concern about the adverse effects of tobacco (Scherer, 1989). The repeated attempts to stop smoking underscore the addictive quality of tobacco.

Alcohol Use

Almost 70% of Americans consume alcohol (DHHS, 1989b). Individuals who consume 1 ounce of pure alcohol or ethanol a day, for example, 24 oz beer, 8 oz wine, or 2 oz of whiskey, are considered to be heavy drinkers (DHHS, 1989). Moderate to heavy alcohol consumption is continuing at a steady rate, and the toll on society, the body, and the American economy is staggering (DHHS, 1989b). In 1985, 9% of people age 21 or older consumed more than two drinks a day (DHHS, 1989b). The health objective for the year 2000 is to reduce that number to less than 5%. Alcohol is considered to be the causative factor in half the suicides, homicides and traffic fatalities, causes cirrhosis with long-term abuse, and fetal alcohol syndrome (DHHS, 1989b).

The number of women who do not use alcohol has remained steady over the years. While 42% of women abstained from alcohol and 40% were light consumers in 1971, about 45% abstained and 37% were light consumers in 1985 (DHHS, 1989a).

Seat Belts

Passenger cars are equipped with seat belts, but the estimated use rate by occupants was 42% in 1988 (DHHS, 1989b). There are staggering, preventable human and societal costs as a result of non-use of seat belts (Matarazzo, 1984). Seat belts could cut automobile fatalities by 50% and injuries by 33% if worn, since most fatalities occur when an occupant is thrown from a car (Anderson, 1987). In 1988, 4,000 lives were spared after auto accidents with seat belt use, but more importantly, 3,100 survivors lived in states with seat belt use laws; 33 states currently have mandatory belt use laws (DHHS, 1989b). Since 1988, the federal government requires mandatory seat belt usage laws as a prerequisite for financial assistance with road construction (DHHS, 1989b). In addition to more states adding physical restraint use laws, consumer education is a must to prevent unintentional injuries in motor vehicles (DHHS, 1989b). A health objective for the year 2000 states that at least 85% of vehicle occupants will have a protection device, such as automatic belts, air bags, or child safety seats.

Diet

Nutrition has a major role in health promotion and disease prevention. Dietary factors are associated with

5 of the 10 leading causes of death in the United States, for example, coronary heart disease, some cancers, stroke, Type II diabetes, and atherosclerosis (DHHS, 1989b). There is a need for the American public to be more aware of the effects of food consumption. There are excesses, imbalances, and undernutrition in individual diets, and 25% of the population is overweight. During the 1976-1980 time span, 27.1% of women were overweight (DHHS, 1989b). The health objective for the year 2000 is to reduce that figure to 20% of all women.

Americans currently consume 36% of total daily calories in fat, with 13% of that amount being saturated fats, so a health objective for the year 2000 aims to reduce dietary fat intake to no more than 30% of daily calories including 10% saturated fat (DHHS, 1989b). High intake of saturated fatty acids increases levels of total and low-density lipoprotein (LDL) cholesterol, a primary factor in heart disease (DHHS, 1989b).

Current evidence recommends the increased consumption of whole grain foods, vegetables, and fruit as a cancer preventative (ACS, 1989; DHHS, 1989b). Dietary fiber has a physiologic effect on the large intestine by increasing saliva flow and stool passage through the bowel, improving satiety, and delaying digestion and absorption (DHHS, 1989b).

There is a strong correlation between hypertension and excess body weight (DHHS, 1984). Weight reduction often decreases blood pressure (DHHS, 1984). Obese persons (more than 115% of body weight) should also restrict salt (DHHS, 1984, 1989b).

Blood Pressure

Hypertension (high blood pressure) is one of the three major modifiable risk factors for coronary heart disease and the primary risk factor in cerebral vascular accidents (DHHS, 1988). The other risk factors for coronary heart disease are high lipid cholesterol levels and cigarette smoking. Awareness, treatment, and control of hypertension have increased since the National High Blood Pressure Education Program began in 1972 (DHHS, 1986). The DHHS reported in 1989 that of the adult population, almost 30% has high blood pressure and/or taking antihypertensive medications. High blood pressure was defined a blood pressure \geq to 140/90 mmHg. The incidence of hypertension increases with age, and most people are aware of the diagnosis, but only 34% have controlled high blood pressure (DHHS, 1986, 1989b). Further control of high blood pressure in individuals is needed despite the high level of awareness (DHHS, 1989b). One health objective for the year 2000 is for

90% of adults to have a blood pressure screening within the last 2 years and to know if it is normal or elevated.

The 1990 health objective on hypertension sets long-term (2-year) control at 60% compliance, while the same objective for the year 2000 is at 50% (DHHS, 1989b). It is important to note that the definition of high blood pressure in 1980 was 160/90, but in 1989, it was 140/90. Thus, that 50% objective, while lower, will still yield a greater number of individuals with controlled hypertension (DHHS, 1989b).

Physical Activity

On average, physically active people outlive inactive individuals, since physically inactive people are almost twice as likely to develop coronary heart disease (DHHS, 1989b). Lack of exercise closely follows smoking, high blood pressure, and elevated cholesterol as a risk factor contributing to coronary artery disease (DHHS, 1989b).

There is increasing evidence that moderate physical activity has significant health benefits, including the decrease of the risk of coronary heart disease (DHHS, 1989b). In fact, small increases in activity level add tremendously to overall wellness for the least physically active, which is important since inactivity increases with age (DHHS, 1989b). Physical activity involves work or recreational

activities where skeletal muscles use energy. Moderate physical activity is defined as exercise three or more times per week for 20 minutes, but not at 60% of cardiorespiratory levels (DHHS, 1989b). Of Americans, 43% were moderately active in 1985, and the goal for the year 2000 is 50% (DHHS, 1989b).

Emphasis on the health enhancement component of exercise encourages more individuals to participate and adopt other healthful behaviors (Sheppard, 1989). Sheppard suggested that physical activity might be a primary agent in several risk reduction behaviors, since as an individual becomes more physically active, diet and alcohol consumption are modified and cigarette smoking may stop.

Breast Self-Examination

The American Cancer Society (1989) reported 40,300 deaths from breast cancer in 1988. It is one of the two leading causes of cancer death in women. One in 10 women will be diagnosed with breast cancer (ACS, 1989). Breast cancer is not a preventable disease, so early diagnosis is the only method available for a potential cure. Early detection of breast cancer increases survival chances. When there is lymph node involvement, 75% of white and 62% of black females survive 5 years or more (Makuc et al., 1989). The survival rate for breast cancer without lymph node

involvement is quite high (92%), yet few women (29%) practice breast self-examination (BSE) monthly (ACS, 1989).

Virtually all women (96%) are aware of the concept of breast self-examination (National Cancer Institute [NCI], 1988). The American Cancer Society (1989) recommended BSE for every woman 20 years of age and older. BSE is convenient, easy to learn, and free (Crooks & Jones, 1989).

The American Cancer Society (1989) also recommended a breast exam by a health care professional every 3 years for women in the 20 to 40 year age group and annually for women over 40 years. There has been an increase in breast examinations within the last 2 years. In 1973, 65.5% of women reported having a breast exam, and in 1985, 69.6% reported having had one (Makuc et al., 1989). Only 5% of women have never had a breast exam, and these women tend to be the elderly poor (Makuc et al., 1989).

A third component of breast examination is mammography, low dose radiation of the breasts that identifies very small masses (ACS, 1989). However, despite evidence that breast cancer screening reduces mortality, recent data indicates that only 36% of women age 40 and older have ever had a clinical breast exam and mammography (DHHS, 1989b).

While 82% of registered nurses stated they practice BSE, only 41% do so monthly and 30% every 3 months (Clark &

Sandler, 1989). Age apparently affects BSE practices, as all respondents over 40 practiced BSE (Clark & Sandler, 1989).

Papanicolaou Test

Cervical cancer was the primary cancer killer in women prior to Dr. Papanicolau's cytology examination (Pap test) of cervical cells (ACS, 1989). In 1985 there were 4,508 deaths from the disease (DHHS, 1989b). Between 1973 and 1985 there has been a 35% decrease in the incidence of invasive cervical cancer, and the death rate from cervical cancer has decreased by 38% (NCI, 1988). In 1988, cancer of the uterine cervix was diagnosed in 12,800 women (ACS, 1989). The National Center for Health Statistics' (DHHS, 1988) 1986 survey of 40,000 households reported that 65% of adult women had a recent (within 2 years) Pap test. That does not show a change from the 1973 survey of 64% (Makuc et al., 1989). This is attributed to older women who do not have pelvic examinations as frequently as younger women. A health objective for the year 2000 proposes that 75% of women age 20 years and older will have had a Pap smear in the previous year (DHHS, 1989b).

There has been controversy over the age to begin and the frequency of the Pap test for women. Prior to 1980, the American Cancer Society recommended an annual screening

for all women over the age of 18. Currently, the recommendation is that women who are sexually active or have reached age 18 should have annual exams, but after three or more negative exams, the Pap test may be performed less frequently at the discretion of the physician (ACS, 1989).

Role of the Community Health Nurse

Nursing is designed "to put the constitution in such a state that it will have no disease, or that it can recover from disease" (Nightingale, 1860/1969, p. 3). Public health nursing began in the early 1900s as nurses traveled to patients with infectious diseases and taught hygiene to prevent its spread (Buhler-Wilkerson, 1985; Melosh, 1982). The National Organization of Public Health Nurses began in 1912 to provide information and a medium for group planning and action (Tucker & Hilbert, 1934). According to Tucker and Hilbert, public health nurses were employed by public health nursing associations, departments of health, boards of education, and industry. Melosh (1982) pointed out that public health nurses solicited "positive health" from clients and taught preventive medicine education as part of their duties. Public health nurses set themselves apart from other nurses and the control of medical colleagues as they expanded their scope of practice and responsibility, particularly in health education and disease prevention

(Melosh, 1982). Instead of limiting activities to the traditional nursing role of care to the ill, the public health nurse claimed expertise as teachers for clients in health promotion and disease prevention (Buhler-Wilkerson, 1985; Melosh, 1982). By 1920, the public health nurse enjoyed considerable "freedom" in a health promotion role for clients in the areas of maternal/child care, diet, hypertension monitoring, and so forth (Melosh, 1982). Public health/community nurses have increased their role in society by coordinating services for clients, being advocates, and providing health education (Anderson & McFarlane, 1988).

There is a public perception that registered nurses have expertise in health/illness matters (Clark & Sandler, 1989; Keiley, 1989). Registered nurses, the largest group of health care providers, have a unique opportunity to educate clients in a variety of settings. Because of generalized knowledge of health and illness and direct contact with clients, nurses do more health education than any other group of health professionals (Health Promotion, 1977). Community health nursing practice is changing in response to community needs (Anderson & McFarlane, 1988). Nurses in the community setting, public health, occupational, and school sites are available for health education

with their clients who need to maintain or improve health. Access to well clients creates the opportunity to apply primary preventive measures (Jacobson & Richard, 1982).

The National Commission on Nursing (1981) stated that nursing involves care of clients on a continuum from illness to wellness. The capacity of the registered nurse to provide primary care is being recognized. Further education and practice models are necessary (National Commission, 1981). However, nursing practice is so complex and educational preparation so diverse that a national norm would be difficult. Cooperative programming for continuing education between rural hospital nurses and medical centers would benefit practitioners in both settings (National Commission, 1981). Nurses in rural settings would learn new technology and medical center nurses would observe continuity of care.

The goals of health promotion are to raise or maintain a level of wellness for an individual or a community. The major role of the community health nurse is primary prevention and promotion of healthful living (Anderson & McFarlane, 1988; Pender, 1987). The principal method is education, and it is important not to specifically concentrate on "cure" (Larry, 1985). Occupational health nurses practice health protection, particularly occupational

safety, alcohol use education, and stress management. School nurses have a major role in communicable disease prevention and student education in health promotion and disease prevention (Lindeman, 1984). Public health nurses manage prenatal, well-baby, and hypertensive clinics to serve client needs.

Unfortunately, while nurses have this unique opportunity for health promotion and disease prevention education as members of society and as professional nurses, too few participate (Chapman, 1983). Larry (1985) studied community health nurses (CHNs) to determine the most crucial health promotion needs of clients. The greatest concerns and needs for clients from the CHN point of view were high risk parenting, communicable diseases, and prevention education. All three are health promotion and disease prevention concepts for client wellness. Clients, however, ranked prevention seventh (Larry, 1985), which leads to the question of whether clients understand the concept of health promotion and disease prevention. It is imperative to assess client needs and knowledge and to determine client goals if health promoting activities are to become an integral part of personal lifestyle (Pender, 1987). Besides communicating clearly and cooperatively with clients, the registered nurse must model health behaviors.

Modeling is the concept of learning through imitation and is a tool in the learning process common to all cultures (Hill & Smith, 1985). The person who models demonstrates new ideas, skills, and/or behaviors. Bandura (1977) stated that behavior patterns are learned through social model influence and praise or reward for a behavior. Client compliance with a healthful behavior is based on personal beliefs, self-efficacy, and modeling of the health care provider (Rosenstock, 1988). The goal of modeling health care is permanent positive lifestyle change in the client (Hill & Smith, 1985).

A Curriculum for Nurses on Health Promotion and Disease Prevention

All professions are dynamic and must meet new needs and demands (Hill & Smith, 1985). As a consequence of nursing and health care research, nurses are expanding their external boundary in response to changing needs (ANA, 1980). Individual nurses are limited in growth by the scope of their education, knowledge, competence, and interest. The shared mission of nursing and other health care providers is to promote health (ANA, 1980). Further education is needed for nurses to meet that need.

Health education is a primary nursing intervention. Lindeman (1984) defined health education as planned

educational experiences for a client to facilitate voluntary behavioral change for increased wellness. Undergraduate nursing programs often include formal preparation in health education through specific courses or spread across the curriculum (Lindeman, 1984). For example, Clark and Sandler (1989) recommended that schools of nursing educate students on breast self-examination (BSE) teaching techniques and provide opportunities for registered nurses to maintain that skill.

The National Commission on Nursing (1981) addressed patient/client teaching as a need in nursing education. Nurses need a specific knowledge base to effectively function in the health planning process. Education in health promotion and disease prevention is essential before registered nurses will be able to effectively enhance client health. Changes will need to be made in nursing curricula to include primary health and preparation in community health services administration (Roberts & Heinrich, 1985).

Individuals enter nursing education with a wish to help people, yet care only for those that are ill. Student nurses continue to receive clinical education in illness-oriented settings. Students must learn how to prevent the negative outcomes they see, rather than secondary prevention skills (Lindeman, 1984). Further training of graduate

nurses "specializes" them to focus on an ailment or disease process, not the whole person. Many nurses might neglect health promotion and disease prevention activities with clients due to organizational constraints and lack of training (Chapman, 1983). Some schools of nursing emphasize holistic client care, but that may not be valued in the work setting where skills, asepsis, and dexterity are viewed as important (Keiley, 1989).

Several investigators stressed the importance of continuing education for registered nurses for health promotion with clients. Clark and Sandler (1989) recommended that registered nurses be trained on breast self-examination technique for education with their female clients. They reported that Canadian general duty nurses were more likely to initiate conversation about the importance of breast self-examination if the discussion began on admission. Kenney, Hovell, Newborn, Dockter, and Chinn (1988) suggested that registered nurses teach clients to practice breast self-examination weekly to increase compliance for the monthly recommended schedule.

Training registered nurses in skills that encourage behavior awareness and change is essential to successful health promotion. Gilpatrick (1989) described behavior modification techniques for nurse to use with clients, such

as reminding, tailoring, contracting, shaping, self-monitoring, and reinforcing. The variety of techniques allows for individualization of behavior change and allows the client to be an active participant in health promotion planning. Pender (1987) suggested many of these techniques and encouraged incorporation of these skills in nursing practice. Motivating clients in health promotion and disease prevention continues to be a challenge for nurses. It is important for the nurse to provide maintenance strategies to a client with newly acquired health behaviors, for example, social support (Gilpatrick, 1989).

The Institute of Medicine's (1983) recommendation for nursing and nursing education included nursing research. Ongoing evaluation of community nursing practices will identify the educational needs for nursing practice and highlight exemplary programs for replication. Colleges and universities were urged to take a lead in designing outreach programs for nurses in practice because of their many resources (National Commission, 1981).

Health Promotion and Disease Prevention: A Continuing Education Program for Registered Nurses (HP/DP, [1988]), developed and taught at Texas Woman's University, is an example of continuing education that adds to nursing knowledge and provides participants with skills in health

promotion. The Division of Nursing, Health Resources and Service Administration, Department of Health and Human Services awarded a contract to Texas Woman's University for development of a continuing education curriculum for registered nurses. The curriculum was developed and piloted to 159 registered nurses in 1987; 111 registered nurses completed the program. It is the first to fill the void in continuing education training in health promotion and disease prevention cited by the Institute of Medicine's (1983) recommendation for nursing and nursing education.

The curriculum presents participants with skills from public health sciences, nursing practice, and theories of learning and behavior change to promote health in four major environments: community, school, workplace, and the home (HP/DP, [1988]). The 30 classroom hours of instruction were put to use in 60-90 clinical hours for content application at the nurses' worksite. The curriculum consists of 15 modules (HP/DP, [1988]) with didactic and clinical objectives and learning methods and an evaluation component. The curriculum is designed to provide skills in health promotion and disease prevention for the registered nurses to use with clients. The current study was designed to evaluate the health behaviors of the course participants.

Summary

Prevention of illness has always been more effective than treatment. The focus of health care is shifting to the need to prevent, rather than cure the consequences of lifestyle behaviors. Consumers accustomed to seeking help when ill need to be educated to seek health maintenance and promotion help. The WHO (1988) encourages health care providers to understand behavioral "whys" in order to select the best educational method for the client and the issue. These professionals need to be educated in the skills of health promotion and disease prevention.

Behavior is the result of habit and custom from societal groups. The concept of health behavior includes health promotion, health protection, and disease prevention. Health promotion encourages and maintains positive health behaviors. Health protection involves environmental issues that affect health. Disease prevention includes avoidance measures to decrease or prevent morbidity and mortality to specific agents. Health care professionals, educated on illness models, need to increase knowledge and skills in health promotion and disease prevention for their clients. Registered nurses, the largest group of health care providers, are accessible to large numbers of individuals outside illness settings and are regarded as role models in

health matters in the community. The purpose of the current study was to measure the effectiveness of a designed curriculum in health promotion and disease prevention toward the health behavior of registered nurses.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

A two-group, before-after, quasi-experimental research design was used in this study. A curriculum to teach health promoting and disease preventing skills to registered nurses was developed by the Division of Nursing, United States Department of Health and Human Services (Health Promotion, [1988]); no curriculum had been available prior to the development of the course described in this study. The purpose of this research was to study the effects of the course in health promotion and disease prevention for registered nurses on their personal health behaviors and nursing practice.

The design included two groups, an experimental group of female registered nurses who attended the Health Promotion and Disease Prevention Course at Texas Woman's University (TWU) and a control group of female registered nurses who did not attend the course. Ability to collect pretest information on the control group strengthened the study because beginning similarities can be observed and posttest differences in the experimental group may then be attributed to intervention (Abdellah & Levine, 1979).

Quasi-experimental designs have either a control group or randomization (Polit & Hungler, 1983). Because a control subject was identified by each participant at the time of enrollment in the course, no random assignment was possible; therefore the design for this study was quasi-experimental. The basic weakness of a quasi-experimental design is the inability to infer causal relationships (Polit & Hungler, 1983). In addition, generalizing to all registered nurses would not be appropriate (Polit & Hungler, 1983).

The independent variable in this study was the method of instruction: a formal course or no formal course. The dependent variables in this study were the health promoting and disease preventing behaviors of the course participants and the amount of client teaching about health promotion and disease prevention done by participants in their nursing practice.

While enrolled in the course, participants identified a control subject to allow systematic comparison of the extraneous variables. Each participant was asked to identify a colleague at the work setting who was similar to the participant in role, job responsibilities, educational preparation, and years of experience. The colleague could not be enrolled in the course. Prior knowledge and experience in health promotion and disease prevention were

regulated by comparisons of the control group pretests with those of the experimental group. Because the participants identified control subjects, they were asked not to share course work with control subjects.

Setting

The research was conducted at Texas Woman's University (TWU), Houston Center. It is a large university located in the Texas Medical Center, Houston. TWU offers degrees in health care; at the time of the study, it had a Houston Center enrollment of approximately 1,100 students. Houston, the fourth largest city in the United States, has a large population of registered nurses.

The curriculum was presented in a classroom setting at TWU. Presenters were two doctorally prepared faculty with preparation in health promotion and disease prevention.

Population and Sample

The target population was comprised of all registered nurses who met the criteria stipulated for enrollment in the Health Promotion and Disease Prevention Course, offered on three separate occasions from January, 1987, through December, 1987. Criteria for entry into the course included:

1. Licensure as a registered nurse.
2. Employment in a community setting.

3. Written approval of a supervisor for the participant to incorporate skills learned in the course at the worksite.

The sample contained two groups: experimental and control. All of the 159 registered nurses enrolled in the 30-hour course in health promotion and disease prevention were asked to participate in the study. Those participating nurses who completed and returned useable pretests and posttests comprised the experimental group. Additionally, to provide a control group, each participating nurse was instructed to identify a nurse colleague and to request that individual to complete and return the pretest prior to the next class time; the posttest was mailed to the control group subjects after the last class period. Completed pretests and posttests were obtained from 98 experimental group subjects and 32 control group subjects. There were 29 colleague-selected registered nurses who returned usable pre and post questionnaires.

Protection of Human Subjects

Agency approval to collect the data was obtained from Texas Woman's University (Appendix A). This study met the criteria for exemption from full review by Texas Woman's University Human Subjects Review Committee because the data were collected in an educational setting. Informed

consent to participate in this study was in the form of a cover letter which introduced the investigator and explained the purpose of the study (Appendix B). The study also was discussed with course participants by the course instructors.

The cover letter conveyed the following information: The nurses were asked to voluntarily participate in the study. Participants were assigned a four-digit code number to use on the questionnaires for identification and were asked not to use their names. Anonymity was not strictly possible because coding of pretests and posttests was necessary. No individual was identified anywhere in the research report; data were reported in group format. Participants were informed that a potential risk of participation could be anxiety caused by increased awareness of personal health behaviors in health promotion and disease prevention. Subjects were free to withdraw from the investigation at any time.

Control subjects, solicited by participants, received the same letter of explanation and consent. Control subjects were asked to return the questionnaire in a stamped envelope. These subjects were identified by a 4-digit code number only.

A phone number was made available to all subjects with the invitation to call course instructors should questions or concerns arise. The subjects were informed in the cover letter that their completion and return of questionnaires constituted their informed consent to act as subjects in this research study.

Instruments

A curriculum, two instruments, and a demographic data sheet were used for data collection. The Health Promotion and Disease Prevention Curriculum: A Continuing Education Program for Nurses [1988] was used as the teaching treatment. The Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) were used to collect information on the personal health behaviors of participants. The Attitude Toward Health Promotion Instrument also was used to measure extent of health promotion and disease prevention teaching in nursing practice. The demographic data sheet, constructed by the course instructors and the investigator, was used to collect descriptive information on all subjects in this study.

Health Promotion and Disease Prevention Curriculum: A Continuing Education Program for Nurses

The Health Promotion and Disease Prevention Curriculum contains didactic and clinical components. The didactic component of this 30-hour course for increasing knowledge and skills in health promotion and disease prevention for nurses contains 15 modules. These modules encompass philosophy and attitudes toward health promotion and disease prevention; strategies for promoting health and preventing disease in client populations; practice planning, implementing, and evaluating health promotion/disease prevention programs for the worksite; and the application of theories of learning, teaching, motivation, and behavioral change in nursing practice (Health Promotion, [1988]). Besides the 30-hour didactic portion of the course, participants were expected to devote approximately 90 hours of clinical practice at the worksite. Participants had an opportunity to present ideas developed and model programs instituted at the worksite during class time.

Participant evaluation of the course indicated that between 90% and 100% of the participants were satisfied or very satisfied. Outcome evaluation of the course was also measured in participant reports of programs developed at the worksite. As a final evaluation of the curriculum, an

overview of the program was presented to an invited audience of nationally known nurse educators. Input was solicited from this audience before the final draft of the curriculum was sent to the Department of Nursing, Health and Human Services (Health Promotion, [1988]).

The Health Risk Appraisal (HRA)

Personal health behaviors were assessed using the 36-item Health Risk Appraisal (HRA) (Centers for Disease Control, 1981) (Appendix B). The HRA was developed by using the Canadian Health Hazard Appraisal (Beery et al., 1986). The purpose of the HRA was to facilitate the development of successful risk reduction initiatives in the community (Williams, Imrey, & Creswell, 1986). The HRA, in the public domain, has been used extensively throughout the United States (Williams et al., 1986), and it was chosen as one of the behavior instruments for this study.

The 36 items of the HRA were developed on nominal, ordinal, and ratio level scales that included questions on personal health habits, health and disease history, and some demographic data. The HRA requires the respondent to read questions about personal or family health history and personal behaviors that affect health and then to select a number answer to write in the space provided. The purpose of the questions is to determine the actual, appraised, and

achievable ages of the subject as compared with other individuals with the same chronological age. Data were entered onto an IBM mini-computer program for analysis. For the purposes of this study, raw data were selected by the investigator that reflect personal behaviors frequently cited as health or illness promoting (DHEW, 1979; DHHS, 1980, 1986, 1989b; Green et al., 1986).

Each participant completed a HRA form. Responses were processed by a microcomputer program developed by the Centers for Disease Control (1981) and provided to instrument users. Computer analysis was used to compare individual responses with a database of epidemiological and mortality statistics and to generate a printout of disease risk. The HRA printout provides participants with actual and achievable ages based on personal health behaviors, hereditary factors, and averages of other individuals with similar characteristics. The printout also provides a list of health behaviors and areas for improvement necessary to promote healthier lifestyles.

Predictive validity was established on this instrument by comparison with the Framingham Heart Study at $r = .756$ (Golaszewski, Vickery, & Pfeiffer, 1987). Some program users contended that accuracy of prediction was of little importance since the counseling opportunity presumably

induced by the HRA printout for a client was more important (Beery et al., 1986), but Williams et al. (1986) concluded that HRA predictions were more accurate predictors of mortality than estimates based solely on age, race, and sex, but there was substantial variability among instruments.

Reliability established for the HRA has been focused on participant reliability. Investigators have reported unreliability in responses to personal health behaviors in test-retest situations. Additionally, errors in marking the instrument or in transferring the data to microcomputer system affected the risk computation and provided erroneous feedback (Beery et al., 1986). But reliability of outcome statistics per 100,000 individuals for all causes of death has been reported at $r = .99$ (Golaszewski et al., 1987). HRAs have demonstrated consistent group summary statistics over repeated measures.

The questions selected for inclusion in this study were at the ordinal level of measurement; each question received a maximum score of 2. The maximum score possible for the four HRA questions was 8. A higher score indicated more positive health behaviors; for example, the subject did not use mood altering drugs, participated at least three times a week in physical activity, performed breast self-exam monthly, and obtained a Pap test annually. The total score

for the four behaviors of the HRA were added to a score for health behaviors from the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) to determine the maximum score for personal health behaviors.

Attitude Toward Health Promotion Instrument

The Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) was developed to assess the health behaviors of certified nurse midwives ($N = 116$) and their role in health promotion (Appendix B). Permission was obtained from the author to use this instrument (Appendix C). The 25 statements were designed to collect information on personal attitudes toward health, personal health behaviors, and nursing practice in health promotion and disease prevention with a client population.

Reliability has been measured at a Cronbach alpha of .7969 for the entire instrument. An alpha of .8987 was calculated for question 18 and question 19 (Holcomb & Mullen, 1986). Question 18, amount of data gathering for specific behaviors, and question 19, amount of actual time spent teaching about specific behaviors, contained the data for analysis of Hypotheses 2, 3, 4, 6, 7, and 8.

Data from parts of the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) were used to assess

behaviors of subjects and to determine the amount of teaching in nursing practice for selected personal health behaviors. Four questions were used to collect data for health behaviors of subjects. Two questions at the nominal level of measurement were used to collect information on tobacco use (1 = yes and 0 = no) and having a blood pressure check at least every 2 years (1 = yes and 0 = no). Two questions are at the ordinal level of measurement, and they were used to collect information on use of alcohol (0 = more than 4 at a sitting; 1 = 2-4 drinks; or 2 = 0-1 drink) and seat belt use (0 = never; 1 = sometimes; and 2 = always). The questions were structured so a higher score indicated more positive health behaviors than did a lower score. The maximum score for this portion of the analysis was 6. This score, combined with the scores for health behaviors tallied from the Health Risk Appraisal (Centers for Disease Control, 1981), provided the total score for personal health behaviors.

Other parts of the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) used in this study of health promotion and disease prevention behaviors of registered nurses were question 18, amount of information gathering for clients on selected behaviors, and question 19, amount of teaching in nursing practice for the same

selected behaviors. Fourteen health promoting or disease preventing practices were listed on a page. Subjects were asked to select a response from a 3-point scale (2 = routinely, 1 = occasionally, or 0 = rarely) about data gathered and actual teaching to clients about the 14 behaviors. The highest possible score is 28 and the lowest possible score is 0.

Demographic Data Sheet

The demographic data sheet (Appendix B), completed by each course participant, contains questions related to basic nursing preparation, highest degree earned, age, place of employment, and years in present position. The data permitted classification of subjects into categories based on these characteristics (Polit & Hungler, 1983).

Collection of Data

All participants enrolled in the Health Promotion and Disease Prevention Course, offered three times from January, 1987, through December, 1987, were asked to complete the questionnaires prior to the next class session. In addition, each participant was asked to deliver a packet to a colleague to complete and return to the course instructors by mail.

Two questionnaire packets were distributed to each course participant at the first session; one packet was for the experimental group subjects (class participants) and one was for the control group subjects. A cover letter for each participant and control subject contained an explanation of the purpose of the study, outlined the elements of informed consent, and provided instructions for returning materials. The Health Risk Appraisal (Centers for Disease Control, 1981), the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986), and the demographic data sheet were also contained in each questionnaire packet.

Posttest questionnaires were handed to participants prior to the last class. The participants were asked to complete and return these questionnaires during the last class session. Additionally, posttest questionnaires were mailed to control subjects, who were requested to complete and return them by mail in a stamped, preaddressed envelope which was provided.

These questionnaires were examined by the investigator. The data from these questionnaires were prepared by the investigator for data analysis.

Treatment of Data

The sample for this study included all registered nurses enrolled in courses in Health Promotion and Disease

Prevention taught at Texas Woman's University from January, 1987, through December, 1987 who completed and returned usable pre- and posttests. A control group of similarly employed registered nurses was used to measure the relationships of the course on both the behaviors of health promotion and disease prevention and teaching of health promotion/disease prevention to clients for the experimental group. Analysis of the data for this two-group, before-after design was for group differences. Total analysis included a comparison of all participants and control subjects in the three courses in Health Promotion and Disease Prevention. In addition, comparisons of the colleague-selected pairs were done to measure major differences in experimental and control subjects.

The demographic data on age, years as a registered nurse, years in present position, and education were treated as ratio level data. These data were presented by frequencies and percentages and were used to describe the sample.

The first hypothesis formulated for this study was: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than registered nurses who do not attend the course. Health behaviors were measured by the Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward

Health Promotion Instrument (Holcomb & Mullen, 1986). Participants were asked to indicate the amount or type of certain behaviors. A total score was obtained for each subject and comparisons were calculated using group means by two-way analysis of variance (ANOVA) (Roscoe, 1975). The group means for the experimental and control subjects were calculated from data collected prior to and after the course, Health Promotion and Disease Prevention, to determine differences between and within the groups. The behaviors examined per subject were the use of tobacco, alcohol, mood altering drugs, and seat belts; the frequency of blood pressure checks, breast self-examination, and pap tests; and the amount of physical activity (Table 1). Individual scores were tallied and experimental and control group means were compared for equal means before and after the course in health promotion and disease prevention.

The second hypothesis was: Registered nurses will record more gathering of health information in their nursing practice following a health promotion/disease prevention course than registered nurses who do not attend the course. The means of the total scores of the course participants and control subjects were compared prior to and after the course. The extent of gathering of health promotion and

Table 1

Data Analysis of Level of Measurement, Analysis Procedure,
and Rationale for Procedure for Registered Nurses'
Health Behavior Measured by Specific
Questions (Q) (H_1 and H_5)

RN Health Behavior Measured ^a	Level of Measurement of Total Score	Analysis Procedure	Rationale
Total Score	Interval	ANOVA	A two-way analysis of variance (ANOVA) is used where there is a pre/posttest. It is appropriate for human research on learning (Roscoe, 1975).
Tobacco use (ATHP-Q6)			
Seat belt use (ATHP-Q7)			
Blood pressure check (ATHP-Q8)			
Alcohol use (ATHP-Q13)			
Use of mood drugs (HRA-Q7)			
Physical activity (HRA-Q10)			
Pap smear (HRA-Q25)			
Breast self-exam (HRA-Q28)			

^aInstruments used to measure health behavior include: ATHP = Attitudes Toward Health Promotion Instrument (Holcomb & Mullen, 1986) and HRA = Health Risk Appraisal (Centers for Disease Control, 1981).

disease prevention information was measured by the Attitude Toward Health Promotion Instrument. Subjects were asked to score (routinely, occasionally, or rarely) the amount of information gathered for clients about specific behaviors. The specific behaviors include tobacco, alcohol and drug use; diet; seat belt use; physical activity; dental health; and stress factors (Table 2). Each subject received a total score for the amount of information gathered about specific behaviors. Group means for before and after the course in health promotion and disease prevention were compared by two-way ANOVA for differences between and within the groups (Roscoe, 1975).

The third hypothesis was: Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than registered nurses who do not attend the course. The amount of actual teaching about health promotion and disease prevention in nursing practice was measured by the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986). Subjects were asked to score (routinely, occasionally, or rarely) the amount of actual teaching about specific behaviors. The specific behaviors include tobacco, alcohol and drug use; diet; seat belt use; physical activity; dental health; sexually

Table 2

Level of Measurement, Analysis Procedure, and Rationale for Procedure of Extent^a of Registered Nurses' Teaching Health Promotion/Disease Prevention in Their Nursing Practice as Measured by Attitude Toward Health Promotion Instrument, Questions 18 and 19^b, by Client Health Behaviors (H₂, H₃, H₆, H₇)

Client Health Behaviors	Level of Measurement	Analysis Procedure	Rationale
(ATHP-Q18, Q19) ^c			
Blood pressure Smoking Alcohol Intake Weight problems Fat consumption Drug consumption (OTC) Emotional problems Stress level Use of seat belts Physical activity Isolation/loneliness Pre/postnatal care Immunizations Dental health	Interval	ANOVA	A two-way analysis of variance (ANOVA) is used where there is a pre/posttest. It is appropriate for human research on learning (Roscoe, 1975).

^aExtent includes the choices of routinely, occasionally, and rarely.

^bQuestion 18 = information gathered for clients for specific areas; Question 19 = amount of teaching done of same items

^cATHP = Attitudes Toward Health Promotion Instrument (Holcomb & Mullen, 1986)

transmitted diseases; and stress factors (Table 2). Each participant received a total score based on the amount of actual teaching done. The mean scores for the total number of experimental and control subjects of the extent of actual teaching in nursing practice about specific behaviors were compared for differences before and after the course in health promotion and disease prevention. The mean scores were compared by ANOVA for mean differences between and within the groups (Roscoe, 1975).

The fourth hypothesis was: Registered nurses who complete a health promotion/disease prevention course will have a significant correlation between health behaviors and teaching of health promotion/disease prevention in their nursing practice when compared with registered nurses who do not attend the course. The scores of all subjects in the experimental and control groups were compared for each set of variables by chi square for significance. The post questionnaire behavior variables and the correlating teaching questions are shown in Table 3. The behaviors include tobacco, alcohol, and seat belt use; blood pressure check and physical activity questions from the Health Risk Appraisal and the Attitude Toward Health Promotion Instrument. The teaching items include the same variables from the Attitude Toward Health Promotion Instrument. The

behavior and teaching scores for each set of variables for each group were compared by a 2 x 2 cross tabulation table for significant differences.

The fifth hypothesis was: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than their colleague-selected registered nurses who do not attend the course. Participants were asked to identify a colleague to be the control. The fifth hypothesis was formulated to analyze health behaviors of participants with comparison of colleague-selected registered nurses as opposed to the analysis of each total group as in the first hypothesis. Health behaviors were measured by the Health Risk Appraisal and the Attitude Toward Health Promotion Instrument. Participants were asked to indicate the amount or type of certain behaviors. A total score was obtained for each subject and comparisons were calculated using group means by two-way ANOVA (Roscoe, 1975). The group means for the colleague-selected pairs were calculated from data collected prior to and after the course to determine differences between and within the groups. The behaviors examined per subject were tobacco, alcohol, mood altering drugs and seat belts use; the frequency of blood pressure checks, breast self-examination and Pap tests; and the amount of physical

Table 3

Level of Measurement, Analysis Procedure, and Rationale
for Procedure of Registered Nurses' Health Behaviors
and Teaching of Health Promotion/Disease Prevention
in Their Nursing Practice (H_4 and H_8)

Health Behaviors/ Teaching ^a	Level of Measurement	Analysis Procedure
Tobacco use (ATHP-Q6)/ Smoking (ATHP-Q19)	Nominal/Nominal	Chi square
Alcohol (ATHP-Q13)/ Alcohol (ATHP-Q19)		
Use of seat belts (HRA-Q7)/ Seat belt use (ATHP-Q19)		
Blood pressure check (ATHP-Q8)/ Blood pressure (ATHP-Q19)		
Physical activity (HRA-Q10)/ Physical activity (ATHP-Q19)		

^aAcronyms for instruments used to measure health behavior include the following: ATHP = Attitudes Toward Health Promotion Instrument (Holcomb & Mullen, 1986) and HRA = Health Risk Appraisal (Centers for Disease Control, 1981).

activity (Table 1). Individual scores were tallied, and experimental and control group means were compared for equal means before and after the course in health promotion and disease prevention.

The sixth hypothesis was: Registered nurses will record more gathering of health information following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course. H_6 is similar to H_2 except that data from the total number of participants and control subjects were compared in H_2 and only colleague-selected pairs were compared in H_6 . The extent of gathering of health promotion and disease prevention information was measured by the Attitude Toward Health Promotion Instrument. Subjects were asked to score (routinely, occasionally, or rarely) the amount of information gathered for clients about specific behaviors. The specific behaviors include tobacco, alcohol, and drug use; diet; seat belt use; physical activity; dental health; pre/postnatal care; immunizations; and stress factors (Table 2). Each subject received a total score for the amount of information gathered about specific behaviors. Group means before and after the course in health promotion and disease prevention were compared by two-way ANOVA for differences between and within the groups.

The seventh hypothesis was: Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course. H_7 is similar to H_3 except that the scores of the extent of actual teaching about the behaviors for the total number of participants and control subjects were compared in H_3 and only colleague-selected pairs were compared in H_7 . The amount of actual teaching about health promotion and disease prevention in nursing practice was measured by the Attitude Toward Health Promotion Instrument. Subjects were asked to score (routinely, occasionally, or rarely) the amount of actual teaching about specific behaviors. The specific behaviors included tobacco, alcohol, and drug use; diet; seat belt use; physical activity; dental health; pre/postnatal care; immunizations; and stress factors (Table 2). Each participant received a total score based on responses for the amount of actual teaching done. Group means for before and after the course in health promotion and disease prevention were compared by two-way ANOVA for differences between and within the groups.

The eighth hypothesis was: Registered nurses who complete a health promotion/disease prevention course will

have a significant correlation between health behaviors and teaching of health promotion and disease prevention in nursing practice when compared with colleague-selected registered nurses who do not attend the course. H_8 is similar to H_4 except that all subjects in the experimental and control groups were compared in H_4 and only colleague-selected pairs were compared for each set of variables by ANOVA for interaction in H_8 . The behavior variables and the correlating teaching questions are shown in Table 3. The behaviors include tobacco, alcohol, and seat belt use; blood pressure check; and physical activity questions from the Health Risk Appraisal and the Attitude Toward Health Promotion Instrument. The teaching items included the same variables from the Attitude Toward Health Promotion Instrument. The behavior and teaching scores for each set of variables collected after the course were compared in a 2 x 2 cross tabulation table by group.

Collected data were analyzed to determine the correctness of the eight hypotheses. Research findings were used to draw conclusions concerning the changes in health behaviors and teaching of health promotion and disease prevention done by registered nurses who attended a 30-hour course in health promotion and disease prevention.

CHAPTER 4
ANALYSIS OF THE DATA

A two-group, before-after, quasi-experimental research design was used to study the effects of a course in health promotion and disease prevention for registered nurses on their personal health behaviors and teaching practice. Personal health behaviors were identified by using the Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986). In addition, the amount of collection of health related materials and teaching of selected health behaviors was measured by the Attitude Toward Health Promotion Instrument. A Demographic Data Sheet was used to collect information about the composition of the sample. Data analyses are presented in this chapter.

Analysis included demographic information on the groups, correlational studies of health behaviors and teaching practice, and two-way analyses of variance (ANOVAs) of personal health behaviors, collection of health related materials and teaching of selected health behaviors. Data collected to answer the eight hypotheses were analyzed by both descriptive and inferential statistics. Analysis was

done on experimental ($n = 98$) and control ($n = 32$) subjects who completed pre and post course questionnaires. In addition, the same test analysis was completed on 29 course participants and colleague-selected mates. These colleagues were studied to assess differences in data between participants and self-selected peers.

Description of the Sample

Registered nurses employed in community health settings were invited to attend a 30-hour course in health promotion and disease prevention. Each participant was asked to complete two questionnaire packets, one prior to and one after completing a health promotion and disease prevention course. Two complete questionnaire packets per participant were necessary for inclusion in the data analysis. While 111 class participants completed the course, only 98 complete sets of questionnaires were available for analysis. Each participant was asked to identify a registered nurse work colleague to act as a control for the study. In order for these questionnaires to be included in the study, a control subject had to complete the pre and post course questionnaires; 32 returned completed questionnaires which were available for analysis. These 32 subjects will be referred to as the controls throughout the remainder of this analysis.

The Demographic Data Sheet was used to record the information reported on the variables of basic nursing preparation, highest degree earned, age, place of employment, and years in present position. Frequencies and percentages of basic nursing preparation and highest degree held were computed. Basic nursing education for all subjects included diploma, associate degree, and baccalaureate preparation (Table 4). Almost one half (48; 49%) of the experimental group subjects indicated their basic education was a diploma, while two-fifths (13; 40.6%) of the control group subjects indicated a diploma as their basic preparation. Each group showed an increase in education when asked about the highest degree held as the numbers of individuals with baccalaureate and master's degrees increased.

The means and standard deviations of all groups were reported for age, years as a registered nurse, present employing agency, and years with that agency (Table 5). All subjects were between 28 and 64 years of age ($\bar{M} = 45$) and had been registered nurses from 2 to 43 years ($\bar{M} = 20$ years). These nurses were employed with their present agency for 1 to 33 years ($\bar{M} = 8$ years) and in their current position for 1 to 23 years ($\bar{M} = 7$ years).

Table 4

Frequencies and Percentages of Basic Nursing Preparation
and Highest Degree for Experimental and
Control Subjects

Variables	Experimental Group		Control Group	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
<u>Basic Education</u>				
Diploma	48	49.0	13	40.6
Associate Degree	12	12.2	12	37.5
Baccalaureate Degree	37	37.8	5	15.6
No Response	<u>1</u>	<u>1.0</u>	<u>2</u>	<u>6.3</u>
Total	98	100.0	32	100.0
<u>Highest Degree Held</u>				
Diploma	33	33.7	11	34.4
Associate Degree	9	9.2	8	25.0
Baccalaureate Degree	34	34.7	7	21.9
Master's Degree	18	18.4	5	15.6
Other	3	3.0	0	0.0
No Response	<u>1</u>	<u>1.0</u>	<u>1</u>	<u>3.1</u>
Total	98	100.0	32	100.0

A demographic profile was formulated from the findings to further describe the sample. A composite of both experimental and work colleague-selected control subjects was a 45-year-old diploma school graduate with 18 years experience as a registered nurse, employed in a school or occupational setting for 8 years, and in the same position for 7 years. The majority of the experimental and control

Table 5

Means, Standard Deviations, and Median Ages for Age, Years as a Registered Nurse, Years with Present Agency, and Years in Current Position for Experimental and Control Groups and Colleague-Selected Pairs

Variables	Total Sample						Colleague-Selected Pairs					
	Experi- mental (n = 98)			Control (n = 32)			Experi- mental (n = 29)			Control (n = 29)		
	<u>M</u>	<u>SD</u>	<u>MA</u> ^a	<u>M</u>	<u>SD</u>	<u>MA</u> ^a	<u>M</u>	<u>SD</u>	<u>MA</u> ^a	<u>M</u>	<u>SD</u>	<u>MA</u> ^a
Age	45	9.0	45	42	8.1	39	45	10.1	44	39	6.6	39
Years as an RN	20	10.3	19	17	9.5	14	21	11.0	18	16	9.0	13
Years at Present Agency	8	4.7	6	8	4.6	7	8	5.2	6	8	4.5	7
Years in Current Position	6	6.0	4	6	4.6	5	5	4.0	3	7	4.6	5

^aMA = Median Age

group subjects was employed as school nurses, while the majority of respondents in the colleague-selected pairs worked in the occupational setting.

Findings

Analysis of the data included comparing personal health behaviors, amount of collection of health information on clients, amount of teaching of health behaviors to clients

and comparisons of selected personal health behaviors with teaching of those behaviors. Four hypotheses were developed to examine these concerns.

To further compare the benefits of the course in health promotion and disease prevention for registered nurses, data analyses were repeated with certain participants and their selected colleague peers, hereafter identified as colleague-selected pairs. Twenty-nine sets of pre and post course questionnaires from experimental and colleague-selected pairs were utilized for a second analysis of the same four hypotheses.

Prior to hypotheses testing, however, descriptive data for the total sample and the colleague-selected group were computed for personal health behaviors, collection of health education materials, and teaching health behaviors. Means and standard deviations were computed for the scores of the subjects by groups. Descriptive data for the total sample and the colleague-selected group are reported concurrently.

Personal Health Behaviors

Several personal health behaviors were measured by the Health Risk Appraisal (HRA) (Centers for Disease Control, 1981). Questions related to the use of mood altering drugs and frequency of physical activity, breast self-examination, and a Papanicolaou (Pap) test were used to collect

information on health behaviors. Responses to additional questions on personal health behaviors were collected from the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) specifically to measure the use of tobacco, alcohol, and seat belt as well as having a blood pressure check at least every 2 years.

The maximum score for personal health behaviors as measured by the HRA and the Attitude Toward Health Promotion Instrument was 14. The means and standard deviations of the pre and post course scores for personal health behaviors appear in Table 6. The means of the course participants were consistently higher than the control group. The variation of scores after the course for the experimental group was 6 to 14, and for the control group, it was 7 to 14 in the total subject analysis. The variation of scores for the colleague-selected pairs were 6 to 14 for the experimental subjects and 7 to 14 for the control subjects. The mean scores per health behavior by group are displayed in Table 7. Increases of $\geq 5\%$ occurred between the pre and post mean scores occurred for only one variable, do breast self-exam monthly. These increases occurred for both the experimental group ($n = 98$) of the total sample and the experimental group ($n = 29$) of the colleague-selected pairs.

Table 6

Means and Standard Deviations for Scores on Personal Health Behaviors Prior to and After a Course in Health Promotion/Disease Prevention for Experimental and Control Groups and Colleague-Selected Pairs

Scores	<u>Total Sample</u>				<u>Colleague-Selected Pairs</u>			
	Experi- mental (n = 98)		Control (n = 32)		Experi- mental (n = 29)		Control (n = 29)	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre Course	12.3	1.1	11.5	1.6	12.5	1.0	11.5	1.6
Post Course	12.5	1.3	11.7	1.8	12.4	1.6	11.7	1.8

Collection of Health Educational Materials

The Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) was used to determine the amount of collection of health behavior information by nurses for clients. Each participant was scored on the item, "Please circle below the number that indicates the extent to which you gather information on clients for each of the areas listed." The choices were rarely/never = 0, occasionally = 1, and routinely = 2. The areas of health information for this question included collecting information on blood pressure, use of tobacco, alcohol, seat belts, and

Table 7

Means for Personal Health Behaviors Prior to and
After a Course in Health Promotion/Disease
Prevention for Experimental and Control
Groups and Colleague-Selected Pairs

Variables	Total Sample				Colleague-Selected Pairs			
	Experi- mental (n = 98)		Control (n = 32)		Experi- mental (n = 29)		Control (n = 29)	
	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>
<u>Do You:</u>								
Avoid Tobacco	0.86	0.88	0.78	0.81	0.90	0.90	0.80	0.83
Check B/P <2 Years	1.00	1.00	0.97	1.00	1.00	1.00	0.93	1.00
Exercise 3 X Weekly	1.39	1.44	1.19	1.16	1.41	1.50	1.24	1.17
Do Breast Self-Exam Monthly	1.47	1.58 ^a	1.26	1.20	1.39	1.59 ^a	1.25	1.26
Have a Pap Test Yearly	1.67	1.69	1.60	1.59	1.79	1.78	1.60	1.58
Have 0-1 Alcoholic Drinks/Day	1.84	1.87	1.74	1.80	1.86	1.86	1.71	1.75
Use Seat Belt	1.90	1.90	1.84	1.90	1.97	1.90	1.83	1.90
Avoid Mood Drugs	1.93	1.94	1.88	1.94	1.96	1.96	1.86	1.93

^aIncrease $\geq 5\%$

over-the-counter (OTC) drugs, diet, emotional problems, stress level, physical activity, isolation, pre and postnatal care, immunizations, and dental health. The maximum score for information collection was 28. The means of the experimental and control groups and the colleague-selected pairs indicated a higher collection of information for all areas before and after the course except for the colleague-selected control subject scores which remained the same (Table 8). The variation of scores after the course for the total group experimental subjects was 2 to 25 and it was 0 to 28 for the control subjects. After the course, the colleague-selected pairs had a variation of scores from 2 to 23 for the experimental subjects and 0 to 26 for the control subjects. The mean scores for collection of health information by variable and by group are displayed in Table 9. Increases in scores of $\geq 5\%$ before and after the course occurred for aloneness, dental, immunization, and blood pressure in the colleague-selected pairs experimental group and for fat in the colleague-selected pairs experimental and control groups. For activity, increases in scores occurred in the total subjects experimental group and in the colleague-selected experimental group. For weight, increases occurred in the total subjects control group and the colleague-selected experimental and control groups. An

increase occurred for tobacco in the total subjects experimental group, but a decrease of $\geq 5\%$ was noted in the colleague-selected control group. Decreases were also noted in the colleague-selected control group for Stress and OTC drugs.

Table 8

Means and Standard Deviations for Collection of Health Related Educational Materials Prior to and After a Course in Health Promotion/Disease Prevention for Experimental and Control Groups and Colleague-Selected Pairs

Scores	<u>Total Sample</u>				<u>Colleague-Selected Pairs</u>			
	<u>Experi- mental (n = 98)</u>		<u>Control (n = 32)</u>		<u>Experi- mental (n = 29)</u>		<u>Control (n = 29)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre Course	14.7	5.0	14.8	4.8	15.0	5.2	15.0	5.1
Post Course	15.9	5.3	15.2	6.7	16.2	5.3	15.0	6.9

Teaching Health Behaviors

The Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) was used to determine the extent of client teaching of health behaviors by registered nurses. The question asked was as follows: "To what extent do you actually educate clients on the risk factors listed below?"

Table 9

Means for Collection of Health Related Educational Materials
Prior to and After a Course in Health Promotion/Disease
Prevention for Experimental and Control
Groups and Colleague-Selected Pairs

Variables	Total Sample				Colleague-Selected Pairs			
	Experi- mental (n = 98)		Control (n = 32)		Experi- mental (n = 29)		Control (n = 29)	
	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>
Seat Belts	0.67	0.81	0.68	0.65	0.76	0.79	0.68	0.60
Pre/Post Natal Care	0.79	0.83	0.80	0.81	0.81	0.89	0.89	0.83
Alone-ness	0.80	0.80	0.78	0.94	0.76	0.90 ^a	0.76	0.90
Fat	0.90	0.97	0.80	1.03 ^a	0.86	0.96 ^a	0.79	1.03 ^a
Alcohol	0.91	0.99	0.97	1.00	0.79	0.90 ^a	1.00	0.97
Activity	1.08	1.20 ^a	1.09	1.03	1.17	1.34 ^a	1.10	1.03
Stress	1.10	1.17	1.22	1.16	1.17	1.21	1.24	1.14 ^b
OTC Drugs	1.11	1.11	1.20	1.16	1.14	1.07	1.21	1.10 ^b
Emotions	1.13	1.14	1.20	1.19	1.17	1.21	1.22	1.17
Dental	1.13	1.20	1.00	1.09	0.90	1.04 ^a	1.00	1.07
Tobacco	1.17	1.34 ^a	1.22	1.19	1.38	1.41	1.28	1.17 ^b
Weight	1.36	1.43	1.25	1.34	1.38	1.48 ^a	1.24	1.34 ^a
Immuni- zation	1.40	1.46	1.35	1.31	1.31	1.45 ^a	1.36	1.34
Blood Pressure	1.51	1.55	1.47	1.50	1.55	1.66 ^a	1.51	1.48

^aIncrease $\geq 5\%$

^bDecrease $\geq 5\%$

The scores were rarely/never = 0, occasionally = 1, and routinely = 2. The areas of interest for this question included instruction about blood pressure, use of tobacco, alcohol, seat belt, and over-the-counter drugs, diet, emotional problems, stress level, physical activity, isolation, pre and postnatal care, immunizations, and dental health. A maximum score for teaching about health behaviors to clients was 28. The means and standard deviations of the pre and post course questionnaires for the total sample experimental and control groups and the colleague-selected pairs are reported in Table 10. After the course, the variation of scores for the experimental group was 13 to 28 and it was 14 to 28 for the control group. The variation of scores for the colleague-selected pairs was 14 to 28. The means and standard deviations for teaching of health behaviors to clients by variable and by group are reported in Table 11. Increases of $\geq 5\%$ between pre and post course scores were found for the colleague-selected experimental group for aloneness, seat belts, activity, and weight. Increases of $\geq 5\%$ were found for the total subjects experimental group and the colleague-selected experimental group for alcohol. An increase was also found in the total subjects control group for dental. For emotions, an increase was found in the colleague-selected experimental

group, but a decrease of $\geq 5\%$ was found in the colleague-selected control group. Decreases of $\geq 5\%$ were found for stress in the total subjects control group and the colleague-selected control group. A decrease was also found for blood pressure in the colleague-selected experimental group.

Table 10

Means and Standard Deviations for Teaching of Health Behaviors to Clients Prior to and After a Course in Health Promotion/Disease Prevention for Experimental and Control Groups and Colleague-Selected Pairs

Scores	<u>Total Sample</u>				<u>Colleague-Selected Pairs</u>			
	<u>Experi- mental (n = 98)</u>		<u>Control (n = 32)</u>		<u>Experi- mental (n = 29)</u>		<u>Control (n = 29)</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Pre Course	20.9	4.1	20.0	4.3	20.2	3.4	20.0	4.3
Post Course	21.6	4.0	20.5	4.9	21.2	3.9	20.6	4.7

Analysis of the Hypotheses

Scores for participants in a course in health promotion and disease prevention and identified control subjects were collected for the variables of personal health behaviors, collection of health information for clients, and amount of

Table 11

Means for Teaching about Health Related Behaviors to Clients
Prior to and After a Course in Health Promotion/Disease
Prevention for Experimental and Control
Groups and Colleague-Selected Pairs

Variables	Total Sample				Colleague-Selected Pairs			
	Experi- mental (n = 98)		Control (n = 32)		Experi- mental (n = 29)		Control (n = 29)	
	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>	Pre <u>M</u>	Post <u>M</u>
Alone- ness	1.23	1.29	1.19	1.28	1.14	1.30 ^a	1.21	1.24
OTC Drugs	1.28	1.35	1.38	1.44	1.31	1.34	1.32	1.41
Pre/Post Natal Care	1.32	1.35	1.30	1.34	1.31	1.29	1.33	1.34
Seat Belts	1.34	1.37	1.25	1.34	1.24	1.34 ^a	1.28	1.31
Emotions	1.39	1.46	1.47	1.38	1.21	1.38 ^a	1.48	1.34 ^b
Alcohol	1.40	1.52 ^a	1.50	1.50	1.24	1.41 ^a	1.51	1.48
Dental	1.50	1.55	1.44	1.56 ^a	1.45	1.50	1.41	1.55 ^a
Fat	1.50	1.56	1.36	1.40	1.55	1.62	1.38	1.38
Stress	1.52	1.55	1.55	1.44 ^b	1.41	1.48	1.57	1.41 ^b
Activity	1.62	1.64	1.45	1.51	1.59	1.69 ^a	1.48	1.50
Weight	1.66	1.73	1.56	1.62	1.62	1.83 ^a	1.59	1.62
Immuni- zation	1.73	1.75	1.57	1.55	1.55	1.64	1.59	1.57
Tobacco	1.73	1.76	1.75	1.72	1.76	1.79	1.76	1.72
Blood Pressure	1.81	1.73	1.78	1.78	1.93	1.83 ^b	1.79	1.79

^aIncrease $\geq 5\%$

^bDecrease $\geq 5\%$

client teaching on health behaviors. Two-way analyses of variance (ANOVAs) were performed to examine differences ($p \leq .05$) between and among the groups for these variables. In addition, chi-square correlations of personal health behaviors and amount of teaching of specific behaviors were analyzed. Eight hypotheses for this study were statistically analyzed.

Hypothesis 1. The first hypothesis was as follows: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than registered nurses who do not attend the course.

A total score was obtained for each subject and comparisons were calculated using group means by two-way analysis of variance (ANOVA). The group means for the experimental and control subjects were calculated from data collected prior to and after the course in health promotion and disease prevention in order to determine differences between and among the groups. There was a significant difference ($p \leq .001$) between the participants and their control in practiced health behaviors. The participants were consistently practicing more healthful behaviors than were the control group. There was no significant difference within the groups or by interaction (Table 12). A Scheffé

post hoc test on the differences between the groups did not indicate any significant differences in the pre course or post course scores of the experimental or control groups. Roscoe (1975) explained that it was not uncommon for the Scheffé post hoc test not to detect significant differences due to the strength of the test. A Newman-Keuls post hoc test indicated a significant difference in the post course scores between the experimental and control groups. The control group scores remained the same pre- to posttest, and the scores of the experimental group increased in post course analysis.

Table 12

Two-Way Analysis of Variance for Means for Personal Health Behaviors for the Experimental and Control Groups

Variable	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between Groups	52.90	1	52.90	11.50	.0009*
Within Groups	0.32	1	0.32	0.38	.5394
Interaction	0.32	1	0.32	0.38	.5394

* $p \leq .001$

Hypothesis 2. The second hypothesis was as follows: Registered nurses will record more gathering of health information in their nursing practice following a

health promotion/disease prevention course than registered nurses who do not attend the course.

The means of the total scores of the course participants and control subjects for collection of health behavior materials were analyzed by two-way ANOVA for differences between and among the groups. There was no significant difference between or within the groups for collection of health behavior materials or an interaction.

Hypothesis 3. The third hypothesis was as follows:

Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than registered nurses who do not attend the course.

An analysis of the means of scores for teaching about health promotion and disease prevention in nursing practice was calculated by two-way ANOVA for differences between and among the groups (Table 13). There was no significant difference between the experimental and control groups for teaching of health behaviors to clients nor an interaction. There was a significant difference ($p \leq .05$) within the groups. Again the Scheffé post hoc test comparison of the means within the groups did not support any significant differences within the pre to post course scores of the

experimental or control groups. Neither did a Newman-Keuls post hoc indicate where the significance occurred.

Table 13

Two-Way Analysis of Variance for Means for Teaching About Health Behaviors for the Experimental and Control Groups

Variable	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between Groups	86.78	1	86.78	1.15	.2851
Within Groups	89.61	1	89.61	5.82	.0173*
Interaction	1.92	1	1.92	0.12	.7244

* $p \leq .05$

Hypothesis 4. The fourth hypothesis was as follows: Registered nurses who complete a health promotion/disease prevention course will have a significant correlation between health behaviors and teaching of health promotion/disease prevention in their nursing practice when compared with registered nurses who do not attend the course.

Scores for the personal health behaviors concerning tobacco, alcohol, and drug use, blood pressure check, and amount of physical activity were correlated with teaching about these same behaviors. Chi-square analysis with 2 x 2 tables for each behavior and its companion teaching behavior

was completed for the experimental and control groups. The three level, ordinal ranked data were compressed to 2 x 2 tables because there were low numbers of responses for many cells. Combining adjacent cells to increase expected frequencies was not recommended by Roscoe (1975), however the investigator chose to compress data for computer analysis. The only item of significance at $p \leq .05$ was a comparison of physical activity and teaching about exercise for the experimental group. The strongest relationship in the Pearson chi square ($p = .003$) indicated that 42.4% ($n = 41$) of the course participants who regularly exercised three times weekly also routinely taught about exercise. This comparison item was also significant in the original 3 x 3 correlation table.

Hypothesis 5. The fifth hypothesis was as follows: Registered nurses will record more practiced health behaviors following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.

The fifth hypothesis was formulated to analyze health behaviors of the 29 colleague-selected pairs gleaned from the total sample analyzed in H_1 . Total scores for the experimental and control colleague-selected pairs were analyzed by group means with two-way ANOVA to determine

differences between and among the groups (Table 14). There was a significant difference ($p \leq .01$) between the colleague-selected pairs on personal health behavior, but not within each group or by interaction. Again, no significant differences were revealed by the Scheffé or Newman-Keuls post hoc tests on the differences between the groups.

Table 14

Two-Way Analysis of Variance for Means for Personal Health Behaviors for Colleague-Selected Pairs

Variable	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between Groups	36.420	1	36.420	7.76	.0073*
Within Groups	0.008	1	0.008	0.01	.9334
Interaction	0.070	1	0.070	0.66	.8020

* $p \leq .01$

Hypothesis 6. The sixth hypothesis was as follows: Registered nurses will record more gathering of health information following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.

Each colleague-selected pair subject received a total score for the amount of information gathered about specific behaviors. Group means for before and after the course in

health promotion and disease prevention were analyzed by two-way ANOVA for differences between and among the groups. There was no significant difference between or within the scores of either group or by interaction for the collection of health-related materials.

Hypothesis 7. The seventh hypothesis was as follows: Registered nurses will record more teaching of health promotion/disease prevention in their nursing practice following a health promotion/disease prevention course than colleague-selected registered nurses who do not attend the course.

Group means for the colleague-selected pairs were compared by two-way ANOVA for mean differences between and among the groups for teaching about health behaviors to clients (Table 15). A significant difference ($p \leq .05$) was found within the groups but not between the groups or by interaction. Scheffé and Newman-Keuls post hoc test comparisons of the means within the groups did not indicate any significant difference in the pre course to post course scores of the experimental or control groups. As previously mentioned, this was not uncommon.

Table 15

Two-Way Analysis of Variance for Means for Teaching About Health Behaviors to Clients for Colleague-Selected Pairs

Variable	<u>SS</u>	<u>df</u>	<u>MS</u>	<u>F</u>	<u>p</u>
Between Groups	7.25	1	7.25	0.09	.7707
Within Groups	74.56	1	74.56	4.65	.0353*
Interaction	10.56	1	10.56	0.66	.4203

* $p \leq .05$

Hypothesis 8. The final hypothesis was as follows: Registered nurses who complete a health promotion/disease prevention course will have a significant correlation between health behaviors and teaching of health promotion and disease prevention in nursing practice when compared with colleague-selected registered nurses who do not attend the course.

The personal health behaviors for tobacco, alcohol, and drug use, blood pressure check, and amount of physical activity were correlated with teaching about these same behaviors for the experimental and control colleague-selected subjects. Chi-square analysis with 2 x 2 tables for each behavior and companion teaching behavior was calculated from the questionnaires. The three level, ordinal ranked data were compressed to 2 x 2 tables because

there were low numbers of responses in many cells. The same significance ($p = .005$) between physical activity and teaching about exercise correlations found in the experimental subjects occurred with the colleague-selected experimental subjects. Half the experimental subjects ($n = 14$) reported exercising three times a week and routinely teaching about physical activity to clients.

Summary

Data collected on 98 participants of a health promotion and disease prevention course and 32 control subjects were described and reported by use of descriptive and inferential statistics. A group of colleague-selected pairs ($n = 29$) comprised of participants and personally selected control subjects were analyzed separately to determine any significant differences that may not have existed for the total group. Hypotheses 1, 2, 3, 5, 6, and 7 postulated that there were significant differences in scores on personal health behaviors, collection of health-related teaching materials, and teaching about health behaviors. Significant differences were found for H_1 ($p \leq .001$), H_3 ($p \leq .05$), H_5 ($p \leq .01$), and H_7 ($p \leq .05$). Although the Scheffé post hoc test did not reveal where the significant differences occurred in any of the hypotheses, a Newman-Keuls post hoc test

indicated a significant difference in the post course scores of the experimental group.

Hypotheses 4 and 8 proposed a significance by correlation for specific health behaviors and teaching of these particular behaviors for the total sample and the colleague-selected pairs, respectively. Chi-square analysis of post course scores revealed one significant value. There was a significant difference in the correlation of physical activity and teaching about exercise for the experimental group in the total sample analysis and the colleague-selected pairs analysis.

CHAPTER 5
SUMMARY OF STUDY

This study was designed to examine the question: Following a 30-hour course in health promotion and disease prevention, do registered nurses record a greater magnitude of change in practiced health behaviors and incorporate more concepts in their nursing practice when compared to registered nurses that did not complete the course in health promotion and disease prevention? A 30-hour course in health promotion and disease prevention taught at Texas Woman's University provided the setting and population for this study. Course participants and control subjects completed questionnaires prior to and after the course. After data from the total sample were analyzed, the sample was separated into colleague-selected pairs for repeat analysis. Four hypotheses were written for the total sample and four similar hypotheses were written for colleague-selected pairs analysis.

Summary

A two-group, before-after, quasi-experimental research design was used in this study. The independent variable in the study was the 30-hour course in health promotion and

disease prevention taught from a curriculum developed and piloted at Texas Woman's University for the Division of Nursing, United States Department of Health and Human Services (Health Promotion, [1988]). The dependent variables were the personal health behaviors of participants and the amount of client teaching about health promotion and disease prevention done by participants in their nursing practice.

A curriculum, two instruments, and a demographic data sheet were used to collect data. The Health Promotion and Disease Prevention Curriculum: A Continuing Education Program for Nurses [1988] was used as the teaching treatment. The Health Risk Appraisal (Centers for Disease Control, 1981) and the Attitude Toward Health Promotion Instrument (Holcomb & Mullen, 1986) were used to collect information on the personal health behaviors and teaching practices of participant and control subjects. The 98 participants who attended the course in health promotion and disease prevention completed usable questionnaires. Participants identified a work colleague to serve as a control subject, and 32 usable questionnaires were obtained in this manner. To further examine the data, pairs consisting of a participant and a colleague-selected peer

($n = 29$) were compared using similar hypotheses to those of the total sample.

Data were analyzed using descriptive statistics for the demographic variables that described the groups, and descriptive and inferential statistics were used to analyze the eight hypotheses. The two-way analyses of variance (ANOVAs) showed significant ($p \leq .05$) findings for the within group difference of personal health behaviors and between group differences for teaching of health behaviors to clients. The hypotheses that stated there were significant correlations between personal health behaviors and comparable teaching behaviors had one significant finding related to physical activity and exercise.

Discussion of Findings

The first three hypotheses postulated that there were significant differences in scores on personal health behaviors, collection of health related teaching materials and teaching about health behaviors. Statistically significant ($p \leq .05$) differences were found for H_1 and H_3 , specifically nurses that completed a course in health promotion and disease prevention practiced more personal health behaviors and taught clients more about health behaviors than did nonparticipants. These same

statistically significant results held for the colleague-selected pair analyses. Newman-Keuls post hoc testing indicated the significant difference in the first hypothesis was due to the increase in the scores of the experimental group after the course analysis.

H_4 and H_8 postulated a significance by correlation for specific health behaviors and teaching of the particular behaviors for the total population and the colleague-selected pairs, respectively. Chi-square analysis of post course scores revealed significant correlation between physical activity and teaching about exercise for the experimental group in the total population analysis and the colleague-selected pairs analysis.

Lifestyle behaviors are difficult to change (Pender, 1987; Rosenstock, 1988). Health care providers such as the registered nurses in this study self-selected to increase awareness of lifestyle behavior concepts for themselves and their clients. Prior to beginning the 30-hour course, registered nurses participating in the course recorded more health behaviors than control subjects. Further learning through the 30-hour course documented an increase in personal health behavior scores of the participants. The personal health behaviors measured in this study included use of tobacco, alcohol, mood altering drugs, and seat

belts, practice of physical activity, breast self-exam and Pap tests, and monitoring blood pressure.

Course participants scored below national norms for use of tobacco or mood altering drugs and equalled national norms for alcohol consumption and physical activity. Participant data far exceeded any other reported on seat belt usage, blood pressure check, annual Pap tests, and monthly breast self-exam. Scores that increased after the course included physical activity, breast self-exams, and Pap tests. Each personal health behavior specifically discussed during the course had a measurable increase after the course. Of the course participants, 75% reported having had a Pap test within the last year compared to only 56% for the controls. Among the participants, 56% performed breast self-exam monthly before the course with an increase to 65% after the course. No such increase was reported by controls, in fact there was a 10% decrease in breast self-exam. Need for breast self-exam was discussed as a separate topic during the course. Being physically active for at least 20 minutes three times a week was reported by 45% of the course participants prior to the course. The amount of participation increased to 51% after the course. Only 38% of the control subjects reported participation in physical activity prior to the course with no increase after the course.

Perhaps a course in health promotion/disease prevention can motivate more nurses to practice more health behaviors. With increased awareness, registered nurses in this study did practice more preventative health behaviors.

Becker (1974) and Pender (1987) identified perception of the client of the health care professional as an influencing factor toward behavior change, and Holcomb et al. (1985) suggested the professional was a role model for clients as personal health habits influenced counseling. The Gregory Health Belief Model (GHBM) served as a conceptual framework for this study. The GHBM was designed to demonstrate nurse-client interaction to assist the client to acquire or maintain a higher level of wellness. The model demonstrated the active role of the client toward acquiring or maintaining personal health. Registered nurse participants in the 30-hour course in health promotion were clients seeking health information on the one hand and will be resource agents for a client in their professional nursing role. In Hypothesis 1, course participants demonstrated improved personal health behaviors. Improvement in personal health behaviors is an indicator of positive role modeling, a component of health promotion and disease prevention.

The second hypothesis suggested that registered nurses who attended the course in health promotion and disease

prevention would score higher on collection of health related materials than would registered nurses who did not attend the course. Information gathering on some subject areas increased, while others decreased. There were no statistically significant changes. Perhaps the course curriculum heightened concerns in some subject areas but not in others. Collecting, reviewing, and disseminating educational literature should be an integral component of the health promotion and disease prevention curriculum.

While the registered nurses who did attend the course recorded more collection of health education materials than did controls, neither group of subjects indicated they collected appreciable health education material. This finding appears to be incongruent with the responses to the hypothesis concerning teaching about health behaviors. Perhaps registered nurses have sufficient materials at their disposal or they do not use or read current educational materials for teaching. A recommended change in the curriculum would include assessing health education materials and utilizing these materials to supplement and enhance instruction.

The third hypothesis addressed registered nurses teaching about health behaviors to clients. There was a statistically significant difference in the amount of

teaching before and after the course between the participants and controls. Both groups indicated they routinely taught about health behaviors. Almost all variable scores for teaching about health behaviors increased for participants after the course, while only half the variable scores for the controls increased. This finding is an example of the role of registered nurses in the Gregory Health Belief Model as information providers to clients to maintain or increase wellness.

The fourth hypothesis compared specific personal health behaviors of registered nurses with teaching about these same health behaviors to clients. The only significant comparison addressed physical activity and teaching about exercise for course participants. Registered nurses who attended the course maintained or increased their practice of all measured personal health behaviors. This role modeling is an important component of client education.

Further analyses of the data were completed for participants and their colleague-selected peers in four additional hypotheses. All areas of significance in the first four hypotheses continued in the colleague-selected pair analysis, and other findings were similar.

Conclusions and Implications

The focus of this study was to determine if registered nurses with increased awareness following completion of a course in health promotion and disease prevention would have a greater magnitude of increased personal health behaviors, collection of health behavior materials, and teach more about health behaviors to clients than registered nurses who did not attend the course. . Based on the findings of this study, the following conclusions were drawn:

1. The registered nurses who attended the course in health promotion and disease prevention did record more personal health behaviors, collect more health behaviors materials, and teach more about health behaviors to clients than did registered nurses who did not attend the course.
2. There were significant differences in the practice of personal health behaviors and teaching about health behaviors to clients between course participants and controls.
3. The amount of physical activity correlated significantly with teaching about exercise as a health behavior for course participants but not for control subjects.
4. Health behaviors and health teaching specifically addressed in the course, for example, breast

self-examination, measured the greatest increases for participants.

One primary implication emerged from the conclusions of this study: The course in health promotion and disease prevention developed for practicing registered nurses should be offered to registered nurses with an expected increase in self-practiced health promoting behaviors and the teaching of health promotion behaviors to their clients.

Recommendations for Further Study

The findings of this study resulted in the following recommendations for further study:

1. This study should be replicated in other geographic locations of the United States. Findings from these studies could then be compiled and compared to formulate a clearer picture of health behaviors and teaching practices of registered nurses on a national level.
2. Replication of this study should be done with a larger sample drawn from a more heterogeneous nursing population to maximize variability and increase generalizability of the findings.
3. Another study should have a second post assessment 4 to 6 months after completion of the course in order to measure long-term changes in personal health behaviors and teaching practices.

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APPENDIX A
AGENCY APPROVAL

APPENDIX B
QUESTIONNAIRE PACKET



Texas Woman's University

1130 M.D. Anderson Blvd., Houston, Texas 77030 (713) 794-2102

COLLEGE OF NURSING
HOUSTON CAMPUS

January 1987

You have been chosen to participate in the following study by one of your colleagues who is a student in the Health Promotion and Disease Prevention course at Texas Woman's University. The Health Promotion and Disease Prevention course in which your colleague is enrolled is funded through a contract from the Department of Health and Human Services, Division of Nursing. The contract is to develop, implement and evaluate a continuing education program to prepare registered nurses with the knowledge and skills to promote health and prevent disease.

To evaluate the program we are requesting each student and two colleagues of the student to complete the enclosed questionnaires. All information will be kept confidential and only group data will be reported. The identifying code is for computation purposes only.

Completion of the questionnaires is strictly voluntary. Should you choose not to participate there are no repercussions. No medical service or compensation is provided to participants by the Texas Woman's University.

Should you agree to participate, please fill out the questionnaires and return them in the stamped, addressed envelope. Additional materials will be sent to you for completion in the next several months. At the completion of the study a computer-generated health risk appraisal evaluation will be sent to you in appreciation for your cooperation.

YOUR ANSWERING OF THE QUESTIONS ON THESE QUESTIONNAIRES CONSTITUTES YOUR INFORMED CONSENT TO PARTICIPATE IN THE STUDY.

Thank you,

A handwritten signature in cursive script that reads "Judith McFarlane".

Judith McFarlane, Dr.P.H., RN,C.
Project Faculty

A handwritten signature in cursive script that reads "Elizabeth T. Anderson".

Elizabeth T. Anderson, Dr.P.H., RN,C.
Project Faculty
Health Promotion and Disease Prevention Program

CODE _____

HEALTH PROMOTION AND DISEASE PREVENTION

Demographic data sheet. Please answer the following questions about yourself and your employing agency:

Agency of employment _____ Column (6)

Job Title _____ (7)

How long in present position? _____ years (8-9)

How long at present agency? _____ years (10-11)

Are you the only health-care professional at your worksite?
1 ___ Yes 2 ___ No (12)

If no, how many health care professionals are there? _____ (13-14)

How many in each category?.....RN _____ (15-16)
MD _____ (17-18)
LVN _____ (19-20)
Health Educator _____ (21-22)
Other _____ (23-24)

Your basic nursing education:..... (25)
AD _____ (1)
Diploma _____ (2)
BS _____ (3)

Highest degree you have earned:..... (26)
AD _____ (1)
Diploma _____ (2)
BS/BA _____ (3)
Masters _____ (4)
DOC _____ (5)
Other _____ (6)

How many years have you been an RN?.....Years _____ (27-28)

Present age.....Years _____ (29-30)

Gender..... (31)
Male _____ (1)
Female _____ (2)

SURVEY ON HEALTH PROMOTION FOR COMMUNITY HEALTH NURSES

DIRECTIONS: Please circle the number next to the answer that best corresponds to your opinion or answer, unless there is a different instruction.

1. Are you involved in full-time community health nursing? If (32)
not, please note your principle activity.
- Yes 1
No 2
Not practicing at all 3
- (please specify area of practice) _____
2. Are you certified? (33)
- Yes 1
No 2
Other 3
- (specify type) _____
3. In which setting do you principally work? (circle one answer.) (34)
- School or other educational institution 1
Industry/Company 2
Health department/Clinic 3
Other 4
- (please specify) _____
4. How many state and/or national professional meetings have you (35)
attended in the past three years?
- None 1
1-2 2
3-5 3
More than 5 4
5. What sources of information do you trust most when it comes to (36-37)
scientific information that would affect your practice? (Circle
the numbers of the two most trusted sources.)
- Colleagues practicing in my community 1
Medical journals 2
Other journals 3
National meetings 4
Continuing education courses or seminars 5
Nurse faculty 6
Other 7
- (please specify) _____
- (please specify) _____

Please circle the appropriate response to questions 6 through 14.

6. Do you smoke cigarettes?.....(38)
- | | |
|---------------------|---|
| Yes | 1 |
| I have quit smoking | 2 |
| I have never smoked | 3 |
7. Do you wear seatbelts?.....(39)
- | | |
|-----------|---|
| Always | 1 |
| Sometimes | 2 |
| Never | 3 |
8. Do you check your blood pressure, or have it checked at least once every two years? (40)
- | | |
|-----|---|
| Yes | 1 |
| No | 2 |
9. Do you engage in vigorous physical activity at least three times a week?.....(41)
- | | |
|-----|---|
| Yes | 1 |
| No | 2 |
10. Do you usually sleep 7-8 hours per day?.....(42)
- | | |
|-----|---|
| Yes | 1 |
| No | 2 |
11. Do you eat breakfast almost every day?.....(43)
- | | |
|-----|---|
| Yes | 1 |
| No | 2 |
12. Do you eat between meals?.....(44)
- | | |
|-----------------|---|
| Always | 1 |
| Once in a while | 2 |
| Never | 3 |
13. How many alcoholic beverages do you drink at one sitting? (45)
- | | |
|--------------------|---|
| 0-1 drink | 1 |
| 2-4 drinks | 2 |
| more than 4 drinks | 3 |
14. Do you have an annual pap test?.....(46)
- | | |
|-----|---|
| Yes | 1 |
| No | 2 |

15. Approximately what percentage of your average number of daily client visits would you say are preventive in nature? (That is, visits where the clients' principal reason for the visit is preventive care, such as blood pressure check questions.)

_____ per cent of _____ patients per day
 (47-48) (49-51)

16. As part of a preventive check-up, how often do you educate (52) clients or advise them about their health risks and lifestyles as they affect their health? Would you say

All of the time 1
 Most of the time 2
 Some of the time 3
 Rarely or never 4

17. For clients who come in for an illness visit, that is, with (53) specific symptoms, how often do you educate or advise them about their health risks and lifestyles? Would you say

All of the time 1
 Most of the time 2
 Some of the time 3
 Rarely or never 4

18. Please circle below the number that indicates the extent to which you gather information on clients in each of the areas listed.

	<u>Routinely</u>	<u>Occasionally, When indicated</u>	<u>Rarely/Never</u>	
Blood pressure	1	2	3	(54)
Smoking	1	2	3	(55)
Alcohol intake	1	2	3	(56)
Weight problems	1	2	3	(57)
Fat consumption	1	2	3	(58)
Diet profile (overall)	1	2	3	(59)
Drug consumption (OTC)	1	2	3	(60)
Illicit drug use	1	2	3	(61)
Emotional problems	1	2	3	(62)
Stress level	1	2	3	(63)
Use of seat belts	1	2	3	(64)
Pattern of physical activity	1	2	3	(65)
Isolation/loneliness	1	2	3	(66)
Pre and postnatal care	1	2	3	(67)
Immunization	1	2	3	(68)
Dental health	1	2	3	(69)
Sexually transmitted diseases	1	2	3	(70)
Family planning	1	2	3	(71)
Well baby care	1	2	3	(72)
Gynecology status	1	2	3	(R2)(1)
Other _____				(2)

19. To what extent do you actually educate clients on the risk factors listed below?

	To a great extent	Usually	Occasionally	Rarely	Not at all	
Elevated blood pressure	1	2	3	4	5	(3)
Smoking	1	2	3	4	5	(4)
Alcohol problems	1	2	3	4	5	(5)
Weight problems	1	2	3	4	5	(6)
High fat diet	1	2	3	4	5	(7)
Drug problems (OTC)	1	2	3	4	5	(8)
Illicit drug abuse	1	2	3	4	5	(9)
Emotional problems	1	2	3	4	5	(10)
High stress	1	2	3	4	4	(11)
Non-use of seat belts	1	2	3	4	5	(12)
Lack of exercise	1	2	3	4	5	(13)
Isolation/loneliness	1	2	3	4	5	(14)
Pre and postnatal care	1	2	3	4	5	(15)
Immunization	1	2	3	4	5	(16)
Dental health	1	2	3	4	5	(17)
Sexually transmitted diseases	-	2	3	4	5	(18)
Family planning	1	2	3	4	5	(19)

20. How important do you think each of the following behaviors is in promoting the health of the average person?

	Very Important	Somewhat Important	Somewhat Unimportant	Very Unimportant	
Not smoking cigarettes	1	2	3	4	(20)
Drinking alcohol mod- erately or not at all	1	2	3	4	(21)
Avoid high cholesterol foods	1	2	3	4	(22)
Taking daily vitamin supplements	1	2	3	4	(23)
Minimizing sugar intake	1	2	3	4	(24)
Eating a balanced diet	1	2	3	4	(25)
Controlling weight	1	2	3	4	(26)
Decreasing salt consumption	1	2	3	4	(27)
Storing firearms safely	1	2	3	4	(28)
Avoiding undue stress	1	2	3	4	(29)
Having periodic physical exams	1	2	3	4	(30)
Engaging in vigorous physical exercise at least 3 times a week	1	2	3	4	(31)
Practicing relaxation methods	1	2	3	4	(32)
Always using a seat belt	1	2	3	4	(33)
Sleeping about 7 hours each night	1	2	3	4	(34)
Avoiding isolation and loneliness	1	2	3	4	(35)
Controlled drug use	1	2	3	4	(36)

21. How certain are you that you can convey to clients appropriate information and useful skills for modifying the following?

	<u>Very Certain</u>	<u>Somewhat Certain</u>	<u>Somewhat Uncertain</u>	<u>Very Uncertain</u>	
Elevated blood pressure	1	2	3	4	(37)
Smoking	1	2	3	4	(38)
Alcohol problems	1	2	3	4	(39)
Weight problems	1	2	3	4	(40)
High fat diet	1	2	3	4	(41)
Drug problems (OTC)	1	2	3	4	(42)
Illicit drug abuse	1	2	3	4	(43)
Emotional problems	1	2	3	4	(44)
High stress	1	2	3	4	(45)
Non-use of seat belts	1	2	3	4	(46)
Lack of exercise	1	2	3	4	(47)
Isolation/loneliness	1	2	3	4	(48)
Pre and postnatal care	1	2	3	4	(49)
Immunization	1	2	3	4	(50)
Dental health	1	2	3	4	(51)
Sexually transmitted diseases	1	2	3	4	(52)
Family planning	1	2	3	4	(53)

22. Given that you feel that you could convey appropriate information and skills to clients, how certain are you that the average patient will, in fact, follow through?

	<u>Very Certain</u>	<u>Somewhat Certain</u>	<u>Somewhat Uncertain</u>	<u>Very Uncertain</u>	
Elevated blood pressure	1	2	3	4	(54)
Smoking	1	2	3	4	(55)
Alcohol problems	1	2	3	4	(56)
Weight problems	1	2	3	4	(57)
High fat diet	1	2	3	4	(58)
Drug problems (OTC)	1	2	3	4	(59)
Illicit drug abuse	1	2	3	4	(60)
Emotional problems	1	2	3	4	(61)
High stress	1	2	3	4	(62)
Non-use of seat belts	1	2	3	4	(63)
Lack of exercise	1	2	3	4	(64)
Isolation/loneliness	1	2	3	4	(65)
Pre and postnatal care	1	2	3	4	(66)
Immunization	1	2	3	4	(67)
Dental health	1	2	3	4	(68)
Sexually transmitted diseases	1	2	3	4	(69)
Family planning	1	2	3	4	(70)

23. Please rate the following statements in terms of the scale below by writing in the appropriate number in the space next to the statement. All of these statements refer to the effects of increasing the emphasis on health promotion in your current practice setting.

- | | |
|------------------|---------------------|
| 1 Strongly agree | 3 Disagree somewhat |
| 2 Agree somewhat | 4 Strongly disagree |

- Increasing the emphasis on health promotion in this practice is.....
- a major departure from the usual scope of primary care..... (71)
 - not likely to be well received by our clients..... (72)
 - of obvious value in the minds of most nurses in this community..... (1)(R3)
 - costly in terms of time spent by me and other practice staff. (2)
 - not disruptive of usual office or clinic procedures..... (3)
 - going to be more important in the future..... (4)
 - likely to have little payoff for our work setting..... (5)
 - not expected to promote increased client behavior changes.... (6)

24. Please rate the following statements in terms of the scale below by writing in the appropriate number in the space next to the statement.

- | | |
|------------------|---------------------|
| 1 Strongly agree | 3 Disagree somewhat |
| 2 Agree somewhat | 4 Strongly disagree |

- Appraising clients' behavioral risk factors is an important part of my role..... (7)
- Not enough is known about the value of prevention to make it a major part of my role..... (8)
- With my support and encouragement most clients will try to change behaviors detrimental to their health..... (9)
- Assisting clients in modifying health habits is an important part of my role..... (10)
- Persons in my profession should be active in supporting legislation to promote health..... (11)
- Persons in my profession should work to promote health in their communities through health education to the public..... (12)
- Health education materials should be available in the practice setting..... (13)

1 Strongly agree
2 Agree somewhat

3 Disagree somewhat
4 Strongly disagree

- Talking to clients about their health habits and behaviors is more appropriately the job of other health professionals not mine..... (14)
- Most clients are skeptical when a person in my profession recommends a change in personal habits or lifestyle rather than recommending a more traditional therapy..... (15)
- Prevention, including client education, will be a major part of the practice of community nursing in the future..... (16)
- Persons in my profession should be knowledgeable about community resources for education and risk modification..... (17)
- In general, I get a greater sense of gratification from identifying health problems and developing treatment plans for clients with chronic disease that I do from providing preventive care..... (18)
- No matter what I say to clients about health habits, they are not going to change their ways..... (19)
- I find educating clients to be a challenging and enjoyable part of my practice role..... (20)
- As much as I would like to influence clients to adopt healthy habits or lifestyles, I feel I lack the skills to be effective in this area..... (21)
- The lack of time is one of the major obstacles to the provision of educational services..... (22)
- I get adequate feedback from clients regarding the outcomes of my health education efforts..... (23)
- I find clients do not want to spend time on health education. (24)
25. At the present time, taking into consideration all of your current responsibilities, how high a priority do you place on health promotion as an aspect of your practice role?..... (25)

Very high 1
Somewhat high 2
Somewhat low 3
Very low 4

26. Compared to other persons in your profession, how much emphasis do you place on health promotion in your practice role?.....(26)

Much more	1
Somewhat more	2
Somewhat less	3

27. Please indicate your interest in the following:

	<u>Not</u>	<u>Somewhat</u>	<u>Very</u>	<u>Already</u>	
	<u>Interested</u>	<u>Interested</u>	<u>Interested</u>	<u>Interested</u>	<u>Using</u>
Information on patient referral resources	1	2	3	4	5 (27)
Continuing education courses on:					
Alcohol abuse	1	2	3	4	5 (28)
Exercise	1	2	3	4	5 (29)
Nutrition	1	2	3	4	5 (30)
Smoking	1	2	3	4	5 (31)
Stress management	1	2	3	4	5 (32)
Blood pressure control	1	2	3	4	5 (33)
Illicit drug use	1	2	3	4	5 (34)
Use of seat belts	1	2	3	4	5 (35)
Isolation/loneliness	1	2	3	4	5 (36)
Pre & postnatal care	1	2	3	4	5 (37)
Immunizations	1	2	3	4	5 (38)
Dental health	1	2	3	4	5 (39)
Sexually transmitted diseases	1	2	3	4	5 (40)
Family planning	1	2	3	4	5 (41)
Health education methods (general)	1	2	3	4	5 (42)
Other	1	2	3	4	5 (43)

(please specify)

Health Risk Appraisal is a promising health education tool that is still in the early stages of development. It is designed to show how your individual lifestyle affects your chances of avoiding the most common causes of death for a person of your age, race, and sex. It also shows how much you can improve your chances by changing your harmful habits. (This particular version is not particularly helpful for persons under 25 or over 60 years old and for persons who have had a heart attack or other serious medical problem.) **IMPORTANT** To assure protection of your privacy, do not put your name on this form. Make sure you put your health risk appraisal 'claim check' in your wallet or other safe place and insure that the number matches the number on this form. You must present your claim check to get your computer results.

PARTICIPANT NUMBER _____

PLEASE ENTER YOUR ANSWERS IN THE EMPTY BOXES (Use numbers only)

RACE/ ORIGIN	<input type="checkbox"/> 1 White (non-Hispanic origin)	<input type="checkbox"/> 2 Black (non-Hispanic origin)	<input type="checkbox"/> 3 Hispanic
	<input type="checkbox"/> 4 Asian or Pacific Islander	<input type="checkbox"/> 5 American Indian or Alaskan Native	<input type="checkbox"/> 6 Not sure
AGE (At Last Birthday)	Years Old		
HEIGHT (Without Shoes)	Example: 5 feet, 7 1/4 inches = <input type="text" value="5"/> ' <input type="text" value="07 1/4"/> "		(No Fractions)
WEIGHT (Without Shoes)	Pounds		
TOBACCO	<input type="checkbox"/> 1 Smoker <input type="checkbox"/> 2 Ex-Smoker <input type="checkbox"/> 3 Never Smoked		
(Smokers and Ex-smokers)	Enter average number smoked per day in the last five years (ex-smokers should use the last five years before quitting.)		Cigarettes Per Day
			Pipes/Cigars Per Day (Smoke Inhaled)
			Pipes/Cigars Per Day (Smoke Not Inhaled)
(Ex smokers only)	Enter Number of Years Stopped Smoking (Note: Enter 1 for less than one year)		
ALCOHOL	<input type="checkbox"/> 1 Drinker <input type="checkbox"/> 2 Ex-Drinker (Stopped) <input type="checkbox"/> 3 Non-Drinker (or drinks less than one drink per week)		
	If you drink alcohol, enter the average number of drinks per week:		Bottles of beer per week
			Glasses of wine per week
			Mixed drinks or shots of liquor per week
DRUGS/MEDICATION	How often do you use drugs or medication which affect your mood or help you to relax?		
	<input type="checkbox"/> 1 Almost every day <input type="checkbox"/> 2 Sometimes <input type="checkbox"/> 3 Rarely or Never		
MILES	Per Year as a driver of a motor vehicle and/or passenger of an automobile (10,000 = average)		Thousands of miles
SEAT BELT USE (percent of time used)	Example: about half the time = <input type="text" value="50"/>		
PHYSICAL ACTIVITY LEVEL	<input type="checkbox"/> 1 Level 1 little or no physical activity <input type="checkbox"/> 2 Level 2 occasional physical activity <input type="checkbox"/> 3 Level 3 regular physical activity at least 3 times per week		
<small>Physical activity includes work and leisure activities that require sustained physical exertion such as mowing, driving, running, lifting and carrying.</small>			
Did either of your parents die of a heart attack before age 60?	<input type="checkbox"/> 1 Yes, One of them <input type="checkbox"/> 2 Yes, Both of them <input type="checkbox"/> 3 No <input type="checkbox"/> 4 Not sure		
Did your mother, father, sister or brother have diabetes?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure		
Do YOU have diabetes?	<input type="checkbox"/> 1 Yes, not controlled <input type="checkbox"/> 2 Yes, controlled <input type="checkbox"/> 3 No <input type="checkbox"/> 4 Not sure		
Rectal problems (other than piles or hemorrhoids). Have you had	Rectal Growth?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure	
	Rectal Bleeding?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure	
	Annual Rectal Exam?	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure	

Blood Pressure (if known - otherwise leave blank)	Systolic (High Number)	
	Diastolic (Low Number)	
Fasting Cholesterol Level (if known - otherwise leave blank)		MG/DL
Considering your age, how would you describe your overall physical health?		
<input type="checkbox"/> 1 Excellent <input type="checkbox"/> 2 Good <input type="checkbox"/> 3 Fair <input type="checkbox"/> 4 Poor		
In general how satisfied are you with your life?		
<input type="checkbox"/> 1 Mostly Satisfied <input type="checkbox"/> 2 Partly Satisfied <input type="checkbox"/> 3 Mostly Dissatisfied <input type="checkbox"/> 4 Not Sure		
In general how strong are your social ties with your family and friends?		
<input type="checkbox"/> 1 Very strong <input type="checkbox"/> 2 About Average <input type="checkbox"/> 3 Weaker than average <input type="checkbox"/> 4 Not sure		
How many hours of sleep do you usually get at night?		
<input type="checkbox"/> 1 6 hours or less <input type="checkbox"/> 2 7 hours <input type="checkbox"/> 3 8 hours <input type="checkbox"/> 4 9 hours or more		
Have you suffered a serious personal loss or misfortune in the Past Year? (For example, a job loss, disability, divorce, separation, jail term, or the death of a close person)		
<input type="checkbox"/> 1 Yes, one serious loss <input type="checkbox"/> 2 Yes, Two or More serious losses <input type="checkbox"/> 3 No		
How often in the Past Year did you witness or become involved in a violent or potentially violent argument?		
<input type="checkbox"/> 1 4 or more times <input type="checkbox"/> 2 2 or 3 times <input type="checkbox"/> 3 Once or never <input type="checkbox"/> 4 Not sure		
How many of the following things do you usually do?		
<ul style="list-style-type: none"> • Hitch-hike or pick up hitch-hikers • Carry a gun or knife for protection • Keep a gun at home for protection • Criticize or argue with strangers • Live or work at night in a high-crime area • Seek entertainment at night in high-crime areas or bars 		
<input type="checkbox"/> 1 3 or more <input type="checkbox"/> 2 1 or 2 <input type="checkbox"/> 3 None <input type="checkbox"/> 4 Not sure		
Have you had a hysterectomy? (Women only)		
<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure		
How often do you have Pap Smear? (Women only)		
<input type="checkbox"/> 1 At least once per year <input type="checkbox"/> 2 At least once every 3 years <input type="checkbox"/> 3 More than 3 years apart <input type="checkbox"/> 4 Have never had one <input type="checkbox"/> 5 Not sure <input type="checkbox"/> 6 Not applicable		
Was your last Pap Smear Normal? (Women only)		
<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure <input type="checkbox"/> 4 Not applicable		
Did your mother, sister or daughter have breast cancer? (Women only)		
<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure		
How often do you examine your breasts for lumps? (Women only)		
<input type="checkbox"/> 1 Monthly <input type="checkbox"/> 2 Once every few months <input type="checkbox"/> 3 Rarely or never		
Have you ever completed a computerized Health Risk Appraisal Questionnaire like this one?		
<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Not sure		
Current Marital Status		
<input type="checkbox"/> 1 Single (Never married) <input type="checkbox"/> 2 Married <input type="checkbox"/> 3 Separated <input type="checkbox"/> 4 Widowed <input type="checkbox"/> 5 Divorced <input type="checkbox"/> 6 Other		

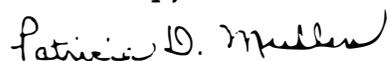
APPENDIX C
PERMISSION TO USE INSTRUMENT

Judy McFarlane, DrPH
Liz Sefcik, RN,MS
Texas Woman's University
College of Nursing
1130 M.D. Anderson Blvd.
Houston, Texas 77030

Dear Judy and Liz:

This letter serves as my permission for Bets Anderson, DrPH, Judy McFarlane, DrPH, Betty Gregory, RN,MS, and Liz Sefcik, RN, MS to use the Mullen Instrument which was used to survey the nurse-midwives as published in my article, "Certified Nurse-Midwives and Health Promotion and Disease Prevention" in the Journal of Nurse-Midwifery, May/June, 1986.

Sincerely,



Patricia D. Mullen, DrPH