

HEALTH BEHAVIORS OF REGISTERED NURSES IN A HOSPITAL SETTING:

A DESCRIPTIVE STUDY

A DISSERTATION

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

COLLEGE OF NURSING

BY

PATRICIA MCDANIEL, MSN

DENTON, TEXAS

DECEMBER 2015

TEXAS WOMAN'S UNIVERSITY
DENTON, TEXAS

November 3, 2015

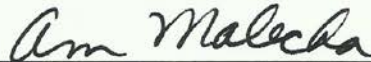
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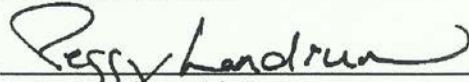


Sandra Cesario, Ph.D., Major Professor

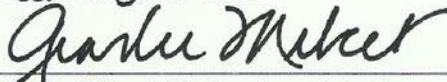
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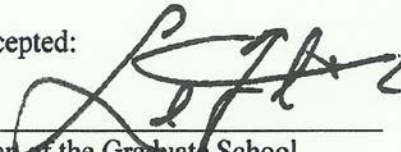


Peggy Landrum, Ph.D.



Ainslie Nibert, Ph.D., Associate Dean

Accepted:



Dean of the Graduate School

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DEDICATION

First, I want to give thanks to my spiritual being (God) for allowing supportive people to come into my path that helped me to accomplish this dissertation journey. Next, I want to dedicate this dissertation to my family for their endless support and encouragement in completing this degree; especially to my children (Dayna, Amora, Kendra, and Quentin) who showed countless hours of patience toward me when I would ask the same questions over and over again.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my advisor, Dr. Sandra Cesario, for her continuous support of my PhD study and related research, and for her patience, motivation, and immense knowledge. Her guidance helped me throughout my research and the writing of this dissertation. I could not imagine having a better advisor and mentor for my PhD study.

In addition to my advisor, I would like to thank the rest of my dissertation committee, Dr. Ann Malecha and Dr. Peggy Landrum, for their insightful comments and encouragement, but also for their hard questions that motivated me to widen the perspective of my research.

My sincere thanks also go to Dr. Rae Langford and Dr. Ronnie Davis, who provided expertise in data analysis. Without their precious support it would not have been possible to successfully interpret and conclude this research.

Finally, I thank my friends at CHI St Luke's Hospital. In particular, I am grateful to Dr. Cheryl Lindy, my supervisor, for her support and for first introducing me to research.

I also place on record my sense of gratitude to one and all who have, directly or indirectly, lent their hand in this venture.

ABSTRACT

PATRICIA MCDANIEL

HEALTH BEHAVIORS OF REGISTERED NURSES IN A HOSPITAL SETTING: DESCRIPTIVE STUDY

DECEMBER 2015

In the United States (US), 3.1 million nurses comprise the single largest group of direct health care providers (U. S. Department of Health and Human Services [USDHHS], 2010). The majority (62%) of US nurses work in hospitals, with great potential to promote health and educate vast numbers of patients and families (USDHHS, 2010). Although health promotion is a responsibility of every nurse, little is known about nurses' personal preventative health behaviors.

The purpose of this study was to describe and examine registered nurses' personal health behaviors, identify sociodemographic variables associated with health behaviors, and determine whether nurses perceive themselves as role models of healthy behavior. Guided by Pender's health promotion model, a quantitative descriptive design was used to characterize the health-promoting behaviors of registered nurses working in an acute care hospital. The Health Promotion Lifestyle Profile II (HPLP II) questionnaire was used to examine the health behaviors of the nurses through an online survey.

A convenience sample of 250 nurses was recruited from registered nurses who worked in a large acute care hospital system in Texas, primarily in a staff nurse role. The standard multiple regression model was used to describe the demographic characteristics

of the of the study sample, which was 91% female and racially diverse (Caucasian 36%, Asian 32%, and African American 22%). Descriptive statistics were used to investigate nurses' health behaviors and their perceptions of role modeling. Nurses in the study rated *average* on practicing positive health behaviors using the HPLP II total scale (TotHPLP). They also reported *average* for perception on personal role modeling and *above average* with respect to the nursing profession serving as role models to the community and patients.

Personal control was found to be a statistically significant predictor of the nurses' total health promotion behavior when the variable of role model for patients and community was controlled ($t [190] = 3.863, p > .001$). Thus, there were no significant relationships between work-related demographics, personal demographics, and health promotion ($F [10,179] = 661, p > .05$). In conclusion, nurses who indicated a belief that they should be personal role models and who perceived that they had control over their health-related behaviors had higher health promotion scores.

TABLE OF CONTENTS

	Page
COPYRIGHT	iii
DEDICATION	iv
ACKNOWLEDGMENTS	v
ABSTRACT	vi
LIST OF TABLES	xi
Chapter	
I. INTRODUCTION	1
Problem of Study	1
Rationale for the Study.....	2
Theoretical Framework	3
Assumptions	7
Theoretical Propositions.....	7
Research Questions	7
Specific Aims	8
Variables.....	8
Definition of Terms.....	8
Limitations.....	12
Summary	13
II. REVIEW OF LITERATURE.....	15
Health Behaviors of Nurses.....	15
Nurse Self Rating of Their Health and Professional Work Environments ...	19
Role Modeling	22
Select Demographic Characteristics	28
Age	28
Age and Gender	30
Race/Ethnicity.....	31
Summary.....	32

III.	PROCEDURE FOR COLLECTION AND TREATMENT OF DATA	33
	Setting	33
	Population and Sample.....	34
	Inclusion Criteria.....	34
	Exclusion Criteria.....	35
	Recruitment and Sampling Methods.....	35
	Protection of Human Subjects	35
	Instruments	37
	Health-Promoting Lifestyle Profile II	38
	Demographic Data Tool	39
	Data Collection	39
	Treatment of Data	40
	Summary	41
IV.	ANALYSIS OF DATA	42
	Demographic Profile of Participants in the Study	43
	Instrument Reliability.....	48
	Health-Promoting Lifestyle Profile.....	49
	Findings	50
	Research Question One: Health Behaviors	50
	Gender	51
	Marital Status.....	53
	Number of Children	55
	Age	58
	Race	61
	Average Hours Worked.....	63
	Number of Years in Nursing.....	65
	Responsible for the Physical Care of an Adult Individual	72
	Research Question Two: Perception Role Modeling.....	75
	Research Question Three: Demographics and Health Behaviors.....	78
	Regression Equation One: Personal Demographics.....	81
	Regression Equation Two: Work-Related Demographics	83
	Regression Equation Three: Prior Behaviors	84
	Regression Equation Four: Perception of Health.....	85
	Summary of the Findings	87
V.	SUMMARY OF THE STUDY	88
	Summary	89
	Discussion of Research Findings.....	91
	Research Question One: Health Behaviors	91
	Health Responsibility	94

Nutrition.....	95
Spiritual Growth and Interpersonal Relations.....	95
Research Question Two Role Modeling.....	96
Research Question Three Demographics and Health Promotion	99
Personal Characteristics.....	99
Work-Related Characteristics	100
Prior Behaviors.....	100
Perception of Role Modeling and Control of Health Behaviors	101
Conclusions and Implications.....	102
Implications and Recommendations for Nurses and Profession	103
Implications and Recommendations for Hospitals	103
Limitations of the Study.....	105
Recommendations for Further Study	105
REFERENCES.....	107
APPENDICES	
A. Power and Effect Size.....	117
B. Recruitment Flyer	119
C. Recruitment Script.....	121
D. Demographic Tool.....	124
E. Health-Promoting Lifestyle Profile II.....	128
F. Permission Letter for Lifestyle Profile II.....	133
G. Health Promotion Model Diagram	136
H. Approval Letter St Luke’s Nursing Research	138
I. Approval Letter St Luke’s IRB	140
J. Approval Letter TWU IRB	142

LIST OF TABLES

Table	Page
1. Study Variables Congruent to the Health Promotion Model	6
2. Demographic Characteristics of Study Participants (n=250) Compared with Hospital and National Data.....	44
3. Responsible for Care of an Adult Individual.....	47
4. Personal Control Over Health-Related Behaviors	47
5. Perception of Health.....	48
6. Body Mass Index (BMI)	48
7. HPLP II Total and Subscale Reliability Coefficients	49
8. Mean Responses for the HPLP II Total and Subscales.....	50
9. Health Promotion Lifestyle Behaviors of Registered Nurses by Gender	52
10. Mean and Standard Deviation Results HPLP by Gender.....	53
11. Health Promotion Lifestyle Behavior of Registered Nurses by Martial Status.....	54
12. Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Martial Status.....	55
13. Mean and Standard Deviation Results of the HPLP II by Martial Status.....	55
14. Number of Children	56
15. Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Children	57

16. Spiritual Growth Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Children	58
17. Mean and Standard Deviation Results of HPLP by Number of Children.....	58
18. Health Promotion Lifestyle Behavior of Registered Nurses by Age	59
19. Health Responsibility Component of the Health Promotion Lifestyle Behavior Registered Nurses by Age in Years	60
20. Nutrition Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Age in Years	60
21. Mean and Standard Deviation Results of HPLP by Age in Years	61
22. Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Race	62
23. Mean and Standard Deviation Results of HPLP by Race	63
24. Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Average Hours Worked.....	64
25. Mean and Standard Deviation Results of HPLP II by Average Hours Worked	65
26. Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing	66
27. Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing	67
28. Interpersonal Relations Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing	69
29. Nutrition Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing.....	70
30. Mean and Standard Deviation Results of HPLP by Years in Nursing	71
31. Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care	72

32. Spiritual Growth Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care	73
33. Interpersonal Relations Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care	74
34. Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care	74
35. Mean and Standard Deviation Results of HPLP by Physical Care.....	75
36. Frequency Perception of Registered Nurses toward Being Role Models for Patients and the Community.....	76
37. Mean and Standard Deviation Results Perception of Registered Nurses toward Being Role Models for Patients and the Community.....	77
38. Frequency Perception of Registered Nurses toward Their Profession as Being Role Models for Patients and the Community	77
39. Mean and Standard Deviation Results Perception of Registered Nurses toward Their Profession as Being Role Models for Patients and the Community	78
40. Mean and Standard Deviation Results Regarding Predictor and Criterion Variables.....	79
41. Intercorrelations between Predictor and Criterion Variables	80
42. Standard Multiple Regression Results the Association between Personal Demographic Factors and Total Health Promotion of Registered Nurses	82
43. Standard Multiple Regression Results the Association between Work-Related Factors and Total Health Promotion of Registered Nurses	83
44. Standard Multiple Regression Results the Association between Prior Health Behaviors Factors and Total Health Promotion of Registered Nurses.....	84
45. Standard Multiple Regression Results the Association between Perception Factors and Total Health Promotion of Registered Nurses.....	86

CHAPTER I

INTRODUCTION

Chronic diseases such as heart disease, stroke, cancer, and chronic obstructive diseases are the leading causes of death and disability in the United States (National Center for Health Statistics, 2013). Modifiable health risk behaviors such as lack of exercise, poor nutrition, tobacco use, and excessive alcohol consumption are common causes of chronic disease. Health behaviors and lifestyle choices can have long-term effects on the health outcomes of individuals with respect to preventing chronic diseases. One of the major roles of health care professionals is to promote positive health behaviors that may prevent chronic diseases. Nurses especially have a responsibility to not only educate, but also to model positive health behaviors for patients, families, and communities (American Nurses Association [ANA], 2008). Unfortunately, current research suggests that many nurses are not engaging in and modeling healthy behaviors.

Problem of Study

Despite professional education and training in health promotion and disease prevention, many nurses do not consistently engage in healthy behaviors (Nahm, Warren, Zhu, Minjeong, & Brown, 2012). Several studies have focused on nurses' personal health lifestyles and their findings indicated that nurses are not practicing what they teach. In the majority of existing studies focused on the health behaviors of nurses, the

samples were primarily White, middle-aged females. In the past decade, the demographic characteristics of nurses have changed. Because the nursing profession has become more diverse, sampling of study participants needs to be purposive to produce findings with greater generalizability.

During the 1980s, 87.7% of nursing graduates were White non-Hispanic and 12% were non-White or Hispanic (U.S. Department of Health and Human Services, The Registered Nurse Population, 2010). From 2005-2008, 77.5% of nursing graduates were White non-Hispanic and 22.5% were non-White or Hispanic. The male population increased from 4.1% in 1990 to 9.6% in 2005-2008, and the percentage of nurses under the age of 40 grew to 29.5% from 18% in 2004 (U.S. Department of Health and Human Services [USDHHS], 2010). Little is known about the health behaviors of hospital nurses in a more demographically diverse sample (i.e., race, ethnicity, age, gender, etc.). Further investigation is needed to determine whether variables such as age, gender, or race/ethnicity are associated with variance in the health behaviors of registered nurses (RNs). The focus of this study was to investigate whether nurses representing diverse demographic variables reported different health behaviors and to determine whether these nurses perceived themselves as role models for patients and others.

Rationale for the Study

The credibility of nurses as health providers and educators may be linked to patient expectations that nurses should model healthy behaviors. Florence Nightingale believed that nurses had a duty to care for their own personal health and to promote health through role modeling (Dossey, 2005). Patients will judge their nurses as role

models based on observable compliance with healthy behaviors (Rush, Kee, & Rice, 2005). In an annual letter to her nurses, Florence Nightingale wrote, “And how are we to teach, every one of us? How are we to teach the poor patients, and ourselves, and each other? Not by preaching but by example, by being it ourselves” (Dossey, 2005, p. 41). According to the current literature, nurses are not modeling healthy behaviors. Research suggests that nurses’ physical activities, smoking practices, and dietary patterns are no healthier than those of the general population whose health they have been entrusted to improve. However, published studies describe samples including predominately White, middle-aged females, which is not an accurate representation of the current nursing population.

Because of a gap in the literature that accurately describes the health behaviors of the diverse population of nurses in the United States, further study is needed to identify any variation that may exist in relation to age, gender, or ethnicity. The purpose of this study was to examine and describe nurses’ health behaviors using the Health-Promoting Lifestyle Profile II questionnaire (Walker, Sechrist, & Pender, 1997), to identify sociodemographic variables associated with a variety of health behaviors, and to determine whether nurses perceive themselves as role models of healthy behavior to others.

Theoretical Framework

The Health Promotion Model (HPM), which identified background factors that influence health behaviors, was the theoretical framework that guided this study. The philosophical foundation is based on the interaction world view I concept (Pender,

Murdaugh, & Parsons, 2010), which states that humans are viewed holistically, but that parts can be studied within the context of the whole. Human beings interact with their environment and shape it to meet their needs and goals. The theoretical roots derived from HPM are: (a) expectancy value theory proposes that individuals engage in actions to achieve goals they perceive as possible and as resulting in valued outcomes; and (b) social cognitive theory proposes interaction between an individual's thoughts, behavior, and environment, and that to alter how they behave, people must alter how they think. Health promotion is behavior motivated by the desire to increase well-being and actualize human health potential.

The HPM consists of three major concepts: (a) individual characteristics and experiences; (b) behavior-specific cognitions and effects; and (c) behavioral outcomes. Individual characteristics and experiences include prior related behavior and personal factors (Pender et al., 2010). Prior related behavior is the frequency of the same or similar health behavior in the past. Personal factors include "biological, psychological, sociocultural, and general characteristics of the individual that influence health behaviors such as age, personality structure, race, ethnicity, and socioeconomic status" (Pender et al., 2010, p. 45).

The second concept, behavior-specific cognitions and effects, includes perceived benefits of action, perceived barriers to action, perceived self-efficacy, activity-related affect, interpersonal influences, and situational influences (Pender et al., 2010). Perceived benefits of actions are defined as perceptions of the positive or reinforcing consequences of undertaking a health behavior. Perceived barriers to action are defined

as perceptions of blocks, hurdles, and personal costs of undertaking a health behavior.

Perceived self-efficacy is the judgment of personal capability to successfully organize and execute a particular health behavior. Activity-related affect is subjective feeling states or emotions that occur before, during or after a specific health behavior.

Interpersonal influences can consist of family, peers, providers, norms, social support, role models perceptions, and beliefs or attitudes, of others in regard to engaging in a specific health behavior. Situational influences in the external environment can increase or decrease commitment to or engage in health-promoting behaviors (Pender, Murdaugh, & Parsons, 2006).

The third concept is behavioral outcome, which is the commitment to a plan of action, such as health-promoting behaviors, despite immediate competing demands and preferences. The competing demands refer to conflicts over which the individual has low control and competing preferences are alternate behaviors with high personal control. Commitment to an action plan of is the intention to carry out a particular behavior including the identification of specific strategies to do successfully (Pender et al., 2006). In this study, patients' perceptions of nurses as role models may affect whether they will engage in a particular health behavior.

The health promotion model concepts that served as the theoretical framework are congruent with study variables. Individual characteristics and experiences are represented by variables such as age, gender, race, ethnicity, religion, education, weight, height, tobacco use, and alcohol use. Behavior-specific cognitions and effect reflected by the study variables are perceived benefits of action (role modeling), interpersonal

influences (relationship and children), and situational influences (years as a nurse working hours and shift work). Health-promoting behaviors to be examined in this study are health responsibility, interpersonal relations, nutrition, physical activity, spiritual growth, and stress management.

The theoretical frameworks that guided this study were the individual characteristics and experiences, behavior-specific cognitions, and effect. A researcher-developed demographic tool was used to measure the individual characteristics and experiences concept. The HLPLII tool was used to measure the behavior-specific cognitions and effect.

Table 1

Study Variables Congruent to the Health Promotion Model

Individual Characteristics & Personal Factors	Behavior-specific Cognition & Effect	Health-Promoting Behavior
Age	Perceived benefits of action Role modeling	Health responsibility
Gender	Interpersonal influences relationship Number of children Physical care adult individual	Interpersonal relations
Ethnicity/Race	Situational influences Years as a nurse Shift work	
Weight	Perceived benefits of action	Nutrition
Height	Perceived benefits of action	Physical activity
Tobacco use	Perceived benefits of action	Spiritual growth
Alcohol use	Perceived benefits of action	Stress management

Assumptions

The assumptions inherent in the HPM that apply to this study are: (a) individuals seek to actively regulate their own behavior; (b) health professionals (nurses) constitute a part of the interpersonal environment and exert influence on others throughout their lifespans; and (c) individuals—in all their biopsychosocial complexity—interact with the environment, progressively transforming the environment and being transformed over time.

Theoretical Propositions

Theoretical propositions of the HPM state that prior behavior and inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior. Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behavior. Situational influences in the external environment can also increase or decrease commitment to or participation in health-promoting behavior. Commitment to a plan of action is less likely to result in the desired behavior when competing demands over which persons have little control require immediate attention.

Research Questions

1. What are the health behaviors of registered nurses working in acute care hospitals?
2. Do nurses perceive themselves as role models of healthy behaviors for patients and others?
3. Are there demographic differences (age, gender, race, ethnicity, length of time in the profession, and hours worked) associated with health behaviors of registered nurses?

Specific Aims

The specific aims of this study were threefold. First, the study measured the degree to which registered nurses engage in health behaviors along the six dimensions of the HLPLII: spiritual growth, health responsibility, physical activity, nutrition, interpersonal relations, and stress management. Second, the study assessed whether nurses believe they should be role models for patients as measured by three questions from the demographic data collection tool. Third, the study identified any significant differences between selected demographic variables (age, gender, race/ethnicity, and years of nursing experience) associated with the health behaviors of registered nurses in an acute setting in southwest Texas as measured by a researcher-generated demographic data collection tool.

Variables

The variables to be examined in this study were the dependent variable of health behaviors (health responsibility, interpersonal relations, nutrition, physical activity, spiritual growth, and stress management), and the independent variables of role modeling and demographic characteristics (age, gender, race, ethnicity, religion, reported body mass index (BMI), tobacco use, alcohol use, number of children, years of experience in nursing, and hours worked per week).

Definition of Terms

The following are conceptual and operational definitions of the study's dependent and independent variables.

Age is the length of time a person has lived (Merriam-Webster Dictionary, 2015). This variable was measured by self-report based on the age range (20-29, 30-39, 40-49, 50-59, and 60 years and older) selected on the demographic data tool.

Gender distinguishes human males and females based on specific characteristics (Merriam-Webster Dictionary, 2015). The gender variable was measured by self-report based on the selection of male or female on the demographic data tool.

Race is a group of individuals distinctively characterized by genetic and or physical similarities (Merriam-Webster Dictionary, 2015). This variable was measured by self-report through selection of Asian, Black, Hispanic, Native American, or White on the demographic data tool.

Ethnicity refers to a group of people who share distinctive traits such as race or nationality that creates a cultural identity (Merriam-Webster Dictionary, 2015). Ethnicity was measured by self-report based on the choice of Hispanic or non-Hispanic on the demographic data tool.

Height describes the length of individual from crown of the head to bottom of foot while standing erect (The American Heritage Stedman Medical Dictionary, 2013). The height variable was measured by self-report in inches on the demographic data tool.

Weight is a “measure of how heavy a person is” and is most often measured in pounds in the United States (Merriam-Webster Dictionary, 2015). This variable was self-reported in pounds and recorded on the demographic data tool.

Tobacco use describes the use of products made from the tobacco leaf to obtain the systematic effects of nicotine through smoking or smokeless exposure (Merriam-

Webster Dictionary, 2015). This variable was measured by self-report based on a response of yes or no on the demographic data tool with respect to the use of tobacco in last month.

Alcohol use is the consumption of fluids prepared through the chemical reaction of fermenting sugars (Merriam-Webster Dictionary, 2015). The alcohol use variable was measured by self-report of the number of alcoholic beverages (1 drink = 1 beer, 1 glass of wine, or 1 oz. of liquor) ingested during the last week on the demographic data tool.

Relationship is the various ways that two people interact for a specific purpose (Merriam-Webster Dictionary, 2015). This variable was measured with the demographic data tool.

Children are the offspring of two individuals and can be daughters or sons (Merriam-Webster Dictionary, 2015). This variable was measured by self-report based on the number of children (0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 plus) reported on the demographic data tool.

Years of experience is the period of employment in the nursing profession at any level. This variable was measured by self-report based on the number of years (0-5, 6-10, 11-15, 16-20, 21-25, 26-30, 31-35, and 40 plus) selected on the demographic data tool.

Working hours is the number of hours worked per week, defined as full-time (36 hours or more per week) or part-time (less than 36 hours per week). This variable was measured by self-report based on the number of hours (5, 10, 15, 20, 25, 30, 35, 40, 45, and 50) selected on the demographic data tool.

Fitness center is a place where people gather to engage in physical activities to improve health (Merriam-Webster Dictionary, 2015). This variable was measured by self-report and recorded on the demographic data tool.

Role model describes a person who serves as an example, usually positive, for others (Merriam-Webster Dictionary, 2015). This variable was measured by self-report based on the selection of never, sometimes, often, or routinely on the demographic data tool.

Health behaviors are defined as activities in which an individual may engage that lead to improved health or prevention of illness (Mosby Medical Dictionary, 2009). Health behaviors measured in the study were health responsibility, interpersonal relations, nutrition, physical activity, spiritual growth, and stress management. The health behaviors variable was measured by self-report on HPLP II items 1-52.

Registered nurse (RN) is a “title assigned to a licensed medical professional that has met qualifications and achieved competencies established by the nursing profession and the state board of nursing” (22. Texas Administrative Code, 2004). In this study, the term was operationalized as a registered nurse employed and functioning at the acute care institution where the study was conducted and participants were limited to those who met these criteria.

Health responsibility “emphasizes the individual’s accountability for informed behavioral choices and physical wellness to maximize their physical health” (Walker & Hill-Polerecky, 1996, p. 2). This variable was measured by self-report based on responses to HPLP II items 3, 9, 15, 21, 27, 33, 39, 45, and 51.

Interpersonal relations “refers to different methods of communications and interactions among individuals” (Walker & Hill-Polerecky, 1996, p. 1). Interpersonal relations were measured by self-report based on responses to HPLP II items 1, 7, 13, 19, 25, 31, 37, 43, and 49.

Nutrition “is defined by choosing different types of nourishing foods to maximize one’s health and well being” (Walker & Hill-Polerecky, 1996, p. 2). The nutrition variable was measured by self-report based on responses to HPLP II items 4, 10, 16, 22, 26, 32, 38, 44, and 50.

Physical activity refers to any type of movement or physical exertion, whether it is planned exercise or part of daily living (Walker & Hill-Polerecky, 1996). The physical activity variable was measured by self-report based on responses to HPLP II items 4, 10, 16, 22, 24, 28, 34, 40, and 46.

Spiritual growth is the “search for meaning or purpose in life and the progressive development of a sense of inner peace and harmony” (Dossey, Keegan, Kolkmeir, & Guzzetta, 1989). Spiritual growth was measured by self-report based on responses to HPLP II items 6, 12, 18, 24, 30, 36, 42, 48, and 52.

Stress management describes direct ways to manage or decrease tension (Antonovsky, 1987; USDHHS, 2010). The stress management variable was measured by self-report based on responses to HPLP II items 5, 11, 17, 23, 29, 35, 41, and 47.

Limitations

Participants in this study were RNs from a large acute care hospital in southeast Texas. The results from this limited sample may not be generalizable to practicing RNs

in other acute care hospitals or other care settings. Recall bias may exist with respect to the self-reported questionnaire used to measure study variables. In addition, the participant responses to the survey questions may reflect what is professionally and socially acceptable rather than actual practice.

Summary

Health behaviors and lifestyle choices can have long-term effects on individual health outcomes. Nurses have a responsibility to educate and model health behaviors to patients, families, and communities (American Nurses Association, 2008). Several studies have focused on nurses' personal health lifestyles, with results indicating that nurses are not practicing what they preach.

The majority of the published studies focusing on the health behaviors of nurses describe samples that include primarily white, middle-aged females. Little is known about the health behaviors of hospital nurses in more demographically diverse samples (i.e., race, ethnicity, age, gender, etc.). Further investigation is needed to characterize possible correlations between health behaviors and demographic factors such as age, gender, race, or ethnicity of registered nurses. This study investigated whether nurses representing diverse demographic variables reported different health behaviors and whether they perceive themselves as role models for patients. The health promotion model (HPM) was the theoretical framework that guided the study. The HPM identified background factors that influenced health behavior. The assumptions of the model are that: (a) individuals seek to regulate their own behavior; (b) health professionals (nurses) constitute a part of the interpersonal environment and exert influence on others

throughout their lifespans; (c) individuals—in all their biopsychosocial complexity—interact with the environment, progressively transforming the environment and being transformed over time.

CHAPTER II

REVIEW OF LITERATURE

This chapter critically examines peer-reviewed literature addressing the variables of interest—health behavior, perception of nurses as role models, and selected demographics. The library databases that were searched included CINAHL, PubMed, Academia Search, government websites, and ProQuest Dissertation and Thesis. Additional information was obtained using the Google Scholar search engine and from the websites of professional organizations.

Health Behaviors of Nurses

Nurses focus on the health behaviors of patients, their families, and communities with the goal of decreasing the incidence of chronic disease. However, the question remains, are nurses practicing health behaviors for themselves? In 2007, the American Association of Colleges of Nursing (AACN) stated that competent self-care has been a major component of holistic nursing since Nightingale's era. The standards of the American Holistic Nurses Association (AHNA, 2007) identify the need for integration of self-care, self-responsibility, spirituality, and reflection into nurses' lives.

Many research studies have concluded that nurses do not practice positive health behavior in their personal lives, and that the majority of nurses are overweight (Miller, Alpert, & Cross, 2008; Nahm et al., 2012; Zapka, Lemon, Magner, & Hale, 2009; Zitkus, 2011). Nursing work characteristics such as irregular meal schedules, long work hours,

and high stress levels are known risk factors for obesity (King, Vidourek, & Schwiebert, 2009).

Miller, Alpert, and Cross (2008) quantified nurses' knowledge of obesity and associated health risks and their incidence of overweight and obesity. In their survey mailed to 4,980 randomly selected RNs from six geographic regions in the United States, 760 nurses responded (response rate of 15%). Their findings revealed that the mean BMI of the nurses was 27.2. Almost 54% of respondents were overweight or obese, and 53% reported that they were overweight but lacked the motivation to make lifestyle changes. Despite adhering to a healthy diet and exercise, 40% were still unable to lose weight. The knowledge level about obesity among the surveyed nurses was also lacking, with only 26% using BMI to make clinical judgments of overweight and obesity. A key finding of the study was that 93% of nurses acknowledged that overweight and obesity are diagnoses requiring interventions, but 76% indicated that they do not address the topic with overweight and obese patients. Many nurses provide weight-related health information to the public, however the findings also suggested that many nurses could benefit from continuing education on the topic of obesity and related health risks. The sample was primarily Caucasian (92%), almost entirely female (92%), and highly experienced (42 % had a Bachelor's degree, and had more than 25 years of professional nursing experience), and may not represent the overall population of RNs in the United States.

Nahm and associates (2012) focused on self-care behaviors of nurses, which included diet, exercise, stress, weight and their preferred strategies to manage those factors. The sample consisted of 183 nurses, with a mean age 47 and 11.3 years of

experience working in an urban community-based teaching hospital. A majority of the participants (n=122) reported lack of exercise, and more than half (n=91) reported irregular meal patterns. The average BMI was 28.2, and 59.2% (n=100) of respondents were either overweight or obese. A significant inverse relationship was observed between BMI, having a regular meal schedule, and the amount of time spent exercising. The most common methods of stress release reported by participants were eating (n=32) and exercise (n=31). Nurses are aware of measures that contribute to healthy living; however, this knowledge has not translated into self-care. Further research was recommended to identify factors that could motivate nurses to better care for themselves and measures that might be implemented by employers to initiate and sustain preventive health care behaviors.

Zapka et al. (2009) designed a study to describe the weights, weight-related perceptions, and lifestyle behaviors of hospital-based nurses, and to explore the relationship of demographic, health, weight, and job characteristics with lifestyle behaviors. Findings of this study were similar to those of previous studies, with the majority of the nurses falling into the categories of overweight and obese; however, the rate of overweight and obesity among the nurses was similar to that in the general adult population at that time (Ogden et al., 2010). Based on self-report, the numbers of nurses reporting consumption of a healthy diet and physical activity were low. A noted strength of the study was that heights and weights were measured by the investigators, whereas many nurses did not perceive themselves to be overweight or obese.

Zitkus (2011) conducted a cross-sectional, descriptive study that investigated the relationships between BMI, personality type, weight loss regimens, and successful and unsuccessful weight loss. Registered nurses (n=721) were recruited from two professional nursing organizations and one large nursing university. Participants answered questions related to their weight status, weight loss attempts, and motivations. In the study, 57% of the participants were either overweight or obese, compared to 66% of adults age 20 years and older in the general population. The National Institutes of Health (2007) Weight Control Information Network examined data from the 2001-2004 National Health and Nutritional Examination Survey (NHANES). This data revealed that 27% of the RNs were obese compared to 31% of the general population and 41.9% were overweight compared to 32.2% of the general population. Registered nurses who had lower BMIs were more successful in losing weight than those who had higher BMIs. They were more successful in their attempts if they did not use a diet regimen. Nurses desiring to lose weight need to make a shift in their thinking and replace dieting with lifestyle and behavior change.

McElligott, Siemers, Thomas, and Kohn (2009) suggested the need to develop holistic nursing interventions to promote self-care in stress management and physical activity. In a sample of 149 nurses, they examined the health-promoting lifestyle behaviors of acute care nurses using the Health Promotion Lifestyle Profile II (HPLP II) questionnaire. The HPLP II survey is a 52-item questionnaire that addresses various aspects of wellness: nutrition, stress, spirituality, health responsibility, interpersonal

relations, and physical activity. The results of this survey indicated weaknesses in stress management and physical activity.

Nurse Self-Ratings of Their Health and Professional Work Environments

One may expect that nurses' health behaviors would be somewhat better than the health behaviors of the overall population given the strong focus of nursing practice on health promotion. Tucker, Harris, Pipe, and Stevens (2010) examined the relationships among RNs' ratings of their health behaviors, health status, and work environments. They conducted an electronic survey of 3,132 RNs from five states, including: Minnesota, Arizona, Florida, and two regional hospitals in Wisconsin. The sample included primarily female (92%) and white (96%), with a mean age of 44 years, married (73%), and college degreed (68%) participants. The respondents rated their health as *good*, yet their stress levels remained the one consistent predictor of poor health ratings. More than half of the participants reported being overweight, only 50% met physical activity standards, and more than two-thirds reported a history of back or needle stick injuries. Although the sample participants reported overall good health with mild stress and positive work environments, perceived stress was inversely predictive of health behavior and work environment ratings. The investigators further concluded that professional work environment does not predict nurses' health ratings.

In addition, the nurses reported overall positive health ratings, with nearly half (47%) reporting no unhealthy days during the previous month. However, more than half of the participants reported being overweight, with one in four also reporting height and weight data that met obesity criteria. These findings are consistent with previous reports

in that despite overall positive self-ratings of health status, nurses reported inconsistent levels of engagement in recommended health promotion practices. The sample was homogeneous in terms of ethnicity and gender, limiting generalization to different ethnic groups or males.

The work and responsibility of nursing is to improve the health of patients, families, and communities. Self-rated health evaluations have indicated that positive health-related lifestyles appear to have a positive impact on perceived health, and those health behaviors such as smoking and alcohol consumption are associated with poor self-rated health. A number of researchers worldwide have studied nurses' self-ratings of their health status and related lifestyle factors (Malinauskiene, Leisyte, Malinauskas, & Kirtiklyte, 2011; Naidoo & Coopoo, 2007; Pappas, Alamanos, & Dimoliatis, 2005).

Pappas et al. (2005) investigated the association between self-rated health and health related behaviors and work characteristics among hospital nurses in northwest Greece. A self-administered questionnaire distributed to a random sample of 443 nurses working in seven Greek hospitals resulted in 353 responses, for a response rate of 80%. The sample was 88% female (n=311) and 12% (n=42) male, with a mean age of 36 years and 13.5 mean years of nursing experience. Almost half of the nurses self-identified as smokers and about one-third indicated they were overweight or obese. In addition, 58% (206) of the nurses reported having poor health, while 42% (147) said they were in good health. According to multiple logistic regression analysis, self-rated health status was independently associated with gender, effort to avoid fatty foods, and physical activity. The researchers concluded that participants presented a relatively poor overall health

profile, with a high incidence of poor self-rated health. Female gender and efforts to avoid fatty foods were associated with poor self-rated health, while exercise and white meat consumption were associated with good self-rated health; specific work characteristics were not associated with self-rated health.

Malinauskiene et al. (2011) investigated the association between self-rated health and psychosocial factors at work and in everyday life (e.g., job demands, job control, social support, workplace bullying, life-threatening events); health behaviors (e.g., smoking, alcohol, being overweight, obesity, low physical activity); mental distress; job satisfaction; and sense of coherence in a sample of internal medicine nurses working in Lithuanian hospitals during 2005-2006. The study participants ranged in age from 24-70 years with a mean age of 45 years. Their survey revealed that age, high job demands, low job control, low social support at work, life-threatening events, physical inactivity, being overweight or obese, mental distress, low job satisfaction, and low sense of coherence were related to negative self-health ratings among Lithuanian hospital nurses. Negative self-rated health status increased with age and, according to these researchers, is a factor that policy makers and health managers should consider as part of their overall strategy to increase nursing retention. Recommendations from the study included implementation of health promotion strategies and intervention programs to eliminate adverse psychosocial factors at work and to improve lifestyle risk factors among nurses. These studies resulted in findings similar to those conducted with American nurses, with a majority of nurse participants rating their health as poor, reporting low physical activity, and indicating that they were overweight or obese.

Role Modeling

Healthy People 2020 states that improving health behavior can be a potent means of preventing disease and promoting health (USDHHS, 2012). Nurses are expected to take an increased interest in their own health in order to be effective role models for the public. Lawrence and Schank (1993) investigated whether there were differences in health behaviors between women enrolled in nursing and non-nursing curricula. Participants who reported their health as *good* or *excellent* viewed health as very important and generally engaged in positive health practices and no significant differences were noted between nursing and non-nursing students. Other researchers (Blake & Harrison, 2013; Blake, Malik, Mo, & Pisano, 2011) investigated behaviors among nursing students and their attitudes towards being role models for their patients. Respondents generally believed that nurses should serve as positive health role models, although opinions varied according to individual health profile. A substantial number of participants in this study indicated that they were overweight or obese (24%), not physically active (47%), did not eat the recommended five portions of fruit and vegetables per day (73%), binge drinkers (40%), and smokers (17%). The researchers concluded that despite education in health promotion practice, many of the nursing students' health behaviors were less than exemplary and were inconsistent with their own beliefs and attitudes about their importance as role models for the general public.

Hankey, Eley, Hunter, and Lean (2003) conducted a study to document the knowledge, attitudes, beliefs, and eating habits of primary care health professionals (general practitioners, nurses, and dietitians) with respect to obesity, nutrition, and

weight management. The participants consisted of primarily females (99.8%) aged 35-44 years (41%) and included general practitioners (n=741), nurses (n=509), and dietitians (n=255). The nurses completed a questionnaire and 71% percent of participants reported having a BMI lower than 25. Results indicated that all of the surveyed professionals (general practitioners, nurses, and dietitians) clearly understood nutrition and health, however their understanding was limited with respect to obesity as a disease and effective weight management using a low energy diet. Most participants were uncertain about their own effectiveness in delivering weight management advice. The researchers concluded that participating health professionals (general practitioners, nurses, and dietitians) had some knowledge of nutrition and weight management, but were unsure how to deliver effective weight management advice. They recommended additional training to ensure that the professionals could effectively advise their patients about nutrition.

Studies also suggest that nurses' own lifestyle behaviors may play a significant role in their willingness and perceived ability to promote healthy behaviors. Esposito and Fitzpatrick (2011) examined the relationships between nurses' beliefs about the benefits of exercise, their exercise behavior, and their recommendation of exercise to patients. A convenience sample of 112 nurses in a New York hospital completed a questionnaire. Their exercise behaviors were measured using the physical activity subscale of the HPLP II and beliefs about the benefits of exercise were measured using the Exercise Benefits/Barriers Scale (EBBS) with a higher score reflecting a more positive feeling about the benefits of exercise. The sample was primarily female (93%) with an average

age of 43 years and the majority worked day shift (79%), held bachelor's degrees (50%), had a BMI between 18-24 (49%). The results of this study indicated that the nurses surveyed were lower in weight than the general population. The results of the study suggested a link between nurses' beliefs about the benefits of exercise and their recommendations of the benefits to patients. Nurses who believed in health promotion and embraced healthy behaviors themselves were more likely to be positive role models and promote healthy behaviors among their patients. These results suggest that physical activity and beliefs about the benefits of exercise similarly influence nurses' recommendations of exercise to patients. The investigator concluded that improved health and reduced disease burden on future generations through exercise is an admirable goal for both nurses and patients.

Nurses are knowledgeable about health and wellness and, as a healthy group of professionals, have the potential to serve as role models for a healthy lifestyle. Nurses know that healthy living results from many small choices to eat right, exercise, and get enough rest. Although they know what to do, it can be a challenge to practice what they preach (The American Nurse, 2012). During the American Nurses Association/California (2012) conference, nurses were recruited to participate in a short health risk assessment. Only 3% of survey respondents reported using tobacco, although the rate for the below 30 age group was 17% in the general population. The low tobacco use by nurses is consistent with the Nurses' Health Study (2012).

Domrose (2012) conducted a survey on nurses' health practices at a Georgia Nurses Association (2012) conference and almost all of the participating nurses reported

drinking less than the suggested maximum of two units of alcohol per week. Of the nurses responding to the survey, 70% of nurses indicated they were overweight and 40% self-reported as obese. The 30-39 year old age group reported the highest rates of obesity and only 35% of that group indicated that they exercised the recommended four to five times per week. Also, only 40% of the study population ate the suggested four or more servings of fruits and vegetables per day. In addition, 78% drank one or fewer sugary beverages per day, with the 30-39 year age group reporting the most sugary drinks daily.

The Preventative Cardiovascular Nurses Association (PCNA) investigated whether cardiovascular nurses were good role models for their patients (Hayman, Berra, Fletcher, & Houston, 2015; Trossman, 2009). They compared national Behavioral Risk Factor Surveillance data for women, data from nurses in all roles who participated in the Nurses' Health Study (NHS, 2012), and nurse members of PCNA. They found that 44.6% of the general population and 41% of NHS participants were of a healthy weight, however 50% of PCNA members were in a healthy weight range. The findings indicated that 18% of the general female population reported smoking, 8% of nurses participating in NHS 2012, and 3.6% of PCNA members reported smoking, which contradicts reports from previous studies.

Two other studies (Connolly, Gulanick, Keough, & Holm, 1997; Blake & Harrison, 2013) surveyed critical care nurses by asking the following three questions about health practices in their daily lives: (a) what they are currently doing to stay healthy; (b) whether they anticipate making any lifestyle changes in the future; and (c) whether they would recommend their lifestyle to their patients. More than 70% of the

participating critical care nurses indicated that they engaged in exercise and followed a healthy low-fat diet, 71% said that they anticipated making a future lifestyle change, and 70% said they would recommend their lifestyle to their patients. Nurses' health practices can have a profound effect on their patients. Blake and Harrison (2013) investigated the health behaviors of nurses and their attitudes towards serving as role models for their patients. The responses revealed that 24% of participants were overweight or obese, 47% were not physically active enough to benefit their health, 73% did not eat the recommended five servings of fruit and vegetables per day, 40% reported binge drinking, and 17% were smokers. The majority of the nurses believed that they should be role models for health. Despite being educated in health promotion practices, the nurses' health behaviors were less than exemplary and many appeared contradictory to their stated belief that they should provide an example of good health behaviors for their patients. The investigators suggested that nursing education should place greater emphasis on the importance of translating their knowledge of health practices to their own behaviors.

There is pressure for nurses to conform to a certain healthy lifestyle and image in order to maintain a degree of credibility with their patients. Coutts (1986) posed the question, "If all do not conform to the ideal role model, why do they remain credible sources for health related information for so many people?" Nurses may consider their credibility diminished by engaging in certain activities, however the general public still regards nurses as making an important contribution to the general pool of health information. Coutts concluded that nurses' credibility does not necessarily emanate

solely from their own health-related activities. Slater (1990) suggested that being an effective role model requires personal effectiveness (i.e., self-confidence, ability to communicate with sincerity, warmth, and empathy). Therefore, credibility may not depend on what a nurse does, but on who she is. Establishing relationships with patients based on warmth, respect, genuineness, and empathy seems to be a more effective method of helping people make healthy choices pertinent to their own lives.

In a qualitative study, Rush et al. (2005) investigated ways in which nurses describe themselves as health-promoting role models. Nurses defined themselves as role models of health promotion according to the meaning they gave the term, their perceptions of societal expectations, and their self-constructed personal and professional domains. Nurses perceived that society expected them to serve as role models, to be informational resources, and to practice what they preached. However, they defined themselves independently of societal expectations according to personal and professional domains. Valuing health, accepting imperfections, and self-reflecting were aspects of personal domain, whereas gaining trust, caring, and partnering were facets of the professional domain.

Nurses are expected to take an increased interest in their own health in order to be effective role models for the public. Those who report their health as good or excellent generally view health as very important and generally engage in positive health practices. Research studies (Blake & Harrison, 2013; Blake et al., 2012) support the idea that nurses should serve as positive health role models, although opinions varied according to individual health profile. Although nurses know how to live a healthy lifestyle, it can be

a challenge to practice what they teach. Further investigation will focus on the role of demographic characteristics such as age, gender, and race in nurses' health behaviors.

Select Demographic Characteristics

Age

The ageing workforce is of concern in the nursing profession. The recent economic recession in the United States has led to an increase in hospital employed nurses, with more than half over age 50 (Buerhaus, Auerbach, & Starger, 2009). A 2010 nursing workforce survey reported the average age of RNs as 47 years, with nearly 45% of RNs aged 50 years or older—representing an increase from 33% in 2000 and 25% in 1980 (USDHHS, 2006). Additionally, while there was a 62% increase in younger nurses aged 23-26 years entering the workforce between 2002-2009 (Auerbach, Buerhaus, & Straiger, 2011), an increase in the number of accelerated programs for second career students in the United States is leading to graduates who are older at the start of their careers (Auerbach et al., 2011).

Letvak, Ruhm, and Gupta (2013) conducted a cross-sectional survey designed to determine whether there are any differences in the self-reported health, health-related productivity, or quality of care between younger and older hospital nurses. The study consisted of 1171 eligible nurses, however only 47% participated in the study and 26% were over the age of 50 years. The study results indicated that older nurses had higher BMIs, greater mental wellness, higher pain scores, a greater prevalence of health problems, and a greater health-related productivity loss than younger nurses. The investigators concluded that nurses have a responsibility to care for themselves in

addition to caring for their patients. Younger nurses need to be aware that lifestyle choices today will impact their health and ability to practice nursing as they age.

Gabrielle, Jackson, and Mannix (2007) explored health and ageing concerns and self-care strategies of older female RNs working in direct care roles in public acute care hospitals using a qualitative design. The participants included 12 female nurses aged 40-60 years, and with an average of 20 years' experience working in acute care hospitals. Their findings revealed two major themes, each with several subthemes.

- Aches and Pains of Ageing
 - Neglecting self: “you do not think of yourself first”
 - Physical changes: “body wearing out”
 - Living with pain: “you just work around it”
 - Tiredness “I am tired all the time”
- Evolving lifestyles
 - The power of exercise: “I feel great”
 - Healthy eating: “low fat, lots of fruit and vegetables, little processed food”
 - Adapting to ageing: “I think it’s quite a good time of life”

The results of this study could increase awareness among organizations of the changing needs of older workers and lead to adapted service delivery to accommodate the health needs of the growing number of older nurses. One possible adaptation would be to develop methods to prevent excessive tiredness and reduce early retirement of older workers.

Age and Gender

Zanjani, Schaie, and Willis (2006) investigated changes in health behavior of four age groups over a five-year period considering age, health status, and gender effects. The results indicated that although there was no link between gender and changing health behavior, changes over time differed by age/cohort group and health status for food consumption, food preparation, and medical care. Findings showed poor health behavior change in older adults and those with disabilities and positive health behavior change in younger individuals with a cardiovascular diagnosis. Very old adults did not show positive change regardless of their health condition, whereas middle-aged and older adults with adverse health conditions did show positive health behavior changes. Younger individuals with no adverse health conditions maintained reasonably stable health behavior levels. The study findings suggest stages of behavior change linked with an individual's age and health status.

Deeks, Lombard, Michelmores, and Teede (2009) investigated gender, age screening practices, health beliefs, and perceived future health needs for healthy ageing in a questionnaire survey of 1456 Australian adults. They found that screening behavior was associated with age and gender, with men and women older than 51 years were more likely (27%) to have screening health checks than those younger than 50 years. Factors that influenced health were: lifestyle (92%), relationship (82%), and environment (80%). Women were more likely to have an annual health check, seek advice from their medical practitioner, and attend education sessions. More women and participants older than 51 years wanted information regarding illness prevention than men or those aged younger

than 30 years. The researchers concluded that age and gender were associated with health-related behaviors.

Race /Ethnicity

According to Heron (2016), the leading causes of death in all racial ethnic groups in the United States are heart disease (30%), cancer (23%), and stroke (7%). These chronic diseases account for nearly three-fourths of all deaths among adults aged 25-64 years, some of the most productive years of their lives. Although the majority of deaths in all racial ethnic groups result from chronic diseases, Black women and men have higher age-standardized death rates from cardiovascular disease than White women and men.

Winkleby and Cubbin (2004) examined racial and ethnic disparities in health behaviors related to chronic diseases. White populations had higher levels of unhealthy behaviors than Black or Hispanic populations, particularly for smoking, secondhand smoke exposure, and inadequate Pap and mammogram screening. For other health behaviors—particularly for physical inactivity and obesity—with the disparities being greater among Blacks than Hispanics. In addition, racial and ethnic disparities in health behaviors were greater among women, younger adults, and middle-aged adults than for older adults with respect to smoking, secondhand smoke exposure, physical inactivity, high alcohol consumption, and inadequate mammography screening. Finally, both White and Black adults of lower socioeconomic status, measured either by educational attainment or household income, had less healthy behaviors than those with higher

socioeconomic status for all health behaviors with the exception of high alcohol consumption.

Summary

The majority of published studies related to nurses' personal health have focused on weight and stress management; however, weight represents only a small part in measuring healthy lifestyle behavior. Health promotion is a "holistic concept that calls for the creation of empowered relationships between self, others, and the environment to improve wellness" (Carlson & Warne, 2007, p. 506). The AHNA recommends that nurses integrate self-care, self-responsibility, and spirituality into their lives (2007, p. 2). Several studies have focused on nurses' personal health lifestyles choices and the results indicated that nurses are not practicing what they preach. The majority of studies focusing on the health behaviors of nurses have described populations that were primarily white, middle-aged females. Little is known about health behaviors of hospital nurses in a more demographically diverse sample (i.e., race, ethnicity, age, gender, etc.). This gap in the literature suggests a need to study health behaviors of nurses with added attention to diversity of the nursing workforce (i.e., age, gender, and race/ethnicity). Although both the nursing profession and society view nurses as role models for healthy behaviors, little is known regarding the nurses' views on being role models. There has been limited study on whether nurses perceive an association between their health behaviors and their patient's compliance to health promotion. This study investigated whether nurses representing diverse demographic variables reported different health behaviors and whether these nurses perceived themselves as role models for patients.

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This study utilized a quantitative, cross-sectional, descriptive design to describe and document aspects of a situation as it naturally occurs (Polit & Beck, 2008). Because little is known about the demographic differences (i.e., race, ethnicity, age, gender, etc.) associated with health behaviors of hospital nurses, this study proposes to identify areas of need for use in planning future research and interventions to improve the health of this population. The dependent variable is health behaviors, including: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. The independent variables are role models and demographic characteristics including: age, gender, race, ethnicity, education, height/weight, tobacco use, alcohol use, years of nursing experience, working hours, interpersonal relationships, and number of children.

Setting

This study was conducted in a 650-bed hospital located in a large metropolitan city in southeastern Texas. The facility employs approximately 1,500 nurses and offers a full scope of medical-surgical and critical care services. Participants were recruited from a nursing distribution list obtained from the human resources office. Each unit had password-protected computers available for the participants to access the questionnaire online via Survey Monkey.

Population and Sample

The Principal Investigator (PI) consulted a statistician regarding the appropriate sample size and data analysis methods. The sample size was based on the reported Pearson coefficient of the correlation between age and health behaviors. The investigator identified three articles (Akyol, Cetinkaya, Bakan, Yarah, & Akkus 2007; Mungreiphy, Kapoor, & Sinha, 2011; Zanjani et al., 2006) from the literature that studied correlations of age and health behavior, reporting Pearson coefficients results of 0.25, 0.27, and 0.33, respectively. Based on the previously reported results, the statistician and PI estimated that this study would have a coefficient of 0.24. G*power (Faul, Erdfelder, Buchner, & Lang, 2009) statistics software was used to estimate the necessary sample size based on a statistical significance threshold of 0.05, power of 0.80, and Pearson coefficient of 0.24 (Sheppard, 1999). It was determined that a sample size of 100 participants would be needed to achieve significant findings (Appendix A).

A convenience sample including a minimum of 100 participants was recruited to complete the survey from among the 1500 registered nurses employed by this acute care hospital. All registered nurses employed full- or part-time by the study institution were eligible to participate. The sample from this hospital is representative of the nursing population on both national and state levels (USDHHS, 2010).

Inclusion Criteria

The inclusion criteria for this study consisted of licensed RNs employed full- or part-time by the study institution and providing direct or indirect patient care. Nurses in a variety of roles such as staff nurses, charge nurses, managers, and those in director or

executive roles were all eligible to participate. Participation in the study was voluntary and anonymous.

Exclusion Criteria

Registered nurses not employed by the study institution (contract or agency nurses) and employees in nursing fields who are not RNs, such as: LPN/LVNs, patient care assistants, and allied health professionals (physician assistants, dietitians, respiratory/occupational/physical therapists, and speech pathologists) were not eligible to participate in the study.

Recruitment and Sampling Methods

The Principal Investigator (PI) met with the nurse leaders and Staff Nurse Professional Practice Council (SNPPC) representatives to explain the study's purpose and inform the staff about the study. Recruitment flyers were displayed in each nursing unit break room throughout the hospital (Appendix B). The PI visited all patient care units in the hospital to explain the study and how to access and complete the online questionnaire. Each nurse was also sent an invitation to participate via email (Appendix C). The participants remained anonymous and no identifying information such as name or date of birth was collected. Completion of the online survey constituted implied consent to participate in the study.

Protection of Human Subjects

The PI was granted approval by the St. Luke's (Appendix D) and Texas Woman's University (Appendix E) Institutional Review Boards (IRBs). The study met the criteria for exemption from full review by both IRBs because data were collected through online

questionnaire without any identifying information (such as name or birth date). Nurses were invited to participate in this study in a recruitment letter that introduced the investigator and explained the purpose of the study (Appendix F). The study was also discussed with nurse managers and staff nurse council representatives to promote further awareness of and participation in the study.

The electronic survey started with a cover letter that asked qualifying nurses to voluntarily participate in the study and informed them that their completion of the questionnaire signified informed consent to participate. Each participant was assigned an anonymous code number to access the questionnaire and no identifying data were recorded. Participants' identities remained anonymous to the researcher and only aggregate data were reported. As with all electronic surveys, there was a slight risk that anonymity could be compromised if the computer's Internet protocol (IP) address appeared when data were downloaded from the survey site, however the investigator decreased this risk by disabling the feature that collects participants' IP addresses. The information was stored at Texas Woman's University in a secured network computer with password protection. The information could only be accessed by the research team and was not shared with others. Confidentiality of data was protected to the extent that is required by law. Potential benefits of participation in the study were increased self-awareness of positive and/or negative personal health behaviors and adding knowledge to the body of science regarding nurses' health behaviors. Decreased absenteeism, which can impact the institutional budget, is a potential benefit to the institution.

The potential risks to study participants included emotional distresses such as anger, anxiety, fatigue, and blaming self or others as they answered some of the personal questions. Other potential risks were loss of time and possible disclosure of identity through computer IP address. The participants were instructed that they had the right to decline participation in the study, stop answering the questions, or discontinue participation at any time during the survey without any effect on their employment at the hospital. If they had any questions about the research study, they were instructed to contact the researcher using the telephone number provided at the bottom of the recruitment letter. Participants were also informed that any questions about their rights as participants or about the way this study was conducted should be directed to the Texas Woman's University Office of Research or the St. Luke's IRB.

Instruments

Two instruments were used to collect data for the study, the demographic data tool and the HPLP II. The demographic data collection tool, developed by the investigator (Appendix X), captured the professional and personal characteristics of the participants and was used to obtain data necessary to answer the second and third research questions:

- Research Question 2: Do nurses perceive themselves as role models of healthy behaviors for patients and others?
- Research Question 3: Are there demographic differences (age, gender, race, ethnicity, length of time in the profession, hours worked) associated with health behaviors of registered nurses?

The demographic data were needed to identify the socio-demographics associated with health behaviors and nurses perceptions of role modeling (Appendix E). The HPLP II was used to measure the degree to which registered nurses engage in healthy behaviors along the six dimensions measured by the HPLP II: spiritual growth, health responsibility, physical activity, nutrition, interpersonal relations, and stress management.

Health-Promoting Lifestyle Profile II

The Health-Promoting Lifestyle Profile II (HLPL II) questionnaire (Walker et al., 1997) was used with written permission from the authors of the instrument (Appendix X) to measure Research Question 1: What are the health behaviors of registered nurses? The 52-item HPLP II is composed of a total scale (TotHPLP) and six subscales to measure behavior in the theorized dimensions of health-promoting lifestyle: spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. Individual responses are rated on a Likert scale from 1-4, where 1 = *never*; 2 = *sometimes*; 3 = *often*; and 4 = *routinely*. The score for overall health-promoting lifestyle was obtained by calculating a mean of the individual responses to all 52 items. The six subscale scores were obtained similarly by calculating a mean of the responses to subscale items. Higher scores suggested engaging in healthier behaviors habits (Appendix X). The mean score is recommended in order to obtain the average 1 to 4 metric of item responses and to allow meaningful comparison across subscale scores. The items included on each subscale are: health responsibility = 9 items; physical activity = 8 items; nutrition = 9 items; spiritual growth = 9 items; interpersonal relations = 9 items; and stress management = 8 items.

The validity and reliability of the HPLP II questionnaire was determined using data from 712 adults aged 18-92 years. Content validity was established by literature review and by content expert evaluation. Construct validity is supported by factor analysis that confirmed a six-dimensional structure of health-promoting lifestyle through convergence with the Personal Lifestyle Questionnaire ($r = .678$). Criterion-related validity was indicated by significant correlation with concurrent measures of perceived health status and quality of life ($r^2 = .269$ to $.491$). The alpha coefficient of the internal consistency for the TotHPLP was 0.943; alpha coefficients for the subscales ranged from 0.793 to 0.872. The 3-week retest stability coefficient for the TotHPLP scale was .892 (Walker & Hill-Polerecky, 1996).

Demographic Data Tool

The demographic data tool (Appendix X) completed by participants included questions related to education level, age, number of years in the profession, nursing specialty, exercise routine, diet, control of life, and perception of the nurse as a role model. The data permitted classification of participants into categories based on these characteristics.

Data Collection

Data collection was initiated by the PI after approval was obtained from both the hospital and university IRBs. An invitation to participate in the study and instructions regarding access to the online questionnaire were sent to all RNs via email. The investigator also met with the nurse leaders, the Executive Nurse Council, and SNPPC representatives to explain the study's purpose and raise awareness of the study among

hospital nursing staff. Support from nurse leaders was beneficial in helping to promote participation in the study. The HPLP II questionnaire was available online during a 4-week period to allow adequate time for recruitment of the minimum required sample size of 100 participants. The investigator visited all patient care units in the hospital to explain the study and how to access and complete the online questionnaire. Each nurse was invited to participate via email and notified that informed consent was implied if they chose to complete the questionnaire. Participant identities were not recorded or disclosed to the investigator and no personally identifiable information was asked or collected. The investigator sent an email reminder two weeks following distribution of the initial invitation to participate in the study. After the study period was concluded, data were prepared for analysis by the PI.

Treatment of Data

Data were collected via Survey Monkey, an online tool that enables users to create and design professional online surveys quickly and easily. “The company was founded in 1999 with a focus on helping people make better decisions, and has built technology based on over 10 years of experience in survey methodology and web development” (Survey Monkey, 2013). This secure electronic portal that allows safe storage of collected data and is a standard, acceptable, and approved method of data collection within the institution.

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 22.0 software to calculate descriptive and inferential statistics such as the Pearson coefficient, regression model, and ANOVA. Descriptive statistics (means, medians, and

percentages) were used to describe the sample demographics and answer Research Questions 1 and 2. Research Question 1 asked: What are the health behaviors of registered nurses working in an acute hospital? Research Question 2 asked: Do nurses perceive themselves as role models of healthy behaviors for patients and others? Frequencies and percentages were used to describe gender and education level. Inferential statistics, Pearson coefficient, regression modeling, and ANOVA were used to analyze the third research question. Research Question 3 asked: Are there demographic differences (age, gender, race, ethnicity, length of time in the profession, number of hours worked per week) associated with health behaviors of registered nurses? The level of significance for the study was $\alpha = 0.05$.

Summary

A nonexperimental, cross-sectional, descriptive research design was used to examine and describe nurses' health behaviors using the HPLP II questionnaire (Walker et al., 1997), identify sociodemographic variables associated with health behaviors, and determine whether nurses perceive themselves as role models of healthy behaviors. The PI collected data using the HPLP II and a demographic data tool. Descriptive and inferential statistics were used to describe the sample and identify any significant differences between selected demographic variables (age, gender, race/ethnicity, and years of nursing experience) associated with healthy behaviors of RNs in an acute care hospital.

CHAPTER IV

ANALYSIS OF DATA

The purpose of this study was to examine the health behaviors of RNs working in an acute care hospital and to identify whether demographic characteristics were associated with health behaviors. Additionally, this study investigated whether nurses perceived themselves and the nursing profession as role models for patients and the community.

Included in this chapter are data reflective of the sample used in this study. The data were used to answer the following research questions: (a) What are the health behaviors of registered nurse working in an acute care hospital?; (b) Do registered nurses perceive themselves as personal health role models for their patients and the community?; and (c) Are there demographic differences (age, gender, race/ethnicity, length of time in the profession, and hours worked per week) associated with health behaviors of registered nurses?

The data analysis for this investigation was accomplished with respect to three major topics. The first topic addressed the demographic profile of RNs participating in the study, the second topic dealt with the reliability of the investigative instrument, and the third topic addressed the three major research questions formulated in the study.

Demographic Profile of Participants in the Study

The findings of this study were based on the survey responses of a convenience sample of 250 RNs working at an acute care hospital located in southeast Texas. Questionnaires were distributed via email to all of the 1500 registered nurses employed by a single hospital with a response rate of 17% (n=250). Polit and Beck (2008) stated that a response rate of 30% is significant although lower response rates are common. Of the 250 questionnaires, 245 were completed properly and met the inclusion criteria, exceeding the predetermined number of 100 participants needed to achieve statistical power.

The participants in the study were described by their gender, age, marital status, ethnicity, number of children, shift worked, clinical area, years in nursing, hours worked per week, education, tobacco usage within the last six months, health perception, number of drinks in the last week, calculated BMI, nurse's perceived beliefs as role models, and perceived control of health behaviors. The Statistical Package for Social Science (SPSS) version 22 was used to analyze the data. Frequency distributions and percentages are presented for each demographic variable in Table 2.

The participants were primarily female registered nurses (87.35%), between the ages of 50-59 years ($x=45$, median), Caucasian, married, with at least one college degree, and working in a staff nurse role, with 25% (n=63) of the study sample reporting 0-5 years of experience in nursing. The majority (72%) of the nurses participating in the study worked day shift, in medical-surgical units, and averaged 36-40 hours per week. A large portion of the sample (36.7%) reported not having any children. The percentages

of study participants in each group are compared to hospital and national data in Table 2.

The study group is not representative of national data, but is more diverse than sample populations previously reported in similar studies and national surveys.

Table 2

Demographic Characteristics of Study Participants (n = 250) Compared with Hospital and National Data

Variable	Sample Frequency	Sample Percentage	Hospital Data	National Data*
Gender				
Female	214	87.35%	85%	90.4%
Male	31	12.65%	15%	9.6%
Age in Years				
20-29	45	18.37%	n/a	n/a
30-39	43	17.55%	n/a	n/a
40-49	63	25.71%	m = 43 y	m = 45.5 y
50-59	67	27.36%	n/a	n/a
60+	27	11.02%	n/a	n/a
Race/Ethnicity				
White/ Caucasian	108	44.08%	39%	83.2%
Black/African American	53	21.63%	21.7%	5.4%
Asian/Pacific Islander	44	17.96%		
Hispanic/Latino	30	12.24%	31.9%	5.8%
India	4	1.63%	6.3%	3.6%
American Indian	1	0.42%		
Other	5	2.04%	0.3%	0.3%
Marital Status				
Married	145	59.18%	n/a	n/a
Single	72	29.39%	n/a	n/a
Divorced	25	10.20%	n/a	n/a
Widowed	3	1.22%	n/a	n/a
Nursing/Education				
Associate/Diploma	32	13.06%	n/a	n/a
Bachelor	164	66.94%	22%	36.1%
Master	46	18.78%	78%	13.2%
Doctorate	3	1.22%		36.1%

(Continued)

Years in Nursing				
0-5	63	25.71%	n/a	n/a
6-10	29	11.84%	n/a	n/a
11-15	19	7.76%	n/a	n/a
16-20	36	14.69%	n/a	n/a
21-25	29	11.84%	n/a	n/a
26-30	20	8.16%	n/a	n/a
31-35	30	12.24%	n/a	n/a
36-39	10	4.08%	n/a	n/a
40+	9	3.67%	n/a	n/a
Current Role				
Staff Nurse	169	68.98%	n/a	n/a
Education Specialist	14	5.71%	n/a	n/a
Nurse Manager	11	4.49%	n/a	n/a
Clinical Educator	10	4.08%	n/a	n/a
Assistant	8	3.27%	n/a	n/a
Coordinator	8	3.27%	n/a	n/a
Case Manager	2	0.82%	n/a	n/a
Executive	1	4.49%	n/a	n/a
Other	11	4.49%		
Hours Worked				
5-10	3	1.20%	n/a	n/a
11-15	0	0.0%	n/a	n/a
16-20	1	0.40%	n/a	n/a
21-25	6	2.40%	n/a	n/a
26-30	4	1.60%	n/a	n/a
31-35	7	2.80%	n/a	n/a
36-40	132	52.80%	n/a	n/a
41-45	69	27.60%	n/a	n/a
45+	23	9.20%	n/a	n/a
Number of Children				
0	90	36.73%	n/a	n/a
1	43	17.55%	n/a	n/a
2	68	27.76%	n/a	n/a
3	29	11.84%	n/a	n/a
4	13	5.31%	n/a	n/a
5	1	0.41%	n/a	n/a
7	1	0.41%	n/a	n/a

(Continued
)

Shift Worked	177	72.24%	n/a	n/a
Days	46	18.76%	n/a	n/a
Nights	20	8.16%	n/a	n/a
Evenings	2	0.82%	n/a	n/a
Rotating Shifts				
Unit Worked				
Medical /Surgical	86	35.10%	n/a	n/a
Critical Care	42	17.14%	n/a	n/a
Education	18	7.35%	n/a	n/a
Operating Room	17	6.94%	n/a	n/a
Emergency Room	15	6.12%	n/a	n/a
Cath Lab	7	2.86%	n/a	n/a
PACU	6	2.45%	n/a	n/a
Day Surgery	6	2.45%	n/a	n/a
Administration	6	2.45%	n/a	n/a
Endoscopy	2	0.82%	n/a	n/a

*USDHHS, 2010

Additional frequency data were obtained from the short answer demographic form at the end of the survey. The groups responding that they had never or routinely had responsibility for another adult individual tied for the highest frequency and reported routinely having control of health behaviors, good health, and no tobacco history. More than half did not drink alcoholic beverages in the last week. Based on mean and median BMI, the study participants—as a group—fell in the category of overweight. The frequency data were used to further describe the sample in greater detail. Frequency distributions and percentages were obtained for each seven questions (Tables 2-5).

Question 1 stated, “Are you responsible for physical care of at least one other individual (such as a child, aging parent, or other friend/relative living in your home)?”

The possible responses were: 1 = *never*; 2 = *sometimes*; 3 = *often*; or 4 = *routinely*. The

responses to this question were evenly divided, with half of the participants reporting never/sometimes and the other half responding often/routinely (Table 3).

Table 3

Responsible for Care of an Adult Individual

Responsible for Care of Another Individual	Frequency	Percent
Never	90	36.28%
Sometimes	36	14.52%
Often	31	12.50%
Routinely	91	36.69%

Note. ($n = 250$)

Question 2 stated, “Do you feel you have personal control over your health-related behaviors (food selection, time to exercise, additions, managing use of tobacco and alcohol)?” The possible responses were: 1 = *never*; 2 = *sometimes*; 3 = *often*; or 4 = *routinely*. As shown in Table 4, an overwhelming majority of respondents (84%) reported *often* or *routinely* having control over their health-related behaviors.

Table 4

Personal Control Over Health-Related Behaviors

Personal Control	Frequency	Percent
Never	3	1.20%
Sometimes	37	14.80%
Often	81	32.40%
Routinely	129	51.60%

Note. ($n = 250$)

Question 3 asked participants to rate their overall health as *excellent*, *good*, *fair*, or *poor*. The subjects were instructed to circle the response that characterized their own perception of their health. The majority of the sample (87.2%) reported that they were in *good* or *excellent* health, as indicated in Table 5.

Table 5

Perception of Health

Health Perception	Frequency	Percent
Excellent	55	22.00%
Good	163	65.20%
Fair	29	11.60%
Poor	3	1.20%

Note. ($n = 250$)

Question 4 posed the question, “Do you have a history of tobacco product use in the last six months?” The possible responses were either *yes* or *no*. An overwhelming majority of the respondents (96%) reported having no history of tobacco product use in the last six months. Question 5 stated, “Have you consumed alcohol in the last week?” The possible responses were either *yes* or *no*. Just over half (54.2%) of the respondents reported not consuming alcohol in the last week.

Question 6 stated, “What is your weight in pounds and height in inches?” The participants' reported weights and heights were used to calculate BMI values. Aggregate BMI data is shown in Table 6.

Table 6

Body Mass Index (BMI)

Range	Minimum	Maximum	Mean	Median	SD
40.32	16.40	56.73	27.26	25.88	6.0

Note. ($n = 250$)**Instrument Reliability**

The reliability of the HPLP II instrument with the study sample was determined using several different data analysis methods. Instrument data were presented with

respect to specific instrument content and scoring, frequency distribution and range of scores, mean scores, and reliability of the instrument for the sample population.

Health-Promoting Lifestyle Profile

The Health-Promoting Lifestyle Profile (HPLP) developed by Pender (1996) was used to measure the dependent variable of health behavior. The HPLP II is a 52-item instrument that contains six subscales. Scores can range from 52 - 208 depending on the responses (1 = *never*; 2 = *sometimes*; 3 = *often*; 4 = *routinely*). The developer of the tool recommended determining each overall individual HPLP score by calculating a mean of the responses to all 52 items; the overall scores for each of the six subscales are obtained by calculating a mean of the responses to the subscale items.

The reliability of the HPLP II was determined by using Cronbach's coefficient (Table 7). Findings indicated an $\alpha = 0.93$ for the test as a whole and the reliability of the six HPLP II subscales ranged from $\alpha = 0.76 - 0.86$. These findings are consistent with the reliability findings from the Tot HPLP scale of $\alpha = 0.94$ and for the subscales of $\alpha = 0.79 - 0.87$ (Walker & Hill, 1996).

Table 7

HPLP II Total and Subscale Reliability Coefficients

Total and Subscales	Number of Items	Cronbach's Alpha
HPLP II Total	52	.93
Health Responsibility	9	.80
Physical Activity	8	.86
Nutrition	9	.76
Spiritual Growth	9	.84
Interpersonal Relationships	9	.82
Stress Management	8	.80

Findings

This section presents the findings pertaining to each of the three research questions.

Research Question One: Health Behaviors

What are the health behaviors of RNs working in an acute care hospital? The descriptive statistics pertaining to the health behaviors of RNs working in an acute care hospital are shown in Table 8. The six components of the TotHPLP that measured the health behaviors of nurses in an acute care hospital were: health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management.

The RNs' aggregate ratings of spiritual growth (3.18) and interpersonal relations (3.14) identified them as positive health behaviors this group of nurses engaged in *often*. On the other hand, the aggregate ratings for physical activity and stress management identified them as positive behaviors this group of nurses engaged in *sometimes*.

Table 8

Mean Responses for the HPLP II Total and Subscales

Subscales	N	Mean	SD	Mode	Skewness
Health Responsibility	236	2.62	.536	2.67	.185
Physical Activity	238	2.51	.709	2.75	-.039
Nutrition	243	2.76	.501	2.89	.072
Spiritual Growth	239	3.18	.494	2.89	-.379
Interpersonal Relationships	232	3.14	.484	3.22	-.338
Stress Management	236	2.54	.524	2.25	.548
Total HPLP	195	2.81	.389	2.83	.127

Note. ($n = 250$)

The results from the analysis of variance (ANOVA) indicated differences in mean score by based on several demographic criteria. For example, there was a significant

difference in spiritual growth based on gender and number of children, with significantly higher mean scores for females than males and for nurses having more than two children than those with fewer than two children. There were significant differences on the health responsibility subscale based on marital status and age, with divorced nurses producing a higher mean score than singles and nurses in the 50-59 year old age group reporting a higher mean score than those in the 20-29 year old age range. In addition, nurses over the age of 60 years old had higher mean scores than the 20-29 year olds with respect to nutritional health. There were no significant differences in health promotion lifestyle behaviors based on race or ethnicity.

The one-way ANOVA results describing the health promotion lifestyle behaviors of the participating RNs are presented in Table 9. One-way ANOVA was used to examine the mean values for each demographic variable, the TotHPLP and six subscale scores. Statistical significance of gender, marital status, number of children, age, average hours work per week, number of years in nursing, race, and responsibility for physical care of an adult individual are discussed individually in the following sections.

Gender. The one-way ANOVA results regarding the responses of male and female RNs for the components of the HPLP II are shown in Table 9. A statistically significant difference was found between the perceptions of participating male and female RNs with respect to the spiritual growth component of health promotion lifestyle behavior ($F[1,232]=5.372, p<.05$) at the .05 level. No significant differences were observed between male and female participants with regard to the health responsibility ($F[1, 229]=.408, p>.05$); physical activity ($F[1,231]=.238, p>.05$); nutrition ($F[1,236]$

=.813, $p > .05$); interpersonal relations ($F[1,225] = 2.245$, $p > .05$); and stress management ($F[1,229] = 2.256$, $p > .05$) components of health behavior.

Table 9

Health Promotion Lifestyle Behaviors of Registered Nurses by Gender

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.467	1	.467	3.103	.080
Within Groups	28.313	188	.151		
Total	28.781	189			
Health Responsibility					
Between Groups	.120	1	.120	.408	.524
Within Groups	67.241	229	.294		
Total	67.361	230			
Physical Activity					
Between Groups	.118	1	.118	.238	.626
Within Groups	114.581	231	.496		
Total	114.699	232			
Nutrition					
Between Groups	.206	1	.206	.813	.368
Within Groups	58.840	236	.254		
Total	60.046	237			
Spiritual Growth					
Between Groups	1.294	1	1.294	5.372	*.021
Within Groups	55.886	232	.241		
Total	57.180	233			
Interpersonal Relationship					
Between Groups	.527	1	.527	2.245	.135
Within Groups	52.849	225	.235		
Total	53.377	226			
Stress Management					
Between Groups	.613	1	.613	2.256	.134
Within Groups	62.213	229	.272		
Total	62.826	230			

Note: ($n = 250$). * $p < .05$

Additional analysis of the mean revealed females had an overall higher mean than the male registered nurses with respect to spiritual growth component of health promotion lifestyle behavior (Table 10).

Table 10

Mean and Standard Deviation Results HPLP by Gender

Subscales	Male		Female		F	P
	M	SD	M	SD		
Health Responsibility	2.56	.53	2.63	.54	.408	.524
Physical Activity	2.57	.79	2.50	.69	.238	.626
Nutrition	2.83	.54	2.74	.50	.831	.368
Spiritual Growth	2.94	.61	3.21	.47	5.372	*.021
Interpersonal Relationship	3.01	.53	3.16	.48	2.245	.135
Stress Management	2.40	.61	2.56	.51	2.256	.134
Total HPLP	2.67	.41	2.83	.39	3.103	.080

Note: * Highest Mean; ** $p < .05$. ($n = 250$)

Marital status. Table 11 shows the one-way ANOVA results regarding the responses of the RNs on the HPLP II by marital status. A statistically significant difference was found between the perceptions of various marital status groups of RNs with respect to the health responsibility component of health promotion lifestyle behavior ($F[3,227] = 3.927$, $p < .01$) at the .01 level. No significant differences were found with regard to physical activity based on marital status ($F[3, 229] = .415$, $p > .05$); nutrition ($F[3,234] = 1.425$, $p > .05$); spiritual growth ($F[3,230] = .296$, $p > .05$); interpersonal relationships ($F[2,223] = .360$, $p > .05$); and stress management ($F[3,227] = .327$, $p > .05$) components of health behaviors.

Table 11

Health Promotion Lifestyle Behavior of Registered Nurses by Marital Status

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.347	3	.116	.758	.519
Within Groups	28.433	186	.153		
Total	28.781	189			
Health Responsibility					
Between Groups	3.323	3	1.108	3.927	** .009
Within Groups	64.038	227	.282		
Total	67.361	230			
Physical Activity					
Between Groups	.621	3	.207	.415	.742
Within Groups	114.078	229	.498		
Total	114.699	232			
Nutrition					
Between Groups	1.077	3	.359	1.425	.236
Within Groups	58.969	234	.252		
Total	60.046	237			
Spiritual Growth					
Between Groups	.220	3	.073	.296	.829
Within Groups	56.960	230	.248		
Total	57.180	233			
Interpersonal Relationship					
Between Groups	.257	3	.086	.360	.782
Within Groups	53.119	223	.238		
Total	53.377	226			
Stress Management					
Between Groups	.271	3	.090	.327	.806
Within Groups	62.556	227	.276		
Total	62.826	230			

Note: *p < .05

Further post hoc analysis using the Bonferroni test (Table 12) revealed that divorced RNs had an overall higher mean than single RNs with respect to the health responsibility component of health promotion lifestyle behavior.

Table 12

Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Marital Status

Mean Values					P
Single	Married	Widowed	Divorced	Difference	
2.50	2.64			-.14	.410
2.50		2.96		-.46	.824
2.50			2.91	-.41	**.010
	2.64	2.96		-.32	1.00
	2.64		2.91	-.27	.167
		2.96	2.91	.05	1.000

Note: **p<.01. (n = 250)

Mean values and standard deviation results for the total and subscales of the HPLP II regarding marital status are shown in Table 13.

Table 13

Mean and Standard Deviation Results of HPLP II by Marital Status

Subscales	Single		Married		Widowed		Divorced		F	P
	M	SD	M	SD	M	SD	M	SD		
Health Responsibility	2.49	.55	2.63	.54	2.96	.23	2.90	.41	3.927	**.009
Physical Activity	2.48	.73	2.51	.69	2.79	.94	2.63	.69	.415	.742
Nutrition	2.69	.52	2.75	.50	3.11	.59	2.88	.45	1.425	.236
Spiritual Growth	3.14	.52	3.19	.48	3.15	.36	3.25	.56	.296	.829
Interpersonal Relationships	3.13	.50	3.16	.49	2.89	.19	3.17	.45	.360	.782
Stress Management	2.53	.52	2.54	.52	2.83	.69	2.57	.57	.327	.806
Total HPLP	2.77	.42	2.82	.38	2.96	.39	2.91	.38	.758	.579

Note: **p<.01. (n = 250)

Number of children. Table 14 presents the one-way ANOVA results regarding the perceptions of the RNs toward the components of health promotion lifestyle behavior by number of children. A statistically significant difference was found between RNs with different numbers of children with respect to the health responsibility ($F[3,227] = 2.647$, $p < .05$) and spiritual growth components of health promotion lifestyle behavior ($F[3,230] =$

2.798, $p < .05$) both at the .05 level. No significant differences were found by the number of children with regard to the physical activity ($F[3,229] = .704$, $p > .05$); nutrition ($F[3,234] = 2.194$, $p > .05$); interpersonal relationships ($F[3,223] = 1.444$, $p > .05$); and stress management ($F[3,227] = .439$, $p > .05$) components of health behavior.

Table 14

Number of Children

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.903	3	.301	2.008	.114
Within Groups	27.878	186	.150		
Total	28.781	189			
Health Responsibility					
Between Groups	2.277	3	.759	2.647	*.050
Within Groups	65.084	227	.287		
Total	67.361	230			
Physical Activity					
Between Groups	1.049	3	.350	.704	.550
Within Groups	113.650	229	.496		
Total	114.699	232			
Nutrition					
Between Groups	1.643	3	.548	2.194	.089
Within Groups	58.403	234	.250		
Total	60.046	237			
Spiritual Growth					
Between Groups	2.013	3	.671	2.798	*.041
Within Groups	55.167	230	.240		
Total	57.180	233			
Interpersonal Relationships					
Between Groups	1.017	3	.339	1.444	.231
Within Groups	52.360	223	.235		
Total	53.377	226			
Stress Management					
Between Groups	.363	3	.121	.439	.725
Within Groups	62.464	227	.275		
Total	62.826	230			

Note: * $p < .05$. ($n = 250$)

Further post hoc data analysis using the Bonferroni test did not detect a difference; however, due to the conservative nature of the test, Fisher's least significant difference (LSD) test was used to detect the difference within the health responsibility and spiritual growth components based on the number of children. The LSD test (Table 15) revealed that RNs with two children had a significantly higher mean response than those with no children and those with one child with respect to the health responsibility component of health promotion lifestyle behavior.

Table 15

Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Children

Mean Values				P
No Children	1 Child	2 Children	≥ 3 Children	
2.54	2.52			.927
2.54		2.75		*.018
2.54			2.70	.105
	2.52	2.75		*.039
	2.52		2.70	.137
		2.75	2.70	.672

Note: * $p < .05$. ($n = 250$)

In addition, the LSD test (Table 16) revealed that those RNs with two children and those with three or more children had a significantly higher mean score than those with no children on the spiritual growth component of the health promotion lifestyle behavior scale.

Table 16

Spiritual Growth Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Children (n = 250)

Mean Values					P
No Children	1 Child	2 Children	≥3 Children	Difference	
3.07	3.16			-.09	.342
3.07		3.25		-.18	*.029
3.07			3.31	-.24	*.011
	3.16	3.25		-.09	.377
	3.16		3.31	-.15	.176
		3.25	3.31	-.06	.538

Note: *p<.05

Table 17 shows the mean and standard deviation results for the total and subscales of the HPLP II with respect to marital status.

Table 17

Mean and Standard Deviation Results of HPLP by Number of Children (n = 250)

Subscales	No Children		1 Child		2 Children		≥3 Children		F	P
	M	SD	M	SD	M	SD	M	SD		
Health Responsibility	2.53	.57	2.52	.52	2.75	.49	2.65	.45	1.863	.102
Physical Activity	2.47	.71	2.42	.63	2.61	.72	2.53	.74	.489	.816
Nutrition	2.68	.52	2.74	.46	2.75	.49	2.92	.51	1.418	.208
Spiritual Growth	3.07	.54	3.16	.44	3.25	.45	3.36	.45	2.496	.023
Interpersonal Relationships	3.13	.50	3.04	.53	3.17	.41	3.25	.52	1.474	.188
Stress Management	2.55	.56	2.51	.51	2.51	.46	2.62	.56	1.361	.231
Total HPLP	2.77	.42	2.73	.36	2.82	.37	2.94	.37	1.456	.206

Note: *p<.05

Age. The one-way ANOVA results regarding the RNs' perceptions toward the components of health promotion lifestyle behavior by age are shown in Table 18. A statistically significant difference was found between the perceptions of various age groups with respect to the health responsibility ($F[4,226]=3.851, p<.01$) and nutrition ($F[4,223]=3.336, p<.05$) components of health behavior. No significant differences were

found between the nurses' perceptions by age with regard to the physical activity ($F[4,228] = .532, p > .05$); spiritual growth ($F[4,229] = .295, p > .05$); interpersonal relations ($F[2,222] = .697, p > .05$); and stress management ($F[4,226] = .593, p > .05$) components of health behavior.

Table 18

Health Promotion Lifestyle Behavior of Registered Nurses by Age

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.661	4	.165	1.087	.364
Within Groups	28.120	185	.152		
Total	28.781	189			
Health Responsibility					
Between Groups	4.298	4	1.074	3.851	** .005
Within Groups	63.063	226	.279		
Total	67.361	230			
Physical Activity					
Between Groups	1.061	4	.265	.532	.712
Within Groups	113.638	228	.498		
Total	114.699	232			
Nutrition					
Between Groups	3.253	4	.813	3.336	* .011
Within Groups	56.793	233	.244		
Total	60.046	237			
Spiritual Growth					
Between Groups	.293	4	.073	.295	.881
Within Groups	56.887	229	.248		
Total	57.180	233			
Interpersonal Relationships					
Between Groups	.662	4	.166	.697	.595
Within Groups	52.714	222	.237		
Total	53.377	226			
Stress Management					
Between Groups	.653	4	.163	.593	.668
Within Groups	62.173	226	.275		
Total	62.826	230			

Note: * $p < .05$; ** $p < .01$. ($n = 250$)

Further post hoc analysis using the Bonferroni test (Table 19) revealed that 50-59 year old RNs had a higher overall mean than the 20-29 year old group with respect to the health responsibility component of health promotion lifestyle behavior.

Table 19

Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Age in Years

Mean Values					P
20-24	30-39	40-49	50-59	≥60	
2.46	2.53				1.000
2.46		2.56			1.000
2.46			2.78		*.022
2.46				2.81	.077
	2.53	2.56			1.000
	2.53		2.78		1.000
	2.53			2.81	.167
		2.56	2.78		.334
		2.56		2.81	.443
			2.78	2.81	1.000

Note: *p < .05. (n = 250)

In addition, post hoc data analysis using the Bonferroni test (Table 20) also revealed that RNs who were 60 years old or older had a higher overall mean than the 20-29 year old group with respect to the nutrition component of health promotion lifestyle behavior.

Table 20

Nutrition Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Age in Years

Mean Values					P
20-29	30-39	40-49	50-59	≥60	
2.58	2.80				.3
2.58		2.70			1.000
2.58			2.80		.218
2.58				3.00	** .007
	2.80	2.70			.394
	2.80		2.80		1.000

(Continued)					
2.80			3.00	-.20	1.000
	2.70	2.80		-.10	1.000
	2.70		3.00	-.30	.122
		2.80	3.00	-.20	.877

Note: **p<.01. (n = 250)

Table 21 presents the mean and standard deviation results for the total and subscales of the HPLP II with respect to age.

Table 21

Mean and Standard Deviation Results of HPLP by Age in Years

Subscales	20-29	30-39	40-49	50-59	≥60	F	P
	M SD	M SD	M SD	M SD	M SD		
Health Responsibility	2.45 .50	2.52 .50	2.56 .55	2.78 .54	2.81 .41	3.851	** .005
Physical Activity	2.42 .64	2.64 .72	2.51 .79	2.50 .66	2.49 .70	.532	.712
Nutrition	2.57 .50	2.79 .58	2.70 .49	2.79 .45	2.49 .45	3.336	* .011
Spiritual Growth	3.21 .50	2.17 .49	3.13 .50	3.20 .49	3.23 .52	.295	.881
Interpersonal Relationships	3.20 .49	3.20 .51	3.08 .50	3.17 .45	3.08 .48	.697	.595
Stress Management	2.59 .55	2.56 .46	2.48 .55	2.52 .55	2.65 .47	.593	.668
Total HPLP	2.74 .42	2.82 .37	2.76 .44	2.86 .33	2.92 .35	1.087	.364

Note: *p<.05; **p<.01. (n = 250)

Race. The one-way ANOVA results regarding the perceptions of RNs by race toward the components of health promotion lifestyle behavior are shown in Table 22. No significant differences were found between the perceptions of RNs by race with regard to health responsibility (F[6,224]=2.002, p>.05); physical activity (F[6,226]=.935, p>.05); nutrition (F[6,231]=1.181, p>.05); spiritual growth (F[6,227]=1.331, p>.05);

interpersonal relations ($F[6,220] = 1.303, p > .05$); and stress management ($F[6,224] = 1.485, p > .05$) components of health behavior.

Table 22

Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Race

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	1.141	6	.190	1.259	.278
Within Groups	27.640	183	.151		
Total	28.781	189			
Health Responsibility					
Between Groups	3.429	6	.571	2.002	.066
Within Groups	63.932	224	.285		
Total	67.361	230			
Physical Activity					
Between Groups	2.777	6	.463	.935	.471
Within Groups	111.922	226	.495		
Total	114.699	232			
Nutrition					
Between Groups	1.787	6	.298	1.181	.317
Within Groups	58.259	231	.252		
Total	60.046	237			
Spiritual Growth					
Between Groups	1.943	6	.324	1.331	.244
Within Groups	55.236	227	.243		
Total	57.180	233			
Interpersonal Relationship					
Between Groups	1.832	6	.305	1.303	.257
Within Groups	51.545	220	.234		
Total	53.377	226			
Stress Management					
Between Groups	2.404	6	.401	1.485	.184
Within Groups	60.422	224	.270		
Total	62.826	230			

Note. ($n = 250$)

The mean and standard deviation results for the total and subscales of the HPLP II regard to marital status are shown in Table 23.

Table 23

Mean and Standard Deviation Results of HPLP II by Race

Subscales	African American	Hispanic	Asian	White	Other	F	P
	M	M	M	M	M		
	SD	SD	SD	SD	SD		
Health Responsibility	2.72 .55	2.51 .63	2.74 .48	2.53 .52	2.53 .41	2.002	.066
Physical Activity	2.42 .70	2.47 .61	2.70 .66	2.50 .75	2.12 .67	.935	.471
Nutrition	2.63 .51	2.80 .54	2.88 .49	2.76 .49	2.55 .57	1.181	.317
Spiritual Growth	3.25 .48	3.31 .48	3.18 .54	3.13 .48	2.78 .58	1.331	.244
Interpersonal Relationships	3.05 .47	3.19 .57	3.13 .51	3.20 .45	2.63 .63	1.303	.257
Stress Management	2.53 .47	2.58 .54	2.72 .48	2.63 .63	2.30 .75	1.485	.184
Total HPLP	2.78 .38	2.83 .44	2.91 .40	2.79 .36	2.40 .53	1.259	.278

Note: * $p < .05$. ($n = 250$)

Average hours worked. Table 24 presents the single factor ANOVA regarding the perceptions of RNs by average number of hours worked per week toward the components of health promotion lifestyle behavior. No statistically significant differences were found between the practices of registered nurses by average number of hours worked per week with regard to health responsibility ($F[3,227] = .222$, $p > .05$), physical activity ($F[3,229] = 1.561$, $p > .05$); nutrition ($F[3,234] = 1.495$, $p > .05$); spiritual growth ($F[3,230] = .670$, $p > .05$); interpersonal relations ($F[3,227] = 1.173$, $p > .05$); and stress management ($F[3,227] = 2.201$, $p > .05$) components of health behavior.

Table 24

Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Average Hours Worked

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.049	3	.016	.106	.956
Within Groups	28.732	186	.154		
Total	28.781	189			
Health Responsibility					
Between Groups	1.288	3	.429	1.475	.222
Within Groups	66.073	227	.291		
Total	67.361	230			
Physical Activity					
Between Groups	2.298	3	.766	1.561	.200
Within Groups	112.401	229	.491		
Total	114.699	232			
Nutrition					
Between Groups	1.129	3	.376	1.495	.217
Within Groups	58.916	234	.252		
Total	60.046	237			
Spiritual Growth					
Between Groups	.495	3	.165	.670	.571
Within Groups	56.685	230	.246		
Total	57.180	233			
Interpersonal Relationship					
Between Groups	.829	3	.276	1.173	.321
Within Groups	52.548	223	.236		
Total	53.377	226			
Stress Management					
Between Groups	1.776	3	.592	2.201	.089
Within Groups	61.050	227	.269		
Total	62.826	230			

Note. ($n = 250$)

The mean and standard deviation results for the total and subscales of the HPLP II with regard to average hours worked per week are shown in Table 25.

Table 25

Mean and Standard Deviation Results of HPLP II by Average Hours Worked per Week

Subscales	Hours							F	P
	5-10	16-20	21-25	26-30	31-35	36-40	45+		
	M SD	M SD	M SD	M SD	M SD	M SD	M SD		
Health Responsibility	3.37 .28	2.11 .45	2.92 .55	2.80 .76	2.25 .28	2.56 .54	2.79 .46	2.404	*.022
Physical Activity	2.20 .26	2.25 .37	2.77 .51	2.29 .40	2.33 .36	2.57 .72	2.23 .74	.949	.470
Nutrition	2.51 .34	2.00 .50	2.68 .65	2.58 .40	2.50 .43	2.75 .51	2.78 .46	.879	.524
Spiritual Growth	3.55 .59	2.11 .48	3.35 .60	2.86 .70	2.90 .43	3.18 .47	3.29 .44	1.701	.110
Interpersonal Relationships	3.48 .45	1.77 .48	3.03 .61	2.94 .73	2.87 .39	3.18 .46	3.18 .47	1.945	.064
Stress Management	2.62 .33	2.12 .36	2.52 .46	2.47 .41	2.56 .36	2.60 .51	2.31 .45	1.040	.404
Total HPLP	2.98 .17	2.05 .44	2.98 .52	2.64 .63	2.72 .30	2.82 .38	2.81 .27	.897	.510

Note: * $p < .05$. ($n = 250$)

Number of years in nursing. The one-way ANOVA results pertaining to the perceptions of RNs toward the components of health promotion lifestyle behavior by number of years in nursing are presented in Table 26. Statistically significant differences were found between the perceptions of RNs by number of years in nursing with respect to the health responsibility ($F[7,223] = 2.927$, $p < .01$), nutrition ($F[7,230] = 2.062$, $p < .05$), and interpersonal relations ($F[7,219] = 2.517$, $p < .05$) components. Statistically significant differences were not found between the perceptions of nurses by number of years in nursing with regard to the physical activity ($F[7,225] = 1.772$, $p > .05$); spiritual growth ($F[7,226] = 1.494$, $p > .05$); and stress management ($F[7,223] = 1.429$, $p > .05$) components of health behavior.

Table 26

Health Promotion Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	1.856	7	.265	1.792	.091
Within Groups	26.925	182	.148		
Total	28.781	189			
Health Responsibility					
Between Groups	5.669	7	.810	2.927	** .006
Within Groups	61.692	223	.277		
Total	67.361	230			
Physical Activity					
Between Groups	5.991	7	.856	1.772	.094
Within Groups	108.707	225	.483		
Total	114.699	232			
Nutrition					
Between Groups	3.546	7	.507	2.062	*.049
Within Groups	56.500	230	.246		
Total	60.046	237			
Spiritual Growth					
Between Groups	2.529	7	.361	1.494	.170
Within Groups	54.651	226	.242		
Total	57.180	233			
Interpersonal Relationship					
Between Groups	3.975	7	.568	2.517	.017
Within Groups	49.402	219	.226		
Total	53.377	226			
Stress Management					
Between Groups	2.697	7	.385	1.429	.195
Within Groups	60.129	223	.270		
Total	62.826	230			

Note: *p < .05; **p < .01. (n = 250)

Further post hoc analysis using the Bonferroni test (Table 27) revealed that RNs with 31-35 years of experience in nursing exhibited a significantly more favorable perception toward the health responsibility component than nurses with 6-10 years of experience.

Table 27

Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing

Mean Comparison	Mean Difference	P	Mean Comparison	Mean Difference	P
1. $\bar{X}_1 - \bar{X}_2 =$ 2.51-2.37	.14	1.000	15. $\bar{X}_3 - \bar{X}_5 =$ 2.76-2.54	-.22	1.000
2. $\bar{X}_1 - \bar{X}_3 =$ 2.51-2.76	-.25	1.000	16. $\bar{X}_3 - \bar{X}_6 =$ 2.76-2.58	.18	1.000
3. $\bar{X}_1 - \bar{X}_4 =$ 2.51- 2.80	-.29	.312	17. $\bar{X}_3 - \bar{X}_7 =$ 2.76-2.83	-.07	1.000
4. $\bar{X}_1 - \bar{X}_5 =$ 2.51- 2.54	-.03	1.000	18. $\bar{X}_3 - \bar{X}_8 =$ 2.76-2.75	.01	1.000
5. $\bar{X}_1 - \bar{X}_6 =$ 2.51- 2.58	-.07	1.000	19. $\bar{X}_4 - \bar{X}_5 =$ 2.80-2.54	.16	1.000
6. $\bar{X}_1 - \bar{X}_7 =$ 2.51-2.83	-.32	.186	20. $\bar{X}_4 - \bar{X}_6 =$ 2.80-2.58	.22	1.000
7. $\bar{X}_1 - \bar{X}_8 =$ 2.51- 2.75	-.24	1.000	21. $\bar{X}_4 - \bar{X}_7 =$ 2.80-2.83	-.03	1.000
8. $\bar{X}_2 - \bar{X}_3 =$ 2.37-2.76	-.39	.446	22. $\bar{X}_4 - \bar{X}_8 =$ 2.80-2.75	.05	1.000
9. $\bar{X}_2 - \bar{X}_4 =$ 2.37-2.80	-.43	.056	23. $\bar{X}_5 - \bar{X}_6 =$ 2.54-2.58	-.04	1.000
10. $\bar{X}_2 - \bar{X}_5 =$ 2.37-2.54	-.17	1.000	24. $\bar{X}_5 - \bar{X}_7 =$ 2.54-2.83	-.19	1.000
11. $\bar{X}_2 - \bar{X}_6 =$ 2.37-2.58	-.21	1.000	25. $\bar{X}_5 - \bar{X}_8 =$ 2.54-2.75	-.21	1.000
12. $\bar{X}_2 - \bar{X}_7 =$ 2.37-2.83	-.43	.034*	26. $\bar{X}_6 - \bar{X}_7 =$ 2.58-2.83	-.25	1.000
13. $\bar{X}_2 - \bar{X}_8 =$ 2.37-2.75	-.38	.437	27. $\bar{X}_6 - \bar{X}_8 =$ 2.58-2.75	-.17	1.000
14. $\bar{X}_3 - \bar{X}_4 =$ 2.76-2.80	-.04	1.000	28. $\bar{X}_7 - \bar{X}_8 =$ 2.83-2.75	.08	1.000

Note: *p<.05; Mean 1=0-5 years; Mean 2=6-10 years; Mean 3=11-15 years; Mean 4=16-20 years; Mean 5=21-25 years; Mean 6=26-30 years; Mean 7=31-35; Mean 8= $\geq$ 36 years. (n = 250)

The Bonferroni test (Table 28) also indicated that RNs with ≤ 5 years of less of experience and those with 16-20 years of experience possessed significantly more favorable perceptions with regard to the interpersonal relationships component than those with 6-10 years of experience.

Due to the conservative nature of the Bonferroni test for multiple comparisons, Fisher's LSD test was used to detect the differences within the nutrition component. Based on the post hoc Fisher's LSD test (Table 29), RNs with 11-15 years of experience and those with ≥ 31 years of experience had significantly more favorable perceptions than those with 6-10 years of experience with respect to the nutrition component. In addition, RNs with ≥ 36 years of experience had significantly more favorable perceptions than those with ≤ 5 years or less of experience with regard to nutrition component. Mean and standard deviation results for total and subscales with regard to years in nursing are shown in Table 30.

Table 28

Interpersonal Relations Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing (n = 250)

Mean Comparison	Mean Difference	P	Mean Comparison	Mean Difference	P
1. $\bar{X}_1 - \bar{X}_2 = 3.26-2.88$	.98	*.020	15. $\bar{X}_3 - \bar{X}_5 = 3.19-3.01$	.18	1.000
2. $\bar{X}_1 - \bar{X}_3 = 3.26-3.19$	.07	1.000	16. $\bar{X}_3 - \bar{X}_6 = 3.19-3.12$	.07	1.000
3. $\bar{X}_1 - \bar{X}_4 = 3.26-3.27$	-.01	1.000	17. $\bar{X}_3 - \bar{X}_7 = 3.19-3.19$	.00	1.000
4. $\bar{X}_1 - \bar{X}_5 = 3.26-3.01$	.25	.719	18. $\bar{X}_3 - \bar{X}_8 = 3.19-3.06$	.13	1.000
5. $\bar{X}_1 - \bar{X}_6 = 3.26-3.12$	.14	1.000	19. $\bar{X}_4 - \bar{X}_5 = 3.27-3.01$	.26	.860
6. $\bar{X}_1 - \bar{X}_7 = 3.26-3.19$	.07	1.000	20. $\bar{X}_4 - \bar{X}_6 = 3.27-3.12$	.15	1.000
7. $\bar{X}_1 - \bar{X}_8 = 3.26-3.06$	.20	1.000	21. $\bar{X}_4 - \bar{X}_7 = 3.27-3.19$	.08	1.000
8. $\bar{X}_2 - \bar{X}_3 = 2.88-3.19$	-.31	.841	22. $\bar{X}_4 - \bar{X}_8 = 3.27-3.06$	.21	1.000
9. $\bar{X}_2 - \bar{X}_4 = 2.88-3.27$	-.39	*.037	23. $\bar{X}_5 - \bar{X}_6 = 3.01-3.12$	-.11	1.000
10. $\bar{X}_2 - \bar{X}_5 = 2.88-3.01$	-.13	1.000	24. $\bar{X}_5 - \bar{X}_7 = 3.01-3.19$	-.18	1.000
11. $\bar{X}_2 - \bar{X}_6 = 2.88-3.12$	-.24	1.000	25. $\bar{X}_5 - \bar{X}_8 = 3.01-3.06$	-.05	1.000

12. $\bar{X}_2 - \bar{X}_7 = 2.88-$ 3.19	-.31	.387	26. $\bar{X}_6 - \bar{X}_7 = 3.12-$ 3.19	-.07	1.000
13. $\bar{X}_2 - \bar{X}_8 = 2.88-$ 3.06	-.18	1.000	27. $\bar{X}_6 - \bar{X}_8 = 3.12-$ 3.06	.06	1.000
14. $\bar{X}_3 - \bar{X}_4 = 3.19-$ 3.27	-.08	1.000	28. $\bar{X}_7 - \bar{X}_8 = 3.19-$ 3.06	.13	1.000

Note: *p < .05; Mean 1 = 0-5 years; Mean 2 = 6-10 years; Mean 3 = 11-15 years; Mean 4 = 16-20 years; Mean 5 = 21-25 years; Mean 6 = 26-30 years; Mean 7 = 31-35 years; Mean 8 = ≥ 36 years

Table 29

Nutrition Component of Health Promotion Lifestyle Behavior of Registered Nurses by Number of Years in Nursing (n = 250)

Mean Comparison	Mean Difference	P	Mean Comparison	Mean Difference	P
1. $\bar{X}_1 - \bar{X}_2 = 2.68-2.52$	.14	.158	15. $\bar{X}_3 - \bar{X}_5 = 2.91-2.77$	.14	.366
2. $\bar{X}_1 - \bar{X}_3 = 2.68-2.91$	-.23	.090	16. $\bar{X}_3 - \bar{X}_6 = 2.91-2.76$	.15	.364
3. $\bar{X}_1 - \bar{X}_4 = 2.68-2.74$	-.06	.603	17. $\bar{X}_3 - \bar{X}_7 = 2.91-2.89$	.02	.884
4. $\bar{X}_1 - \bar{X}_5 = 2.68-2.77$	-.09	.426	18. $\bar{X}_3 - \bar{X}_8 = 2.91-2.97$	-.06	.701
5. $\bar{X}_1 - \bar{X}_6 = 2.68-2.76$	-.08	.563	19. $\bar{X}_4 - \bar{X}_5 = 2.74-2.77$	-.03	.783
6. $\bar{X}_1 - \bar{X}_7 = 2.68-2.89$	-.21	.071	20. $\bar{X}_4 - \bar{X}_6 = 2.74-2.76$	-.02	.884
7. $\bar{X}_1 - \bar{X}_8 = 2.68-2.97$	-.29	.034	21. $\bar{X}_4 - \bar{X}_7 = 2.74-2.89$	-.15	.239
8. $\bar{X}_2 - \bar{X}_3 = 2.52-2.91$	-.39	** .010	22. $\bar{X}_4 - \bar{X}_8 = 2.74-2.97$	-.23	.112
9. $\bar{X}_2 - \bar{X}_4 = 2.52-2.74$	-.22	.089	23. $\bar{X}_5 - \bar{X}_6 = 2.77-2.76$	.01	.925
10. $\bar{X}_2 - \bar{X}_5 = 2.52-2.77$	-.25	.059	24. $\bar{X}_5 - \bar{X}_7 = 2.77-2.89$	-.12	.390
11. $\bar{X}_2 - \bar{X}_6 = 2.52-2.76$	-.24	.111	25. $\bar{X}_5 - \bar{X}_8 = 2.77-2.97$	-.20	.191

12. $\bar{X}_2 - \bar{X}_7 = 2.52-$ 2.89	-.37	** .006	26. $\bar{X}_6 - \bar{X}_7 = 2.76-$ 2.89	-.13	.391
13. $\bar{X}_2 - \bar{X}_8 = 2.52-$ 2.97	-.45	** .003	27. $\bar{X}_6 - \bar{X}_8 = 2.76-$ 2.97	-.21	.201
14. $\bar{X}_3 - \bar{X}_4 = 2.91-$ 2.74	.17	.239	28. $\bar{X}_7 - \bar{X}_8 = 2.89-$ 2.97	-.08	.571

Note: *p<.05; **p<.01; Mean 1=0-5 years; Mean 2=6-10 years; Mean 3=11-15 years; Mean 4=16-20 years; Mean 5=21-25 years; Mean 6=26-30 years; Mean 7=31-35 years; Mean 8= $\geq$ 36 years. ($n = 250$).

Table 30

Mean and Standard Deviation Results of HPLP II by Years in Nursing

Subscale	0-5 years M SD	6-10 years M SD	11-15 years M SD	16-20 years M SD	21-25 years M SD	26-30 years M SD	31-35 years M SD	36-39 years M SD	40+ years M SD	F	P
Health Responsibility	2.50 .53	2.36 .34	2.75 .47	2.80 .57	2.54 .65	2.58 .56	2.82 .52	2.78 .50	2.71 .36	2.562	*.011
Physical Activity	5.5 .68	2.36 .65	2.98 .63	2.48 .68	2.32 .84	2.41 .67	2.54 .65	2.57 .76	2.52 .80	1.546	.143
Nutrition	2.68 .54	2.52 .47	2.90 .46	2.73 .46	2.77 .52	2.76 .42	2.88 .50	2.96 .52	2.96 .52	1.797	.079
Spiritual Growth	3.24 .45	2.98 .53	3.22 .41	3.32 .55	3.14 .47	3.06 .40	3.14 .57	3.09 .60	3.09 .60	1.583	.131
Interpersonal Relationships	3.25 .40	2.88 .58	3.18 .45	3.27 .45	3.00 .54	3.11 .50	2.19 .47	2.85 .52	3.30 .35	2.659	** .008
Stress Management	2.62 .53	2.29 .38	2.60 .33	2.60 .58	2.47 .56	2.46 .57	2.59 .57	2.31 .27	2.92 .50	2.010	*.046
Total HPLP	2.82 .40	2.57 .34	2.92 .28	2.85 .37	2.76 .53	2.75 .34	2.91 .37	2.74 .32	3.00 .31	1.752	.089

Note. *p < .05; **p < .01. (n = 250)

Responsible for the physical care of an adult individual. Table 31 presents the one-way ANOVA results regarding the perceptions of RNs toward the responsibility for the physical care of an adult individual component of health promotion lifestyle behavior. A statistically significant difference was found between the perceptions of RNs who did and did not care for another person with respect to the spiritual growth ($F[3,233]=5.797$, $p<.05$); interpersonal relations ($F[3,226]=7.558$, $p<.05$); and health responsibility ($F[3,230]=3.006$, $p<.05$) components of the health promotion lifestyle at the .05 level. No significant differences were found between the perceptions of these nurses on the basis of care for an adult individual with regard to the physical activity ($F[3,232]=1.174$, $p>.05$); nutrition ($F[3,237]=2.095$, $p>.05$); and stress management ($F[3,230]=1.261$, $p>.05$) components of health behavior.

Table 31

Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care

Source	Sum of Squares	df	Mean ²	F	P
Total Health Behavior					
Between Groups	.825	3	.275	1.831	.143
Within Groups	28.394	189	.150		
Total	29.219	192			
Health Responsibility					
Between Groups	2.535	3	.845	3.006	*.031
Within Groups	64.638	230	.281		
Total	67.172	233			
Physical Activity					
Between Groups	1.779	3	.593	1.174	.320
Within Groups	117.218	232	.505		
Total	118.997	235			
Nutrition					
Between Groups	1.563	3	.521	2.095	.102
Within Groups	58.947	237	.249		
Total	60.510	240			

(Continued)

Spiritual Growth					
Between Groups	3.969	3	1.323	5.797	***.001
Within Groups	53.183	233	.228		
Total	57.152	236			
Interpersonal Relationship					
Between Groups	4.913	3	1.638	7.558	***.000
Within Groups	48.973	226	.217		
Total	53.887	229			
Stress Management					
Between Groups	1.037	3	.346	1.261	.289
Within Groups	63.047	230	.274		
Total	64.084	233			

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. (N=250)

Additional post hoc analysis using the Bonferroni test (Table 32) revealed that RNs who indicated that they *sometimes* provided physical care had a significantly more favorable perception toward the spiritual growth component than those who *never* or *routinely* provided physical care.

Table 32

Spiritual Growth Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care

Mean Values					P
Never	Sometimes	Often	Routinely	Difference	
3.19	2.89			.30	*.011
3.19		3.18		.01	1.000
3.19			3.28	-.09	1.000
	2.89	3.18		-.29	.079
	2.89		3.28	-.41	** .000
		3.18	3.28	-.10	1.000

Note. * $p < .05$; ** $p < .01$. (n = 250)

Post hoc use of the Bonferroni test for multiple comparison (Table 33) indicated that RNs who *never*, *often*, and *routinely* administered physical care had significantly more favorable perceptions toward the interpersonal relations component than those who *sometimes* provided physical care.

Table 33

Interpersonal Relations Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care

Never	Sometimes	Often	Routinely	Mean Difference	P
3.20	2.80			.40	***.000
3.20		3.13		.07	1.000
3.20			3.23	-.03	1.000
	2.80	3.13		-.33	*.039
	2.80		3.23	-.43	***.000
		3.13	3.23	-.10	1.000

Note. (n = 250). *p<.05 ***p<.001

Due to the conservative nature of the Bonferroni test for multiple comparison, post hoc analyses were also performed using the LSD test to detect differences within the health responsibility component (Table 34). Registered nurses who *routinely* provided physical care had more favorable perceptions toward health responsibility than those who *never* administered physical care.

Table 34

Health Responsibility Component of the Health Promotion Lifestyle Behavior of Registered Nurses by Physical Care

Never	Sometimes	Often	Routinely	Mean Difference	P
2.54	2.47			.07	.524
2.54		2.75		-.21	.064
2.54			2.71	-.17	.032*
	2.47	2.75		-.28	.039*
	2.47		2.71	-.24	.027*
		2.75	2.71	.04	.064

Note. (n = 250). *p<.05

Furthermore, RNs who *often* and *routinely* provided physical care had more favorable perceptions toward health responsibility than those who *sometimes* provided physical

care. Table 35 shows the mean and standard deviation results for the total and subscales of the HPLP II with regard to responsibility for physical care of adult individuals.

Table 35

Mean and Standard Deviation Results of HPLP by Physical Care

Subscales	Never	Sometimes	Often	Routinely	F	P
	M SD	M SD	M SD	M SD		
Health Responsibility	2.53 .54	2.46 .52	2.74 .49	2.71 .53	3.006	*.031
Physical Activity	2.43 .71	2.44 .62	2.61 .62	2.60 .76	1.174	.320
Nutrition	2.72 .47	2.61 .50	2.73 .45	2.85 .53	2.095	.102
Spiritual Growth	3.19 .51	2.89 .54	3.19 .41	3.29 .43	5.797	.001***
Interpersonal Relationships	3.19 .46	2.80 .60	3.12 .41	3.22 .42	7.558	.000***
Stress Management	2.59 .55	2.41 .49	2.62 .43	2.53 .653	1.261	.289
Total HPLP	2.80 .47	2.66 .46	2.85 .38	2.86 .37	1.831	.143

Note: * $p < .05$; *** $p < .001$. ($n = 250$)

Research Question Two: Perception of Role Modeling

Research Question two was a two-fold inquiry. Part A of this question asked the respondent: Do registered nurses perceive themselves as personal role models for patients and the community? As shown in Table 36, approximately 8% of RNs *never* perceived themselves as role models for patients and the community, and 38.40% reported that they perceive themselves as role models only *sometimes*. In contrast, 38% of the participating

RNs reported that they *often* perceived themselves as role models for patients and the community, as compared with 16% who indicated that they *routinely* perceived themselves as role models. A statistically significant difference was found between the perceptions of RNs toward being role models for patients and the community ($\chi^2 = 73.232$, $df = 3$, $p < .001$). Thus, there was a statically significant greater likelihood that RNs *sometimes* or *often* perceived themselves as role models for patients and the community.

Table 36

Frequency Perception of Registered Nurses toward Being Role Models for Patients and Community

Question	Never	Sometimes	Often	Routinely	Total
Do you perceive yourself as being a role model of healthy behaviors for patients and the community?	19 (7.6%)	96 (38.40%)	95 (38.0%)	40 (16.0%)	250 (100%)

Note. ($n = 250$)

As indicated in Table 37, the mean perception score for participating RNs with respect to being role models for patients and the community was 2.62 ($SD = .842$). On average, the study participants *sometimes* perceived themselves as role models for patients and the community.

Table 37

Mean and Standard Deviation Results Perception of Registered Nurses toward Being Role Models for Patients and the Community

Question 2A	Mean	SD
Do you perceive yourself as being a role model for healthy behaviors for patients and the community?	2.62	.842

Note. ($n = 250$)

Part B of Research Question 2 asked the participants: Should the nursing profession be considered role models who exhibit exemplary healthy behaviors to be emulated by persons in the community? Table 38 shows the frequencies with which the RNs reported considering themselves role models of exemplary healthy behaviors. Just over 1% of participants reported that they *never* perceive the nursing profession as a role model of exemplary healthy behaviors to be emulated by others, as compared to 19.76% who indicated they *sometimes* perceived the nursing profession in this way.

Table 38

Frequency Perception of Registered Nurses toward Their Profession as Being Role Models for Patients and the Community

Question	Never	Sometimes	Often	Routinely	Total
Do you perceive the nursing profession as role models of exemplary healthy behaviors to be emulated by others?	4 (1.61%)	49 (19.76%)	100 (40.32%)	95 (38.31%)	248 (100%)

Note. ($n = 250$)

On the other hand, none of the RNs *often* perceived the nursing profession as a role model to be emulated by others for exemplary healthy behavior and 38% *routinely* perceived their profession in this way. A chi squared goodness of fit analysis of the

indicated a greater likelihood of statistical significance that the nurses would consider themselves role models of exemplary healthy behaviors to be emulated ($\chi^2=97.839$; $df=3$; $p<.0001$).

Table 39 shows the mean and standard deviation analyses with respect to the perceptions of RNs toward their profession as being role models of exemplary healthy behaviors to be emulated by the community. The aggregate mean perception score was 3.15 (SD = .790), suggesting that on average the participating RNs *often* perceived nursing professionals as role models of exemplary health behaviors to be emulated by others.

Table 39

Mean and Standard Deviation Results Perception of Registered Nurses toward Their Profession as Being Role Models for Patients and the Community

Question 2B	Mean	SD
Do think the nursing profession should be considered role models who exhibit exemplary healthy behaviors to be emulated by persons in the community?	3.15	.790

Note. ($n = 250$)

Research Question Three: Demographics and Health Behaviors

Research Question Three asked: Are there differences associated with health behaviors of RNs based on demographic characteristics (age, gender, race/ethnicity, length of time in the profession, and hours worked per week)? The mean and standard deviation results pertaining to the predictor and criterion variables in the model are presented in Table 40. The mean Total Health promotion score was 2.81 for the overall

group of participants, indicating that as a group the nurses *often* promoted a healthy lifestyle.

On average, the RNs who participated in this study were 50-59 years old, had one or two children, worked 7.24 hours per week, had earned a bachelor's degree, and had 16-20 years of nursing experience. Their mean perception score regarding control of their health-related behaviors was 3.08 (SD = .616). In addition, the overall group had a somewhat favorable perception with regard to controlling their health-related behaviors, reported consuming just over one drink during the last week, and had an average BMI score of 27.26 (SD = 6.08);

Table 40

Mean and Standard Deviation Results Regarding Predictor and Criterion Variables

Variable	Mean	Standard Deviation
Total Health Promotion	2.81	.389
Personal Demographic Factors		
Ethnicity		
White vs. other	.440	.498
Black vs. other	.216	.413
Hispanic vs. other	.122	.328
Asian vs. other	.180	.385
Gender	.874	.333
Marital Status	.294	.456
Age	2.95	1.28
Number of children	2.35	1.30
Work-Related Factors		
Medical-Surgical	.392	.489
Clinical specialty areas	.376	.485
Education and administration	.098	.298
Procedures	.090	.286
Education	2.08	.602
Years in nursing	3.95	2.53
Average hours per week	7.24	1.19
Other Health Factors		

Tobacco use in the past 6 months	.040	.197
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		(Continued)
Perception of health	3.080	.616
Number of drinks in the last week	1.490	2.199
Calculated BMI	27.261	6.075
Perception Factors		
Personal Control	3.34	.772
Exemplary health behavior	3.15	.790
Role model for others	2.62	.842

Note: * $p < .05$; *** $p < .001$. ($n = 250$)

A Pearson Product Moment Correlation was performed to determine the relationships between predictors and criterion variables (Table 41). Correlation results were generated from the four sets of predictor variables and the criterion variable for total health promotion.

Table 41

Intercorrelations between Predictor and Criterion Variables

Predictor Variable	Criterion Variable	r Value
Personal Demographic Factors	Total Health Promotion	
Ethnicity		
White vs. other		-.040
Black vs. other		-.036
Hispanic vs. other		.025
Asian vs. other		.127
Gender		.127
Marital status		-.074
Age		.117
Number of children		*.163
Work-Related Factors		
Medical-Surgical		.030
Clinical specialty areas		-.054
Education and administration		.091
Procedure		-.030

Education	.099
Years in nursing	.091
Average hours worked per week	-.025
(Continued)	
Other Health Factors	
Tobacco use in the past 6 months	-.091
Perception of health	***.330
Number of drinks in the last week	.007
Calculated BMI	***-.243
Perception Factors	
Personal control	***.401
Exemplary health behavior	***.344
Role model	***.613

Note: * $p < .05$; *** $p < .001$. ($n = 250$)

Among the personal demographic factors, only number of children was found to have a significant positive correlation with total health promotion ($r = .163$). None of the work-related factors were significantly correlated with total health promotion; however, two of the four perception factors were correlated with total health promotion. A positive correlation was found between perception of health ($r = .330$) and total health promotion; whereas BMI score was found to be negatively related to total health promotion ($r = -.243$).

Finally, all three of the perception factors—personal control ($r = .401$), exemplary health behavior ($r = .344$), and serving as a role model ($r = .613$)—were positively related to total health promotion. Thus, it appeared that the participating RNs who were most likely to highly promote healthy behaviors were those had two or more children, a *good* or *excellent* health perception, a low BMI score, perceived control over their personal health, and perceived nurses as role models for health behavior (Table 41).

Regression equation one: Personal demographics. A standard regression model was used to examine the relationships between independent variables (race, gender, marital status, age, and number of children) and the dependent variable of health promotion. All nominal variables were dummy coded prior to starting the analysis. Assumptions were checked for violations of normality, linearity, multicollinearity, and homoscedasticity. No violations were found, however four marginal outliers were retained. As shown in Table 42, the regression model yields a multiple regression correlation of .277. The predictor variables together accounted for 7.7% (adjusted = 3.6%) of the variance in the total health behavior criterion variable.

Table 42

Standard Multiple Regression Results the Association between Personal Demographic Factors and Total Health Promotion of Registered Nurses

Model	B	SE	Beta	t	P
Constant	2.257	.187	n/a	n/a	n/a
Ethnicity					
White vs. other	.245	.145	.314	1.696	.092
Black vs. other	.206	.151	.219	1.369	.173
Latino vs. other	.292	.161	.247	1.812	.072
Asian vs. other	.354	.153	.350	2.309	*.022
Gender	.145	.085	.124	1.706	.090
Marital Status	.020	.073	.024	.275	.784
Age	.023	.025	.076	.916	.361
Number of children	.044	.026	.147	1.687	.093

Note: $R = .277$; $R^2 = .077$; $\text{adj } R^2 = .036$; $F [8,181] = 1.887$; $p = .064$; *Significant at the .05 level. ($n = 250$)

No significant linear relationship was found between the eight personal demographics predictors and the total health promotion behavior of RNs ($F [8,181] = 1.887$, $p > .05$). However, Asian vs. others was found to be an independent predictor of

total health promotion behavior of participating RNs ($t [181] = 2.309, p > .05$), uniquely predicting 2.7% of the variance in their total health promotion behavior.

Regression Equation two: Work-related demographics. A standard regression model was used to examine the relationship between a set of independent work-related demographics (shift work, clinical areas, education, years in nursing, and hours worked per week) and the dependent variable health promotion (Table 43).

Table 43

Standard Multiple Regression Results the Association between Work-Related Factors and Total Health Promotion of Registered Nurses

Model	B	SE	Beta	t	P
Constant	3.313	.434	-.353	7.641	.000
Shift					
Days vs. other	-.305	.321	-.242	-.950	.343
Even vs. other	-.343	.334	-.314	-1.025	.307
Night vs. other	-.312	.325	-.221	-.959	.339
Medical-Surgical	.176	.148	.244	1.185	.238
Clinical specialty area	.195	.147	-.079	-1.325	.187
Education and administration	-.103	.163	-.146	.631	.529
Procedures	-.198	.172	.051	-1.148	.252
Education	.033	.054	.073	.603	.548
Number of years in nursing	.011	.012	-.057	.918	.360
Average hours worked per week	-.019	.025		-.758	.450

Note: $R = .189$; $R^2 = .036$; $\text{adj } R^2 = -.018$; $SE = .39218$; $F [910,179] = .661$; $p = .759$; significant at the .05 level; $p > .05$. ($n = 250$)

All nominal variables were dummy coded prior to starting the analysis, and assumptions were checked for violations of normality, linearity, multicollinearity, and homoscedasticity. There was a possible violation of multicollinearity among the dummy-coded shift variables, as well as four marginal and two large outliers. Removal of the two large outliers and shift variable from the equation produced no discernable difference in

the overall results. A multiple correlation coefficient (R) of .180 was computed between the ten predictors and the criterion variable. The total variance collectively by the variables in the model was 3.6% (adjusted =1.8%) of the variance in the total health promotion behavior of RNs. Thus, there was no significant relationship between work-related demographics and health promotion ($F [10,179] = 661, p > .05$).

Regression equation three: Prior behaviors. A standard regression model was used to examine the relationship between independent prior behaviors (tobacco use in last six months, perception of health, number of drinks in last week, and calculated BMI) and the dependent variable of health promotion. No violations of assumptions were found and 13 marginal outliers were retained.

As reported in Table 44, the regression equation yielded a multiple correlation of .371. The four predictor variables accounted for a combined 13.8% (adjusted = 11.9%) of the variance in the criterion variable.

Table 44

Standard Multiple Regression Results the Association between Prior Health Behaviors Factors and Total Health Promotion of Registered Nurses

Model	B	Standard Error	Beta	t	Significance
Constant	2.558	.212			
Tobacco use in the past 6 months	-.110	.139	-.056	-.789	.431
Perception of health	.177	.045	.281	3.913	*.000
Number of drinks in the last week	.002	.012	.010	.137	.891
Calculated BMI	-.011	.005	-.165	-2.308	*.022

Note: $R = .371$; $R^2 = .138$; adj. $R^2 = .119$; $SE = .36481$; $F [4,181] = 7.241$; $p = .000$. ($n = 250$)

A significant linear relationship was found between the total health promotion behavior of RNs and the predictor variables of tobacco use during the past 6 months, perception of health, number of drinks in the last week, and calculated BMI ($F [4,181] = 7.241, p = .001$). Perception of health was found to be a statistically significant predictor of the RNs' total health promotion behavior when calculated BMI was controlled ($t [181] = 3.913, p = .001$). In addition, calculated BMI was found to contribute significantly to the total health promotion behavior of RNs when perception of health was controlled ($t [181] = -2.308, p = .05$). Finally, perception of health and calculated BMI uniquely predicted about 7.3% and 2.5% of the variance in total health promotion behavior among registered nurses, respectively. The better the participants rated their health, the higher their health promotion scores. Those with lower BMI values also had higher health promotion scores. Reported alcohol consumption and tobacco use were unrelated to health promotion scores.

Regression equation four: Perception of health. A standard regression model was used to examine the relationships between independent variables (personal control over health related behaviors, nursing profession as role model, and nurses' perception as role model) and the dependent variable of total health promotion (Table 45). Assumptions were checked for violations of normality, linearity, multicollinearity, and homoscedasticity. No violations were found, however one marginal outlier was retained.

Table 45

Standard Multiple Regression Results the Association between Perception Factors and Health Promotion of Registered Nurses

Model	B	SE	Beta	t	P
Constant	1.754	.114			
Personal control	.114	.030	.227	3.863	***.000
Exemplary health behavior	.012	.031	.024	.381	.703
Role model	.244	.030	.529	8.203	***.000

Note: $R = .651$; $R^2 = .424$; adj. $R^2 = .415$; $SE = .29737$; $F [3,190] = 46.558$; $p = .000$;
 ***Significant at the .001 level. ($n = 250$)

The regression model yielded a multiple correlation coefficient of .651. Moreover, three perception factors together accounted for 42.4% (adj. = 41.5%) of the variance in total health promotion behavior. A significant linear relationship was found between three perception predictors and total health promotion behavior of participating RNs ($F [3,190] = 46.558$, $p = .001$). The personal control variable was a statistically significant predictor of the nurses' total health promotion behavior when role model for patients and community was controlled ($t [190] = 3.863$, $p = .001$). When the personal control variable was controlled, role model for patients and community was independently correlated with the total health promotion behavior of participating RNs ($t [190] = 8.203$, $p = .001$). In addition, personal control uniquely predicted 4.5% of the variance in total health promotion among nurses, and role model for patients and community unique predicted 20.5% of the variance in this variable. Nurses who indicated a belief that they should be personal role models and who perceived they had control over their health related behaviors had higher health promotion scores.

Summary of the Findings

The data analysis included description of the sample using of information obtained from the demographic data tool. The results from the HPLP II instrument were examined for ranges of scores, means of scores, and reliability. Thorough descriptive statistics indicated average practice of positive health behaviors among participating RNs to answer Research Question 1. With respect to Research Question 2, nurses reported average perception on personal role modeling and above average on the nursing profession as role models to the community and patients. Research Question 3 was answered using the standard multiple regression model to determine which dependent variables were predictive of the criterion variable, positive health behaviors in nurses.

CHAPTER V

SUMMARY OF THE STUDY

One of the major roles of health care professionals is to promote healthy behaviors within the hospital and in the community. Nurses are the largest group of direct health care providers in the United States (USDHHS, 2010). Despite significant training and education on health promotion and prevention, nurses do not necessarily engage in healthy lifestyle behaviors themselves (Nahm et al., 2012). The American Association of Colleges of Nursing (AACN, 2008) identified the ability to provide self-care as an antecedent to the practice of professional nursing. The credibility of nurses as health care educators is linked to patient expectations that nurses model healthy behaviors. Florence Nightingale believed that nurses had a duty to care for their own health and promote health through role modeling (Dossey, 2005).

Research suggests that nurses' physical activity, smoking, and dietary patterns are no healthier than those of the general population whose health they are entrusted to improve. The majority of published studies focused on the health behaviors of nurses have described populations that were primarily White, middle-aged females. However, the current literature on nurses' health behaviors does not accurately represent the current nursing demographic population. Little is known about the health behaviors of hospital nurses in a more demographically diverse sample (i.e., race, ethnicity, age, gender, etc.) or the nurses' perceptions of themselves as role models. This study adds to the current

body of knowledge regarding nurses' health behaviors in a more diverse population and nurses' perceptions of role modeling healthy behaviors. This chapter presents a summary of the study, discussion of study findings, study conclusions, implications for nursing, and recommendations for future research.

Summary

The aim of this descriptive study was to determine whether the current literature on nurses' health behaviors accurately represents the diverse population of RNs. The following research questions were examined: (a) What are the health behaviors of registered nurses working in an acute hospital?; (2) Do nurses perceive themselves and the nursing profession as role models for patients and the community?; (c) Are there demographic differences (age, gender, race, ethnicity number of children, length of time in profession, and hours worked each week) associated with health behaviors of registered nurses? The study was guided by the health promotion model (Pender, 1996), which identifies background factors that influence health behavior. The model also advances the concept that individual characteristics and life experiences shape behaviors, including health.

The instruments used to collect data on health behaviors were the HPLP II questionnaire and a demographic data tool. The HPLP II questionnaire included six subscales: health responsibility, nutrition, physical activity, interpersonal relations, spiritual growth, and stress management. A test of instrument reliability in the sample resulted in a Cronbach's alpha of .93 for the TotHPLP and reliability coefficients for the

subscales ranging from 0.76-0.86. The demographic tool asked questions regarding age, gender, race, education, and years of nursing.

The study was conducted using a convenience sample of 250 nurses working in an acute care hospital in southeast Texas. The participants were primarily female RNs between the ages of 50-59 years, Caucasian, married, with at least one college degree, working in a staff nurse role, with 25% (n=63) of the study sample reporting 0-5 years of experience in nursing. A large portion of the sample (36.7%) reported not having any children. The majority (72%) of the nurses in the study worked day shift, primarily in medical-surgical areas, and averaged 36-40 hours per week. This sample was not representative of national data, but was more diverse than samples previously reported in similar studies and national surveys. An invitation to participate was emailed to all RNs working at the facility who met the inclusion criteria. The email included a secured link to the survey and explained that completion of the survey constituted informed consent to participate in the study.

Data were analyzed using frequency statistics, Pearson product moment correlation, and regression modeling to address the three research questions. Statistical significance was tested at ≥ 0.05 . The first research question revealed that on a scale of 1 (lowest) to 4 (highest), nurses participating in this study rated their engagement in positive health behaviors (practices) as 1.69-4 with an overall average of 2.81. Among the survey respondents, the health behaviors of spiritual growth (M=3.18; SD=.494) and interpersonal relations (M=3.14; SD=.484) had the highest mean scores. The lowest

mean scores were obtained in physical activity ($M = 2.51$; $SD = .709$) and stress management ($M = 2.54$; $SD = .524$).

The data analysis to address the second research question revealed that the participating nurses perceived role modeling by the profession as being of greater importance than their individual function as role models. The data related to the third research question indicated that the analyzed demographics were not associated with health behaviors; rather the nurses' perceived control of health behaviors had a significant effect on whether they practiced positive health behavior.

As a group, the participants reported routinely having control of health behaviors, good or excellent health, and no history of tobacco use. More than half of respondents did not drink any alcoholic beverages within the last week, and the aggregate mean and median BMI fell into the category of overweight. The nurses rated spiritual growth and interpersonal relations as the positive health behaviors they practiced most frequently. Perception of the nursing profession as role models, perception of personal control over health behaviors, and low BMI resulted in a greater likelihood of positive health promotion. The following section will provide a detailed discussion of the study findings.

Discussion of Research Findings

The findings for each research question are discussed in the following sections.

Research Question One: Health Behaviors

The first research question asked, "What are the health behaviors of registered nurses working in an acute care hospital?" Nurses' health behaviors were measured

using the HPLP II instrument with responses ranging from 1 (lowest) to 4 (highest).

With respect to total health behaviors, nurses reported an overall mean score of 2.81. The subscales were examined and the lowest mean scores were for health responsibility (2.62), nutrition (2.76), stress management (2.54), and physical activity (2.51). Nurses rated spiritual growth (3.18) and interpersonal relations (3.14) as the most positive health behaviors. Physical activity and stress management were rated as the least practiced positive health behaviors.

The ANA conducted a health risk assessment on 114 RNs at their annual membership assembly (ANA, 2013). The majority of the nurses were female, actively employed working full time in nursing, and 44% had been a nurse for 31-40 years. The present study results are consistent with the results from the ANA study. Nurses in the ANA study reported good to excellent health, working in tobacco free environments, and most did not smoke. The present study was inconsistent with the ANA results with respect to lower engagement in physical activity, not getting annual checkups, consuming more sugary drinks.

The present findings are consistent with those of McElligott et al. (2009) and Blake et al. (2012), who found that nurses scored lowest in physical activity and stress management. A plausible explanation for the present physical activity score could be that nurses believe their daily work expectations such as lifting or making numerous trips to patients' rooms during their regular shifts equate to at least 30 minutes of moderate physical activity, making additional physical exercise programs unnecessary. Another possible explanation for the nurses reporting less than average outside physical activity

may be that they do not feel that they have enough time as a result of working long irregular hours.

Stress management was also reported as a least practiced health behavior, which is consistent with the findings of the previously mentioned studies. A plausible explanation for the present findings could be that the nurses have multiple simultaneous and often conflicting roles such as being a parent and an employee. Stress can occur when the demands of each of the roles are incompatible or exceed the individual's ability to meet the demands. Nurses often work 12-hour shifts and then go home to face the responsibilities of family and children, which leaves them with less recreational time. Consequently, women—as caregivers—provide intensive and complex care and often have difficulty balancing caregiving with relaxation time.

When study variables were examined within the context of the selected demographic variables, significant differences were observed in four of the six subscale mean scores. The subscales with the greatest variances were health responsibility, nutrition, spiritual growth, and interpersonal relations. The differences in variance were based on gender, age, marital status, years of nursing experience, number of children, and responsibility for the physical care of an adult individual.

These findings are in contrast to McElligott et al. (2009) and Blake et al. (2012), who did not find any significant association between demographics and scores on the HPLP II scale. This may be due to greater diversity of the current study sample, allowing these differences to be better illuminated.

The ethnic and racial diversity in the current study is not representative of the national data describing the overall population of nurses in the United States, nor is it consistent with data reported in previous studies with predominantly white female samples. This study is more inclusive of diverse populations, including men in nursing and diversity in terms of race, ethnicity, and age groups. These findings could result from recruitment of Filipino nurses during the 1980s and 1990s, or from the designation of Houston as one of the most diverse cities in the United States. Another possible explanation might be that the hospital employs inexperienced graduate nurses in conjunction with a 12-month residency program sponsored by the hospital staff development department. The nurses in this program range from 20-50 years of age. The Texas Medical Center is also home to several nursing schools that receive clinical experience in the study hospital. More than half of the study participants hold a bachelor's degree or higher; however this finding may be skewed because the hospitals where the study was conducted required a bachelor's degree as the minimum qualification for nurses.

Health responsibility. The participants who were age 50 years or older, divorced, had three or more children, and had more than 20 years' experience in nursing reported higher scores in health responsibility. These findings correspond with those of Deeks et al. (2009), who found that participants aged 51 years or older were more likely than younger participants to report participation in specific health screening including mammogram, prostate, cholesterol, or blood glucose checks. Their findings also suggest that lifestyle and work environment had a greater impact on the health and longevity of

younger participants; while older participants reported a stable home and relationships as more important factors in longevity and health.

The culturally accepted role of women in society could also explain the study findings. Women are often the health care gatekeepers for their families and are likely to seek health care more often for their children and themselves. In addition, it has been reported that women may experience more symptoms and more pain (Deeks et al., 2009). These findings are similar to those of Callaghan (1995), where more years of nursing experience had a positive effect on the nurses' health-related behaviors. The longer a nurse interacts in patient care, the more aware they become of the effects unhealthy behavior has on a person's quality of life.

Nutrition. The participants who were 60 years of age or older reported higher mean scores for nutrition. These findings are consistent with those of Pender, Walker, Sechrist, and Frank-Stromberg (1990) that older adults had a greater incidence of desirable health behaviors. It could be that by the age of 60 years, individuals may have encountered the onset of a chronic illness or received counseling from a physician regarding modification of health behaviors to prevent illnesses related to aging.

Spiritual growth and interpersonal relations. Nurses who reported having children living in the home, responsibility for the care of another adult individual, more than 20 years in nursing, or being female scored higher in terms of spiritual growth and interpersonal relations. In comparison, Hensel (2011) found that females had higher mean scores for spiritual growth and concluded that it was the most frequent healthy lifestyle behavior practiced by women. A plausible explanation for these findings might

be a greater likelihood of nurses to maintain their health by engaging in spiritual practices and rewarding interpersonal relationships rather than through diet, exercise, or use of stress management techniques. Walker and Hill-Polerecky (1996) described spiritual growth as transcending, connecting, and developing inner resources to attain health actualization. They also described interpersonal relationships as using communication to share thoughts and feelings to achieve a sense of closeness. Cowin (n.d.) asserted that caring implies an ethic responsibility, sense of affection, empathy, and holistic support. Given that definition of caring, it is easy to understand that the higher scores for spiritual and interpersonal relationships by nurses may have evolved from maturation and the actual practice of nursing.

Although the participants were a diverse group, there was no statistically significant correlation between race and mean health behavior scores. The majority of nurses in the group reported to be nonsmokers, which is in contrast to the work of Kenfield, Stampfer, Rosner, and Colditz (2008) in which 12% of nurses self-reported as smokers. The low smoking rates among participants in the study may be related to the smoke free environment of the Texas Medical Center. Nonsmoking employees receive benefits such as lower health insurance rates and smoking cessation programs have been available at no cost to employees for the last 10 years.

Research Question Two: Role Modeling

In reference to the second research question of whether nurses perceived themselves or the nursing profession as role models for patients and the community, the results revealed that nurses sometimes or often viewed themselves as role models for

patients. Some past studies have suggested that nurses should serve as role models of positive health behaviors, while others disagree. The present findings supported the work of Blake et al. (2012), which reported that more than 70% of respondents believed that nurses should be role models for health behaviors. They indicated that nurses felt their physical appearance, weight, and image were important to the way in which they are perceived by patients and that their own health behaviors would influence both their ability to promote healthy behaviors to others and the lifestyle choices of their patients. Daley (2012) suggested that nurses should set an example of a healthy lifestyle for patients, who place trust in nurses with regard to knowledge of health and wellness. The ANA created the Healthy Nurse Program to motivate nurses and offer resources to help them get, and stay, healthy. The ANA website offers resources regarding how to manage stress, increase physical activity, and adopt healthier eating habits (ANA, 2013). Nurses can take advantage of these opportunities to improve their wellness and model a healthy lifestyle for their patients and the community, leading the way in changing their lifestyles and setting an example for their patients of how to achieve optimal health. The ANA concept of a healthy nurse includes five aspects that enable nurses to function at their highest potential: (a) calling to care; (b) priority to self-care; (c) opportunity to serve as a role model; (d) responsibility to educate; and (e) authority to educate (ANA, 2013). Karen Daley, ANA president, stresses that as nurses model the healthiest behaviors themselves, it will become easier to help our patients do the best things for their health (Daley, 2012).

Some studies have suggested that nurses should not be expected to serve as role models (Rush et al., 2005). Rush et al. (2005) reported that nurses felt they could be imperfect role models and still be effective in helping people engage in healthy behaviors. In this study, nurses were open to sharing their struggles with weight, sticking with an exercise program, or trying to quit smoking. The author suggested that some nurses avoid bringing up certain lifestyle topics at all if they do not believe they will be perceived as credible. In contrast, the nurses in this study reported that they felt the nursing profession should often or routinely act as role models for patients. Another notable finding of the present study involved the influence of BMI score on health behavior. In a 2008 study of RNs and weight published in *Journal of the American Academy of Nurse Practitioners*, 54% of all participants acknowledged that weight issues require intervention, however 76% did not pursue the topic of weight with their patients (Miller et al., 2008).

Nurses are subject to the same temptations of sedentary behavior, overeating, smoking, alcohol, and drug use as anyone else and, all too often, the typical nurturing and caregiving role means they invest greatly in others but have limited resources left for themselves. This behavior can result in the development of the same physical and mental health problems as are frequently observed in their patients. Moreover, nursing can be a stressful and demanding role. Balancing pressures of the job role with healthy lifestyle choices can be difficult. Diet and exercise, for example, may take a back seat if healthy food is not readily available or if time away from their busy working environment is hard to achieve. Employers have a responsibility to create environments that reduce barriers

to healthy living and provide nurses with opportunities for making health a part of their daily lives. This could include providing a place to unwind, healthy activities before or after shifts, protected breaks, or increased access to healthy foods.

The present findings could be a result of the lack of experience among a majority of the study participants, with 0-5 years in nursing. These young nurses may not perceive themselves as being role models due to their limited experience in the profession. Nursing schools should emphasize the importance of applying their knowledge to their own health behaviors to support a healthy nursing workforce. If patients do not see nurses implementing their own advice, why should nurses expect patients to follow their instructions?

Research Question Three: Demographics and Health Promotion

Research Question 3 asked whether demographic differences (age, gender, race, ethnicity, number of children, length of time in profession, and hours worked) are associated with the health behaviors of registered nurses.

Personal characteristics. The question was divided into four subquestions, with the first being whether personal demographics (race, age, gender, marital status, or number of children) are associated with health promotion. When a standard regression model was performed, the demographic factors explained a total variance of 7.7% suggesting that there was no significant relationship between the selected personal demographics variables and health promotion. These findings are consistent with those of McElligott et al. (2009), who found no significant association between demographic factors (age, race, years in nursing, and level of education) and health promotion scores.

This finding could be a result of the surrounding environment, which plays a part in nurses' development of positive or negative health behaviors. For example, employers could make available a variety of nutritious foods enabling nurses to eat balanced meals. Investment in an onsite physical activity program or a quiet and relaxing break room to reduce stress may also improve employee health.

Work-related characteristics. The second subquestion explored the relationship between work-related demographics (shift worked, clinical areas, education, years in nursing, and hours worked per week) and health promotion. This study did not find any significant relationship between work-related demographics and health promotion, which is not consistent with results from previous studies (Persson & Martensson, 2006; Killien, 2004). Previous reports have indicated that night or rotating shifts can affect nurses' sleep patterns and diet, making them more susceptible to overweight and development of chronic illnesses such as cardiac diseases or diabetes. A majority of the participants in this study worked the day shift, which may explain the inconsistency with previously reported results. Adequate time off the unit for lunch breaks, meditation, or use of an onsite exercise facility could encourage more positive health behaviors among hospital nurses.

Prior behaviors. The third subquestion pertains to the relationship of prior behaviors (tobacco use during the past 6 months, perception of health, number of drinks in last week, and calculated BMI) and health promotion. A significant relationship was found between health behavior and health promotion. The better the participants rated their health, the higher their health promotion score. These findings are consistent with

those of Hensel (2011), Miller et al. (2008), and Zapka et al. (2009) that nurses who perceived their health as good or excellent intentionally worked at maintaining a healthy lifestyle. A surprising finding from this study was that alcohol consumption and tobacco consumption were unrelated to health promotion scores. These findings were comparable to those of Pender (1996), who reported that smoking and alcohol were not associated with health promotion and subsequently removed smoking and alcohol from the survey questionnaire. The lower rates of smoking among participants in this study may be related to the designation of the study hospital and surrounding medical facilities as smoke free. In addition, the study hospital rewards its nonsmoking employees through insurance-related and other financial incentives. Because the survey responses were self-reported, it is also possible that some participants may not have accurately disclosed their use of alcohol or other substances.

Perception of role modeling and control of health behaviors. The final subquestion was concerned with the relationship between nurses' perceptions (personal role model, professional role model, and control over health behaviors) and health promotion. Nurses who indicated a belief that they should serve as personal role models and that they had control over their own health behaviors had higher health promotion scores. These findings are consistent with those of Hankey et al. (2003), Hensel (2011), and Rush et al. (2005), who found that nurses who integrate healthy behaviors into their daily lives feel a strong sense of professional adequacy as opposed to nurses who do not. Nurses define themselves as role models of health promotion according to the meaning they assign to the term. Nurses with healthier lifestyles may perceive themselves as

better able to engage in caring relationships with their patients, use nursing knowledge, share information with patients and colleagues, and direct the health care team.

Conclusion and Implications

Several conclusions were generated as a result of the data analysis. In general, registered nurses rated spiritual growth and interpersonal relations as the most significant health lifestyle behavior components. Female RNs scored significantly the spiritual growth component of health lifestyle behavior significantly higher than their male counterparts. Divorced nurses perceived health responsibility more favorably as a healthy lifestyle behavior than single nurses. It appeared that having more children caused nurses to adopt a more favorable attitude toward health lifestyle behaviors—particularly in the health responsibility and spiritual growth areas. It also seems that increasing age results in a more favorable view of health lifestyle behaviors, especially with respect to health responsibility and nutrition. Ethnicity and number of hours worked had no impact on the health lifestyle behaviors of participating RNs. In general, years of experience in nursing significantly impacted the health behaviors of RNs with regard to health responsibility, interpersonal relationships, and nutrition. Those responsible for the physical care of an adult individual tended to have higher scores in the areas of spiritual growth, interpersonal relations, and health responsibility. A linear relationship was found between the prior behaviors and perceptions of RNs regarding their duty to serve as role models and their health lifestyle behaviors.

Implications and Recommendations for Nurses and the Nursing Profession

While these results are not widely generalizable, they do have implications for nurses, hospitals, and future research. As developing nurses, nursing students should examine their own beliefs regarding health prevention. For practicing nurses it is important to recognize that, as patient advocates and educators, they have the potential to not only influence but also to have an effective impact on positive health-promoting behaviors as role models. Therefore, nurses should make an effort to integrate positive health-promoting behaviors into their own lifestyles.

The nursing profession needs to examine its professional image and determine why health behaviors are not integrated more deeply into nurses' lifestyles. Courses in self-care should be required in nursing curriculums and outcomes measured. While the AACN (2008) suggested the ability to care for self as an antecedent to professional identity, the assumption that nurses will learn these behaviors on their own has not been effective. Nurse educators also need to accept their responsibility as lifestyle role models. If impressionable students see unhealthy lifestyles modeled by their instructors, it is only natural for them to conclude that health behaviors are unimportant.

Implications and Recommendations for Hospitals

One goal of workplace health promotion programs is to increase health awareness and change health behaviors. Benefits of participating in these programs include reduced health care costs; improved health, fitness, and productivity; reduced absenteeism; increased job satisfaction; and enhanced self-responsibility. Benefits of health-promoting activities among healthcare workers are not an exception, with increasing evidence

supporting the association between positive health behaviors among hospital workers and decreased injury in the work place (Naidoo & Coopoo, 2007). Nursing personnel have one of the highest job-related injury rates of any occupation and hospitals need to develop health and wellness intervention strategies for their nursing personnel.

Hospitals that encourage and promote a healthy workplace for their employees could see healthier, happier, and more productive workers. Several strategies may help hospitals to achieve this result. First, employers should adopt measures to enhance awareness of healthy lifestyle behaviors among their employees. Development of a hospital-wide informative newsletter with healthy tips of the month, suggestions, and reminders on upcoming health events would be a cost-effective way to increase awareness and highlight positive health behaviors. Other programs that would increase awareness might include free or reduced-cost continuing education, seminars, or in-service workshops on health topics, held at times and locations that are convenient for staff to encourage attendance. Hospitals could also increase knowledge and awareness of healthy lifestyles through advanced education. In addition to tuition assistance, employers could provide free or reduced tuition based on income, or loans with deferred payment plans that begin after graduation.

Hospitals can encourage nurses to perform health promotion behaviors at little or no cost to the institution. They could provide annual monetary health incentives to encourage exercise, healthy diet, not smoking, and maintaining a healthy weight by decreasing health premiums for staff members who comply with established health goals. Hospitals could partner with local gyms to offer rate reductions or offer incentives for

regular attendance. In addition, institutions could map out walking paths around the facilities and encourage walking support groups. They could also provide other group support such as diet and exercise counseling, nutrition counseling, and stress management classes. Employers could assist nurses in reducing stress by having massage therapy students make rounds on the units and offer reduced rates for onsite massages or by offering quiet rooms for meditation or short breaks away from the unit. Adequate labeling of heart healthy foods in the hospital cafeteria could be achieved by posting the nutritional content of the foods served. Extending the hours of nutrition and food services to increase the availability of healthy food choices could facilitate healthier eating by staff throughout their shifts. Hospitals could also offer more nutritious choices such as fruit, nuts, and yogurt in vending machines or provide “grab and go” bags at cost, perhaps delivering them to the units with patient meals.

Limitations of the Study

The findings from this study cannot be generalized to the overall nursing population, as they have been generated using a convenience sample of RNs working in one acute care facility using a self-rated questionnaire.

Recommendations for Further Study

Research is noticeably lacking in the area of health promotion and role modeling beliefs among the nursing population. Several recommendations for future research stem from this study, including:

1. Replication of the study using a larger sample size.

2. Replication of the study in different nursing employment settings such as rural, community, or clinic settings.
3. Further investigation of barriers to nurses acting as positive preventative health exemplars.
4. Development and testing of an expanded tool that further investigates nurses as positive role models for their patients.
5. Additional research to better understand why so many nurses still do not live healthy lifestyles in spite of placing a high value on health.
6. Investigation of the effectiveness of workplace incentive models in promoting or changing health behaviors.
7. Comparison of nurses' health behaviors with those of other health professionals.
8. Investigation of effective interventions to increase physical activity among nurses.
9. Development of strategies to decrease stress in the workplace.
10. Identification of how to increase role modeling in nursing profession.

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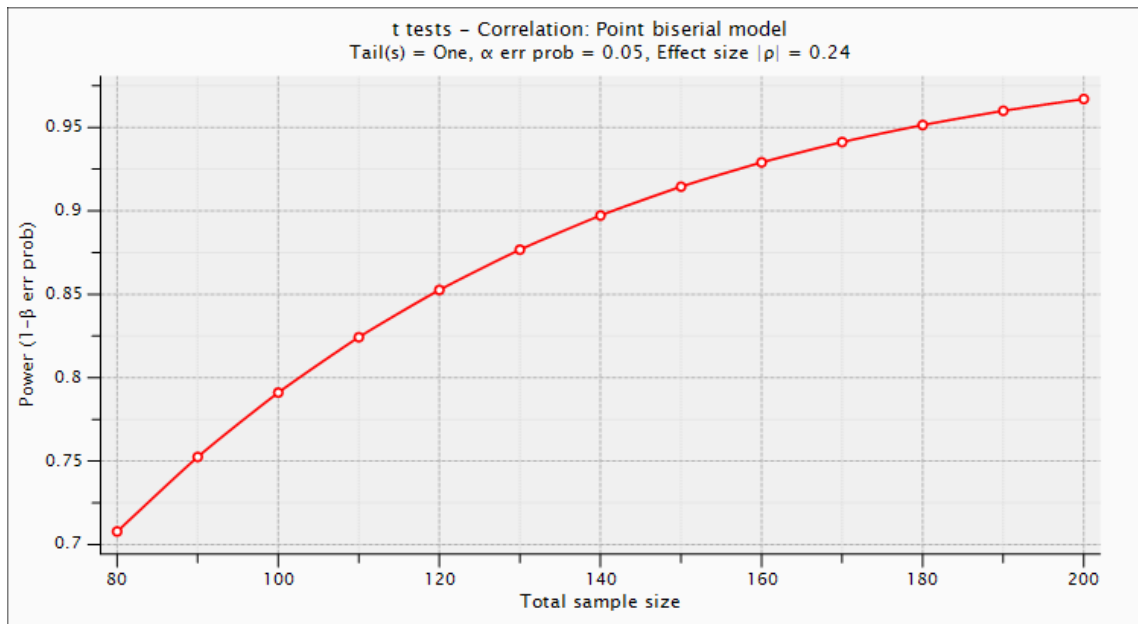
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APPENDIX A

Power and Effect Size

POWER AND EFFECT SIZE



APPENDIX B

Recruitment Flyer

RECRUITMENT FLYER



Seeking staff to enroll in a
Research Study: Health Behaviors
of Registered nurses in a hospital
setting

The survey is open to all practicing
SLMC/OQMT registered nurses.

To participate, please go to [www.---](http://www.twu.edu)
[---.com](http://www.twu.edu)

The survey will take
approximately 30 minutes and will
be available August 4- September 4,
2014 Participation is voluntary and
you may stop at any time

The units with **50%** participation
will receive a fruit tray

Questions? Contact Pat McDaniel
MSN, FNP-BC CNOR

Texas Woman's University

PhD student pmcdaniel@twu.edu

APPENDIX C

Recruitment Script

RECRUITMENT SCRIPT

Dear Participant:

My name is Patricia McDaniel I am a registered nurse employed at St Luke's Medical Center and pursuing a PhD degree at Texas Woman's University. My dissertation study is: What are the health behaviors of registered nurses in an acute hospital?

This study's purpose is to examine and describe nurses' holistic health behaviors and to determine whether nurses perceive themselves as role models of health behaviors.

I would like to invite you to participate in this online survey. The survey should take approximately 30 minutes.

To complete the survey log on at: _____ and use the password _____.

Logging on to the link will not be deducted from your allowed daily Internet usage.

Involvement in this research study is completely voluntary and you may withdraw from the study at any time. Completion of the electronic survey will signify your informed consent to participate in this research. Your employment will not be affected by whether or not you choose to participate in the study. Your identity will be anonymous to the researcher and only aggregate data will be reported. As with all electronic surveys, there is a slight risk of loss of anonymity if the computer's Internet Protocol (I.P.) address appears when data is downloaded from the survey site. The investigator will decrease this risk by disabling the feature that collects participants IP address. The survey data retrieved will be stored in only secured network computer with password protection at Texas Woman's University. The data can only be accessed by the research team; St Luke's Medical Center research IRB and will not be shared with others. Confidentiality of data will be protected to the extent that is allowed by law. There is a potential risk of loss of confidentiality in all email, downloading, and Internet transactions.

The potential benefits of participating in the study are increasing self-awareness of positive and/or negative personal health behaviors. The potential risks are emotional distress, fatigue, loss of time and loss of confidentiality. You have the right not to be in the study and may stop answering the questions at any time. If you have any questions about the research study you should contact the researcher by phone at the number located at the bottom of this letter. If you have questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's University Office of Research at 713-794-2480 or St. Luke's Institutional Review Board at 832-355-3347. The researchers will try to prevent any problem that could happen because of this research. You should let the researchers know at once if there is a problem and they will help you. However, TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

The data may be used in scholarly presentations or publications but will only be reported as aggregate data.

Thank you very much for your help in this study. I know your time is very valuable. As a token of appreciation for considering this study I would like to send the patient care units that have 50% or greater participation a fruit tray. Please complete the survey by _____.

After completing the survey, if you would like to receive the results of this study please send an email addressed to the investigator's address below.

Sincerely, Patricia McDaniel, MSN, RN, FNP-BC, CNOR contact XXXXX, email XXXXX

APPENDIX D

Demographic Tool

DEMOGRAPHIC TOOL

What is your age?

Drop down box to select the exact number.

Race: which best describes your race/ethnicity?

Asian	Black	Hispanic	Native American	White	Other
-------	-------	----------	-----------------	-------	-------

Where do you work (unit)?

Drop down box to select the exact number.

Unit: which best describes the unit you work on?

Medical-Surgical	Critical care Emergency Room	Operating room	Special procedures units, Cardiac Catherization lab, Endoscopy	Other
------------------	---------------------------------	----------------	--	-------

Years in nursing

Drop down box to select the exact number.

Highest level of education completed?

Associate degree/diploma	Bachelor	Masters	Doctorate
--------------------------	----------	---------	-----------

Gender

Female	Male
--------	------

What is your primary role?

Staff nurse	Educator	Assistant nurse manager	Nurse manager	Higher level administrative position
-------------	----------	-------------------------	---------------	--------------------------------------

Average hours worked per week?

Drop down box to select the exact number

Physical Characteristics

WT	HT
----	----

Marital Status

Single	Married	Widowed	Divorced
--------	---------	---------	----------

Children

Drop down box to select the exact number.

**Are you responsible for physical care of at least one other individual?
(Such as a child, aging parent, or other friend/relative living in your home)**

Yes	No
-----	----

The number of times you have visited a fitness center or health club in the last month?

Drop down box to select the exact number.

Self-rate overall health

Excellent	Good	Fair	Poor
-----------	------	------	------

Shift work

Days	Evenings	Nights	Rotating shifts
------	----------	--------	-----------------

Do you perceive yourself as being a role model of healthy behaviors for patients and the community?

Yes	No
-----	----

Do you think the nursing profession, in general, should be considered role models who exhibit exemplary healthy behaviors to be emulated by persons in the community?

Yes	No
-----	----

Do you feel you have personal control over your health-related behaviors? (food selection, time to exercise, addictions, managing use of tobacco and alcohol etc.)

Yes	No
-----	----

Have you used tobacco products in the last six months?

Yes	No
-----	----

If yes what type of tobacco product did you use? (select all that apply)

Cigarette	Hookah	E cigarette	Chewing Tobacco (snuff)
-----------	--------	-------------	----------------------------

Have you consumed alcohol in the last week?

Yes	No
-----	----

If yes how many drinks did you consume in the last week? (1 drink equals 1 beer, 1 glass of wine, 1oz of liquor) Drop down box select the exact number.

APPENDIX E

Health Promotion Lifestyle Profile II

HEALTH-PROMOTING LIFESTYLE PROFILE II

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

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

- | | | | | |
|--|---|---|---|---|
| 1. Discuss my problems and concerns with people close to me. | N | S | O | R |
| 2. Choose a diet low in fat, saturated fat, and cholesterol. | N | S | O | R |
| 3. Report any unusual signs or symptoms to a physician or other health professional. | N | S | O | R |
| 4. Follow a planned exercise program. | N | S | O | R |
| 5. Get enough sleep. | N | S | O | R |
| 6. Feel I am growing and changing in positive ways. | N | S | O | R |
| 7. Praise other people easily for their achievements. | N | S | O | R |
| 8. Limit use of sugars and food containing sugar (sweets). | N | S | O | R |
| 9. Read or watch TV programs about improving health. | N | S | O | R |
| 10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber). | N | S | O | R |
| 11. Take some time for relaxation each day. | N | S | O | R |
| 12. Believe that my life has purpose. | N | S | O | R |
| 13. Maintain meaningful and fulfilling relationships with others. | N | S | O | R |
| 14. Eat 6-11 servings of bread, cereal, rice and pasta each day. | N | S | O | R |

15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17. Accept those things in my life which I cannot change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R
26. Eat 3-5 servings of vegetables each day.	N	S	O	R
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/ dangers signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking				

during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with others through discussion and compromise.	N	S	O	R
49. Settle conflicts with others through discussions and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

© S.N. Walker, K. Sechrist, N. Pender, 1995. Reproduction without the author's express written consent is not permitted. Permission to use this scale may be obtained from: Susan Noble Walker, College of Nursing, University of Nebraska Medical Center, Omaha, NE 68198-5330.

HEALTH-PROMOTING LIFESTYLE PROFILE II

Scoring Instructions

Items are scored as:

Never (N)	=	1
Sometimes (S)	=	2
Often (O)	=	3
Routinely (R)	=	4

A score for overall health-promoting lifestyle is obtained by calculating a mean of the individual's responses to all 52 items; six subscale scores are obtained similarly by calculating a mean of the responses to subscale items. The use of means rather than sums of scale items is recommended to retain the 1 to 4 metric of item responses and to allow meaningful comparisons of scores across subscales. The items included on each scale are as follows:

Health-Promoting Lifestyle	1 to 52
Health Responsibility	3, 9, 15, 21, 27, 33, 39, 45, 51
Physical Activity	4, 10, 16, 22, 28, 34, 40, 46
Nutrition	2, 8, 14, 20, 26, 32, 38, 44, 50
Spiritual Growth	6, 12, 18, 24, 30, 36, 42, 48, 52
Interpersonal Relations	1, 7, 13, 19, 25, 31, 37, 43, 49
Stress Management	5, 11, 17, 23, 29, 35, 41, 47

3/95: snw

APPENDIX F

Permission Letter for Lifestyle Profile II

PERMISSION LETTER FOR LIFESTYLE PROFILE II



COLLEGE OF NURSING

Community-Based Health Department
985330 Nebraska Medical Center
Omaha, NE 68198-5330
402/559-6382
Fax: 402/559-6379

Dear Colleague:

Thank you for your interest in the *Health-Promoting Lifestyle Profile II*. The original *Health-Promoting Lifestyle Profile* became available in 1987 and has been used extensively since that time. Based on our own experience and feedback from multiple users, it was revised to more accurately reflect current literature and practice and to achieve balance among the subscales. The *Health-Promoting Lifestyle Profile II* continues to measure health-promoting behavior, conceptualized as a multidimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization and fulfillment of the individual. The 52-item summated behavior rating scale employs a 4-point response format to measure the frequency of self-reported health-promoting behaviors in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations and stress management. It is appropriate for use in research within the framework of the Health Promotion Model (Pender, 1987), as well as for a variety of other purposes.

The development and psychometric evaluation of the English and Spanish language versions of the original instrument have been reported in:

- Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The Health-Promoting Lifestyle Profile: Development and psychometric characteristics. *Nursing Research*, *36*(2), 76-81.
- Walker, S. N., Volkan, K., Sechrist, K. R., & Pender, N. J. (1988). Health-promoting lifestyles of older adults: Comparisons with young and middle-aged adults, correlates and patterns. *Advances in Nursing Science*, *11*(1), 76-90.
- Walker, S. N., Kerr, M. J., Pender, N. J., & Sechrist, K. R. (1990). A Spanish language version of the Health-Promoting Lifestyle Profile. *Nursing Research*, *39*(5), 268-273.

Copyright of all versions of the instrument is held by Susan Noble Walker, EdD, RN, FAAN, Karen R. Sechrist, PhD, RN, FAAN and Nola J. Pender, PhD, RN, FAAN. The

original *Health-Promoting Lifestyle Profile* is no longer available. You have permission to download and use the HPLPII for non-commercial data collection purposes such as research or evaluation projects provided that content is not altered in any way and the copyright/ permission statement at the end is retained. The instrument may be reproduced in the appendix of a thesis, dissertation or research grant proposal. Reproduction for any other purpose, including the publication of study results, is prohibited.

A copy of the instrument (English and Spanish versions), scoring instructions, an abstract of the psychometric findings, and a list of publications reporting research using all versions of the instrument is available for download.

Sincerely,

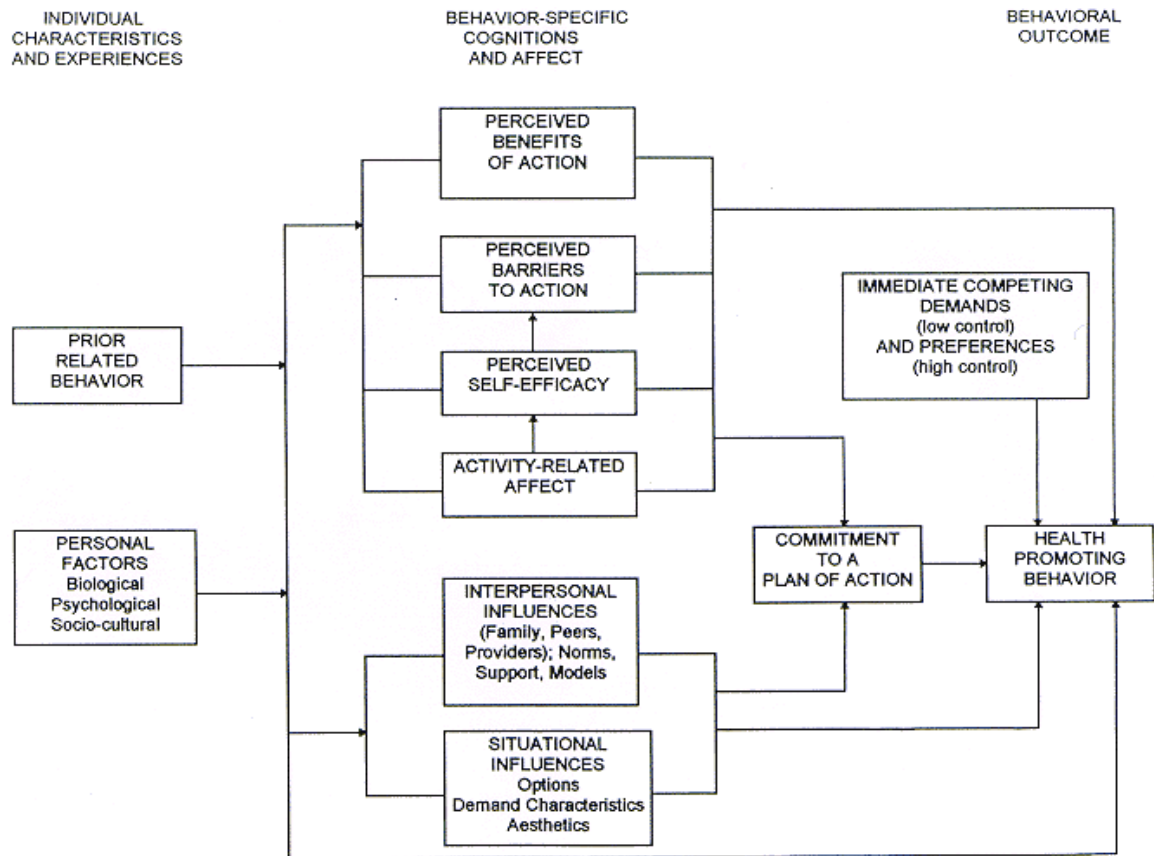
A handwritten signature in dark ink, appearing to read "Snwalker", written in a cursive style.

Susan Noble Walker, EdD, RN, FAAN
Professor Emeritus

APPENDIX G

Health Promotion Model Diagram

HEALTH PROMOTION MODEL DIAGRAM



Revised Health Promotion Model

APPENDIX H

Approval Letter St. Luke's Nursing Research

ST. LUKE'S NURSING RESEARCH APPROVAL LETTER



December 4, 2013

Dear Patricia McDaniel,

Subject: Nursing Research Council Approval of Research Study

It is my pleasure to inform you that I have approved the recommendation of the St. Luke's Episcopal Hospital Nursing Research Council, and are granting permission for you to conduct your research study, "Health Behaviors of Registered Nurses in a Hospital Setting: A Descriptive Study" at St. Luke's Medical Center.

It is the policy of the Nursing Research Council to request that you disseminate findings from your study at a St. Luke's Medical Center approved nursing function. Please contact Dr. Claudia Smith, Director of Nursing Research, at PO Box 20269, MC 4-278, Box 77, Houston, TX 77225-0269 when your study is complete to make such arrangements. In keeping with this policy, please sign the attached document for our records. Please feel free to contact Dr. Smith if you have questions, or need further assistance.

Congratulations and Best Wishes on your study,

A handwritten signature in black ink that reads "Karen K. Myers". The signature is written in a cursive style.

Karen K. Myers, MSN, RN, NEA-BC
Vice President, Chief Nursing Officer
St. Luke's Medical Center

APPENDIX I

Approval Letter St. Luke's IRB

ST. LUKE'S IRB APPROVAL LETTER



Department of Research
Telephone: 832-355-3710
Fax: 713-610-2272

February 4, 2014

Patricia McDaniel, MS, RN, FNP, CNOR
Nursing & Patient Education
St. Luke's Medical Center
6720 Bertner Ave., MC 4-278
Houston, TX 77030

Project #3212
"Health Behaviors of Registered Nurses In a Hospital Setting: A Descriptive Study"

Dear Ms. McDaniel:

Please accept this letter as notification that your protocol has received administrative approval from the Department of Research at St. Luke's Medical Center. We are looking forward to working with you in support of your research efforts.

For any questions, please call the Department of Research at 832-355-3710. Thank you.

Sincerely,

Craig P. Frost, RPh, MBA
Assistant Vice President
Pharmacy, Oncology, and Research Service Line

/s/

APPENDIX J

Approval Letter TWU IRB

TWU IRB PERMISSION LETTER



Office of Research
6700 Fannin Street
Houston, TX 77030-2343
713-794-2480 Fax 713-794-2488

February 17, 2014

Ms. Patricia McDaniel
College of Nursing
6700 Fannin Street
Houston, TX 77030

Dear Ms. McDaniel:

Re: *Health Behaviors of Registered Nurses in a Hospital Setting: Descriptive Study (Protocol #: 17615)*

The above referenced study has been reviewed by the TWU Institutional Review Board (IRB) and was determined to be exempt from further review.

Any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any unanticipated incidents. If you have any questions, please contact the TWU IRB.

Sincerely,

A handwritten signature in black ink, which appears to read "Jan Foster".

Jan Foster, PhD, APRN, CNS
Institutional Review Board - Houston

cc. Dr. Brenda Binder, College of Nursing - Houston
Sandra Cesario, PhD, College of Nursing - Houston
Graduate School