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# Factors Associated with Nurses' Practice Intentions to Provide Heart Disease Risk and Prevention Education to Women Patients

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FACTORS ASSOCIATED WITH NURSES' PRACTICE INTENTIONS TO  
PROVIDE HEART DISEASE RISK AND PREVENTION EDUCATION TO  
WOMEN PATIENTS

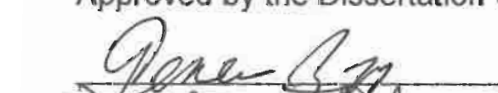


BY

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 Date: 7/14/11  
 Date: 7/14/11  
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2011

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## DEDICATION

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## TABLE OF CONTENTS

|   |  |    |
|---|--|----|
| ACKNOWLEDGEMENT.....                          |  | 3  |
| DEDICATION.....                               |  | 5  |
| LIST OF TABLES.....                           |  | 8  |
| LIST OF FIGURES.....                          |  | 9  |
| ABSTRACT.....                                 |  | 10 |
| I. INTRODUCTION.....                          |  | 13 |
| Background of the problem                     |  |    |
| Cardiovascular Disease (CVD) in Women         |  |    |
| CVD Risk Factors                              |  |    |
| Educational Initiatives                       |  |    |
| Nurses and CVD Risk Education                 |  |    |
| Need for the study                            |  |    |
| Purposes of the study                         |  |    |
| Research questions                            |  |    |
| Research hypotheses                           |  |    |
| II. RELATED LITERATURE.....                   |  | 33 |
| III. METHODS.....                             |  | 50 |
| Research Design                               |  |    |
| Study Variables                               |  |    |
| Instrument Validation and Reliability Testing |  |    |
| Sample Size Determination and Power           |  |    |
| Population                                    |  |    |
| Ethical Considerations                        |  |    |
| Procedure                                     |  |    |
| Data Preparation                              |  |    |
| Data Analysis                                 |  |    |
| IV. RESULTS.....                              |  | 66 |
| V. DISCUSSION.....                            |  | 82 |

|       |   |     |
|-------|---|-----|
| VI.   | SUMMARY AND CONCLUSIONS.....                              | 92  |
| VII.  | REFERENCES.....   | 97  |
| VIII. | APPENDICES  |     |
|       | Appendix A IRB Approval - Seton Hall University.....      | 109 |
|       | Appendix B IRB Approval - Community Medical Center.....   | 110 |
|       | Appendix C Request for Research Participation Letter..... | 111 |
|       | Appendix D Solicitation Letter.....                       | 113 |



## LIST OF TABLES

|          |   |    |
|----------|---|----|
| Table 1  | Sample Questions from the NEWCVD Questionnaire....  | 54 |
| Table 2  | Demographic Information Telemetry RNs (Study 1).....  | 69 |
| Table 3  | Demographic Information Medical-Surgical RNs<br>(Study 2).....  | 70 |
| Table 4  | Professional Attributes of Telemetry RNs (Study 1).....   | 71 |
| Table 5  | Professional Attributes of Medical-Surgical RNs<br>(Study 2).....   | 73 |
| Table 6  | Other Professional Attributes of Telemetry RNs<br>(Study 1) .....   | 74 |
| Table 7  | Other Professional Attributes of Medical-Surgical RNs<br>(Study 2).....   | 74 |
| Table 8  | Correlations between Telemetry RNs' Attitudes,<br>Subjective Norms, Perceived Behavioral Control and<br>Practice Intentions (Study 1).....                                  | 76 |
| Table 9  | Correlations between Medical- Surgical RNs' Attitudes,<br>Subjective Norms, Perceived Behavioral Control and<br>Practice Intentions (Study 2).....                          | 77 |
| Table 10 | Chi-square Results: Professional Attributes and Practice<br>Intentions of Telemetry RNs (Study 1).....  | 78 |
| Table 11 | Chi-square Results: Professional Attributes and Practice<br>Intentions of Medical-Surgical RNs (Study 2 .....   | 79 |
| Table 12 | Hierarchical Regression Summary for Subjective<br>Norms (SN), Perceived Behavioral Control (PBC),<br>Attitudes (A), Predicting for Variables on Practice<br>Intentions..... | 80 |

## LIST OF FIGURES

- Figure 1 A Schematic Representation of Factors Contributing to Women's Delay in Seeking Treatment for heart for CVD Symptoms (adapted from Lefler, 2002).....15
- Figure 2 A Schematic Representation of the Theory of Planned Behavior (adapted from Ajzen, 1991).....35

## ABSTRACT

FACTORS ASSOCIATED WITH NURSES' PRACTICE INTENTIONS  
TO PROVIDE HEART DISEASE RISK AND PREVENTION EDUCATION TO  
WOMEN PATIENTS

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Heart disease is the leading cause of death in women in the United States. Literature indicates that despite aggressive educational efforts, only about 54% of women are aware that heart disease is their major health risk. Educating women about heart disease risk and prevention should be a mandate to all health care professionals.

Being the largest group of health care professionals, nurses should be in the forefront of this mandate. With more than half working in the hospital setting, staff nurses can impact women's awareness of heart disease. However, very little is known about nurses' attitudes and perceptions associated with educating women patients about heart disease risk and prevention.

Study 1 and Study 2 examined factors associated with nurses' intentions to educate women patients about heart disease risk and prevention (target behavior). Using a descriptive-correlational design, telemetry and Medical-surgical nurses of a suburban acute care hospital completed a self-administered survey instrument (developed by the principal investigator), based on the Theory of Planned Behavior (Ajzen).

The NEWCVD Questionnaire assessed nurses' attitudes, their subjective norms and perceptions of control in relation to the target behavior. These were analyzed using correlation measures (Study 1 and 2) and regression (Study 2). Selected professional attributes and their association with the behavior were also explored using chi-square statistics.

Results: Study 1 revealed significant association between nurses' attitudes, subjective norms and perceived behavioral control and nurses' intentions for the target behavior. Study 2 showed significant associations between subjective norms and perceived behavioral control with the target behavior. Subjective norms scored the highest association. In Study 2, hierarchical regression further confirmed the significant impact of subjective norms on nurses' practice intentions. In Study 1, selected professional attributes were not associated with practice intentions. Study 2 findings suggested an association between nurses' knowledge of the American Heart Association's guidelines for cardiovascular prevention in women and practice intention of the target behavior.

Conclusion: Knowledge of attitudes and perceptions can guide health care organizations in mobilizing nurse-led initiatives in raising women patients' awareness of heart disease as a major health risk.

## Chapter I

### INTRODUCTION

#### **Background of the Problem**

Cardiovascular disease (CVD) refers to all pathophysiologic conditions affecting the heart and the major blood vessels. The most common form is coronary heart disease (CHD), also known as coronary artery disease (CAD) and oftentimes referred to simply as heart disease. Other forms of CVD are acute rheumatic fever, chronic rheumatic heart disease, hypertensive heart disease, pulmonary heart disease and congestive heart failure (CDC, 2007).

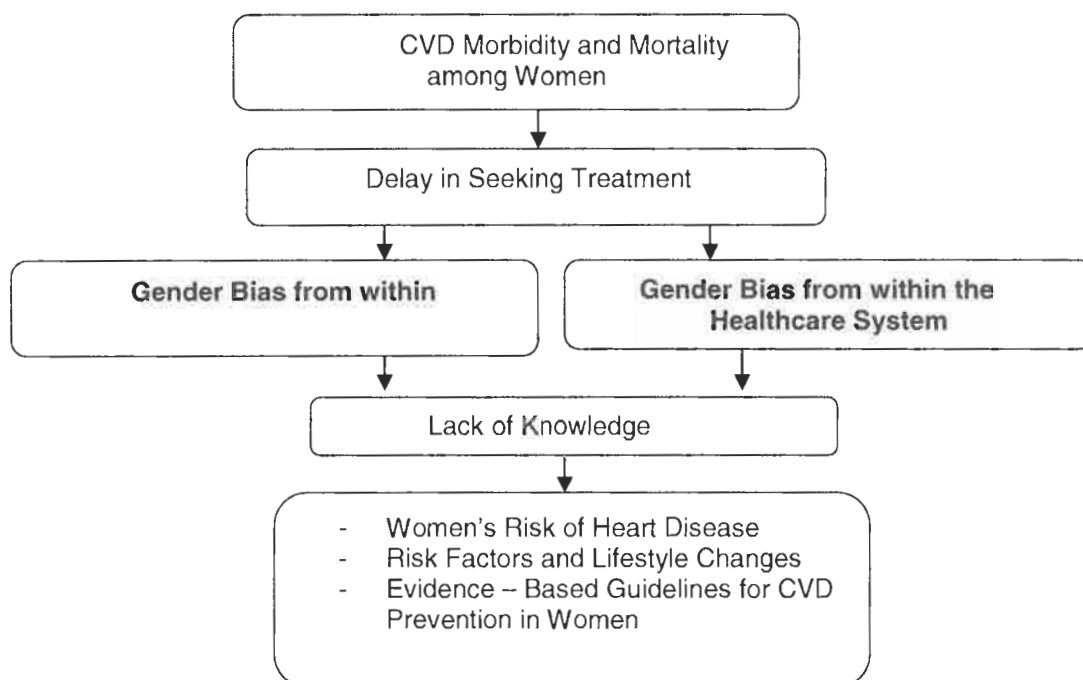
Globally, CVD kills more than 7 million men and women every year (Mackay & Mensah, 2004). This includes populations in every major developed country and regions with emerging economies (Gholizadeh & Davidson, 2007). CVD is also the largest single cause of death in women in the world, accounting for one third of the deaths in women (World Health Federation of Women, 2006).

In the United States, CVD also claims many lives. According to the American Heart Association (AHA, 2007), CVD caused more deaths every year since 1900 (except in 1918) than any single cause or group of causes of death (AHA). Over the past several decades, it was the popular belief that CVD primarily affected the male sex (AHA, 2006). However, current evidence indicates that CVD is also the leading cause of mortality and morbidity in

women (AHA, 2006). Based on the 2004 mortality rates, the risk of a woman dying from CVD in the U.S. is 1 in 2.8, causing about a death per minute among women (AHA, 2010). This accounts for over half a million lives lost each year to CVD alone, compared to the next five leading causes of death combined: cancer, chronic obstructive pulmonary disease (COPD), Alzheimer's disease, diabetes and accidents (AHA, 2007). Furthermore, studies also indicate that a first cardiac event in women is often fatal (King & Mosca, 2000), and when compared to men, women have a higher risk of dying from a cardiac event (Lerner & Kannel, 1986). Heart disease continues to rank first among all disease categories in hospital discharges for women

The effect of CVD in specific age groups among women has also been studied. Often perceived as an "older woman's disease," CVD is the leading cause of death among women aged 65 years and older (CDC, 2007). Data also indicates that heart disease is the third leading cause of death among women aged 25-44 years, and the second leading cause of death among women aged 45-64 years (CDC). In this study, the term CVD will be used interchangeably with CHD, the most common form of CVD.

Literature suggests that CVD morbidity and mortality in women is primarily attributed to their delay in seeking treatment (Figure 1). Lefler (2002) groups this delay into two categories: *gender bias from within* and *gender bias within the health care system*. See Figure 1 for the schematic representation.



*Figure 1.* A schematic representation of factors attributed to CVD morbidity and mortality among women. Gender bias from within and gender bias from within the health care systems (Lefler, 2002) have implications in women seeking and receiving treatment.

"Gender bias from within" refers to women who generally do not perceive themselves as susceptible to heart disease and do not interpret their subtle non-cardiac symptoms (discomfort from jaw pain or indigestion) as serious or cardiac in nature (Lefler, 2002). They may not call 911 if they thought they were having heart attack symptoms, a behavior describing 53 % of a random sample of 2,300 women studied by Mosca and colleagues (2010). Instead of seeking help most women engage in other coping strategies such as rest and self-treatment and adopt unproven strategies such as aromatherapy (Mosca). Similar surveys also indicate that most women get



their information about heart disease from the media (Mosca et al. 2004) and not from their health care providers. Additionally, only a small percentage of the women surveyed claimed that their health care providers took the initiative to discuss the threat of heart disease and the risk factors (Mosca et al.).

Another alarming observation associated with “gender bias from within” is the ability of women to identify risk factors. Fernandez (2006) indicated that among women, their ability to identify risk factors is poor. Although most women easily identified smoking (44%) and family history (40%) as risk factors, a very small percentage identified high blood pressure (5%), cholesterol (14%), obesity (15%) and diet (16%) as factors associated with heart disease (Fernandez).

Mosca and colleagues et al. (2005) found that women surveyed expressed that listing nutritional information in restaurants would facilitate following healthier lifestyles but the most common reason they did not do so was that they were busy taking care of a loved one. The second most common reason for failing to follow heart -healthy lifestyles was their uncertainty about how to proceed and adopt needed changes due to confusing media reports (Mosca et al.). Clearly, this underscores the need for better strategies to provide women with information on their imminent risk of heart disease as well as personalized ways to follow heart-healthy lifestyles.

“Gender bias from within the health care system” refers to the role played by health care providers (primarily physicians). Literature indicates that

most physicians do not perceive women's often atypical symptoms with the same urgency when men present with the classic symptoms of coronary heart disease (Heidrich, Behrens, Raspe, & Keil, 2005; Karthik, Tahir, Thakur, & Nair, 2006; Naidoo & Fox, 2006). Moreover, many primary care physicians are not taking the initiative for health promotion or preventive counseling (Burke & Fair, 2003). In addition, patients in general may not be routinely assessed for CVD risk factors and if assessed, the corresponding treatment is found to be often inadequate and not based on American Heart Association guidelines (Cooper, Cutler, Desvigne-Nikens, 2000 in Burke and Fair; King & Mosca, 2000; Heidrich, Behrens, Raspe, & Keil, 2005). These observations are congruent with a survey by the Center for Disease Control (in Manson, Shlipak, Wenger, 2001), suggesting that physicians provide less counseling for women on risk factors such as diet, exercise and tobacco use. It appears that that many primary care physicians continue to be oriented to treatment rather than prevention measures (Eckel, 2005).

This evidence in the literature suggests an apparent lack of knowledge and perception among physicians that heart disease is a major threat to women's health. Equally unfortunate, is their apparent lack of knowledge of the current guidelines on cardiovascular prevention in women and that many health care providers are lacking in the education and skills to provide CVD risk and preventive education (Naidoo & Fox, 2006).

Other factors affecting “the gender bias from within the health care system” are: lack of time among physicians to teach women about heart disease risk and prevention, lack of reimbursement for prevention and counseling on lifestyle interventions, limited time for patient visits, and the lack of insurance coverage (Burke & Fair, 2003; Heidrich et al., 2005; Manson et al., 2001; Mosca, 2002; Mosca et al., 2005). Thus, many women discharged from the hospital or leaving after a doctor’s appointment may likely go home without adequate advice from their health care provider (physician) on CVD risk and prevention through lifestyle interventions (Bello & Mosca, 2004). This is unfortunate considering that educating about risk factors through lifestyle intervention is an effective tool in CVD risk prevention and that spending even three minutes in counseling a patient about lifestyle modifications can be very rewarding (Eckel, 2005).

### **Cardiovascular Disease Risk Factors**

According to the National Heart, Lung, and Blood Institute (NHLBI, 2007) and the AHA (2007), CVD is linked to risk factors. Risk factors are conditions, habits or lifestyle patterns that *increase* a person’s chance to develop heart disease (AHA).

Traditionally, the two groups of CVD risk factors are referred to as non-modifiable and modifiable risk factors. Non-modifiable risk factors are those inherent personal conditions an individual cannot change. Family history, age, and gender are considered non-modifiable risk factors (NHLBI, 2007; AHA,

2007). Modifiable risk factors are those conditions that an individual can adopt or change to prevent or reduce heart disease. Included in this group of traditional risk factors are: smoking, high blood pressure, diabetes, high blood cholesterol, being overweight, physical inactivity and poor dietary habits (NHLBI; AHA). The term modifiable risk factors was actually coined in the 1960's when studies demonstrated the major role of environmental factors in the incidence of heart disease and stroke and how controlling these factors offered opportunities for prevention (CDC, 2009). These studies revealed that incidence rates of CVD, whether fatal or not, could be predicted by blood cholesterol level, blood pressure level, smoking, diabetes, and certain other potentially modifiable characteristics, thus recognized and established as "risk factors" related to CVD (CDC). An estimated number of about 78% adults in the United States are eligible for one or more preventive interventions on these modifiable risk factors: smoking, dyslipidemia, hypertension, physical inactivity and poor dietary choices (Sytkowski, Kannel & D'Agostino (2009). Research suggests that adopting guideline-based lifestyle modification strategies as well as appropriate medical therapy continue to be the leading recommendations for heart disease risk and prevention (Caboral, 2004).

There is evidence that knowledge and awareness of the risk of heart disease and the risk factors are associated with less delay in seeking treatment and more health seeking and health promoting behaviors among women. Foster and colleagues' (1998) study supports that increased

knowledge of signs and symptoms of acute myocardial infarction resulted in shorter delays in seeking treatment. Another study of 1,777 participants (McKinley et al., 2009) demonstrated that nurses giving one-on-one education (intervention group) to patients with coronary heart disease resulted in their increase of knowledge, attitudes, and beliefs to act promptly at onset of heart symptoms. A positive correlation was observed between women's awareness of CVD as a leading cause of death in women and their actions taken to reduce CVD risk (Mosca et al., 2006). A recent study by Mosca and colleagues (2010) suggests that women 50 years old and above who took CVD preventive measures were more likely to do so because they read, saw or heard information about heart disease.

Other studies also highlight a reduction of CVD symptoms by controlling specific risk factors. The Nurses' Health Study, one of the largest and longest-running investigations of factors that influence women's health, also provides added evidence that modifications of multiple risk factors were associated with a reduction in CVD risk among women by 84%. Wilson et al. (2000) showed that incidence of CVD was reduced by 65% in people who adopted smoking cessation strategies. Sever et al. (2005) noted a reduction of CVD incidence among those who took measures to control blood pressure and lipids. A study by Rockhill and colleagues (2001) suggested a 20% reduction of CVD symptoms in people who engaged in moderate exercise. Joshipura et al. (2001) also noted a 20% decrease in incidence of CVD in people who

maintained a diet rich in fruit and vegetables. Thus, based on the literature, knowledge about heart disease risk and education can impact positive behaviors for heart disease risk and prevention, reducing mortality and morbidity rates from CVD. Furthermore, evidence suggests that control of risk factors through lifestyle changes is associated with lower incidence of CVD.

### **Educational Initiatives on CVD Risk Factor Modification**

Many educational initiatives and media messages have been launched to heighten women's attention to strategies in preventing the imminent risk of heart disease. Women need a constant and consistent message about heart disease risk and prevention. Government agencies, national professional organizations and private corporations have collaborated in educating both women and health care professionals about the imminent risk of CVD and their role in risk prevention. These initiatives target women's lack of knowledge ("gender bias from within") and lack of knowledge of the risk and of the guidelines among health care providers ("gender bias from within the health care system").

The National Heart Lung and Blood Institute (NHLBI, 2003) started the Heart Truth campaign in 2002 using the symbol of the Red Dress. NHLBI continues with its outreach efforts for health care professionals to participate in National Wear Red day. It also encourages health care professionals to access many learning resources about heart disease risk and prevention by visiting their website.

In 2004, the American Heart Association (AHA) launched the Go Red for Women nationwide campaign. This initiative focused on empowering women with knowledge and resources to practice positive lifestyle changes that will reduce their inherent risk of heart disease. In collaboration with additional professional organizations, government agencies, and private corporations, AHA's campaign initiative also continues by reaching out to both the public at large and all health care professionals. The AHA also promotes the red dress pin, to serve as a wake-up call for women to recognize the personal threat of heart disease, and to take charge of their health by adopting lifestyle practice behaviors recommended by the AHA guidelines. The AHA is also responsible for the work on the Evidence-Based Guidelines for CVD Prevention in Women (Mosca et al., 2004). These guidelines provide health care professionals with recommendations related to CVD risk and prevention among women.

The publication of AHA's Evidence-based Guidelines for the CVD Prevention in Women (Mosca et al., 2004) highlighted the role of physicians and other health care professionals in reducing or preventing CVD in women. The 2007 update of these guidelines (Mosca et al., 2007) emphasizes that women need to be educated about their lifetime risk of heart disease. The guidelines provide current scientific evidence for the primary and secondary prevention of heart disease in women. The publication includes consensus statements of experts supporting each type of recommendation. Five major

categories are highlighted in these guidelines. Among these are lifestyle interventions, major risk factor interventions and preventive drug therapy (Mosca et al.). Most of the guideline categories are geared toward physicians and health care providers with prescriptive privileges. However, the guidelines addressing lifestyle changes and preventive strategies may be also used by health care professionals such as staff nurses, who may not have prescriptive privileges but can readily communicate to their women patients the risk and the need for preventive action.

Two nursing professional organizations with an active voice on heart disease risk in women reach out to their membership with education and resources. These are the Preventive Cardiovascular Nurses Association (PCNA) and the Association of Women's Health, Obstetrics, and Neonatal Nurses (AWOHNN). The "Tell a Friend Campaign" (2006) of the Preventive Cardiovascular Nurses Association (PCNA) tasked its professional members to find an audience and to speak about women and heart disease. PCNA encourages its membership to encourage women to dialogue with physicians about heart disease. AWHONN has workshops on primary prevention strategies based on guidelines to increase nurses' knowledge and understanding about cardiovascular health and disease in women (AWHONN, 2006).

However, despite the published AHA guidelines, many media messages and other collaborative initiatives, a majority of women are not



aware of their risk and continue to see breast cancer and not CVD as a primary threat to their health (Baldini & Strauss, 1997; Mosca, Ferris, Fabunmi, & Robertson, 2004). Specifically, two thirds of women ages 25-34, a target audience for prevention, felt that cancer was the top health concern and only four percent thought heart disease was the problem (Robertson, 2001). A series of national surveys sponsored by the AHA started documenting knowledge and awareness of heart disease among women. Conducted every three years, the survey assesses women's knowledge, their awareness and perception of heart disease risk using a telephone survey questionnaire developed by Mosca and her colleagues. The first survey conducted in 1997 suggested that only 7% of women nationwide were aware of CVD as a personal health threat and less than a third knew it was the leading cause of death in women. In 2000 the triennial survey revealed that heart disease awareness among women went up to 36% (Mosca, Jones, & King, 2000). The 2003 survey (Mosca et al., 2004) indicated that 46 % of the 1,024 women respondents identified heart disease as the leading cause of death in women. The 2006 survey (Mosca et al., 2006) revealed that 56 % of women were aware that heart disease is a threat to their health. The 2009 survey (Mosca et al., 2010) showed a slight but not significant drop of awareness from 56 % to 54 %.

The incremental increase in women's awareness since the surveys were implemented is very encouraging yet disturbing: the finding also implies

that close to half of the women in the random sample still need education on their imminent risk of heart disease risk and the recommended preventive guidelines. Efforts need to be created to reach the almost 50% of the women population. They must hear a constant and consistent message about their lifetime risk of heart disease and the role of the reduction of CVD risk factors from all health care professionals. More importantly, women also need to hear that heart disease is largely preventable and it can be modified by lifestyle changes and /or with pharmacotherapy as prescribed by their health care providers. A consistent and constant message can help them internalize or personalize heart healthy lifestyle practices. A woman's personalization of heart disease risk can often lead to the adoption and integration of more health and wellness practices in her lifestyle to help modify CVD risk factors (Mosca et al., 2006). Bello and Mosca (2004) suggested that women's awareness of CVD risk is often associated with the adoption of heart healthy lifestyles and that lack of knowledge is often associated with reduced motivation to practice heart healthy behavior. Better knowledge has shown to improve compliance with drug therapy and lifestyle recommendations (Alm-Rojer, Stagmo, Uden & Erdhart (2004). Therefore, better knowledge about heart disease is associated with improved health promotion behaviors and health outcomes (Biswas, Calhoun, Bosworth, & Bastian, 2002).

Given the threat of CVD in women, the current evidence of women's educational needs, women's limited interactions with primary care providers

and the current trends for shorter hospitalizations, “new strategies and partners ” are needed to educate women about heart disease risk and prevention (Dunbar, Mensah, & Labarthe , 2005, p. 122). Other health care professionals in the clinical practice setting need to be mobilized as legitimate and accountable partners in CVD risk and prevention education. Which group of health care professionals can reinforce the message of CVD risk and prevention to women?

### **Studies on Nurses and Cardiovascular Risk Education**

Why nurses? Nursing is the nation’s largest health care profession with about 56% nurses working in the clinical practice setting (Nursing Social Policy, 2003) as staff or direct care nurses. Nurses’ ubiquitous presence in the clinical setting puts them in an ideal position to provide women with the constant and consistent message on heart health and risk prevention. This constant proximity to patients gives nurses many opportunities or teachable moments for CVD patient education (Loxton, 2003) that could result in positive patient outcomes. A study by Andrews, Tiggen, Waller & Harper (2002) indicated that nurses’ constant proximity to patients resulted in more favorable outcomes from counseling interventions on smoking compared to other health care providers. Daily interactions with women patients also give nurses an advantage to identify, assess, and reinforce the risk of heart disease by helping set blood pressure goals, suggesting dietary choices during meal times, providing exercise and weight control options, supporting compliance of

drug regimen and discussing the guideline-based strategies for heart disease risk and prevention.

Another reason why nurses are ideally placed to be actively involved in heart disease risk and prevention education among women is their role in a multidisciplinary health care team. They often work effectively with primary health care providers in different levels of cardiovascular health prevention education in women (Goldston & Davidson, 2004). Nurses' educational curricula also emphasize patient education, communication skills and counseling behaviors more so than educational curricula of other health care providers (Zapka, Pbert, Soddard, Okene, & Goins, 2000). Moreover, each state's Nurse Practice Acts emphasizes the teaching role of the nurse. The New Jersey Nursing Practice Act highlights the nurses' role in "...health teaching, health counseling, and provision of care supportive to or restorative of life...." (New Jersey Board of Nursing Statutes, 2007). The American Nurses' Association (Nursing Social Policy, 2003) posits a current definition and expectations of nursing: "Nursing is the protection, promotion, and optimization of health and abilities, prevention of illness and injury, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, communities, and populations." Thus the target behavior of educating women patients about heart disease risk and prevention is certainly aligned with a core nursing component: health promotion and disease prevention.

The following statement underscores the nurses' role in heart disease education among women. "Nurses are the lifeblood of the American Heart Association's fight against heart disease" (Goldsmith, 2004, p.25). In a challenge to nurses to step up efforts to educate women about heart disease risk and prevention, cardiovascular nurse leaders and clinicians Hughes and Hyman (2004) state that the women (at risk) "include our co-workers, colleagues, our sisters and our friends... they are us (p. 145)."

Therefore, given their ideal position in the clinical setting, nurses should be challenged to include their knowledge about heart disease and risk factor prevention guidelines in their daily responsibilities of patient care especially among women patients. Nurses can play a significant role in promoting guideline-based CVD risk factor strategies by educating women patients on recommended lifestyle interventions as they interact with patients and discuss medication compliance. Nurses should take advantage of every opportunity to educate women on their imminent risk of heart disease and not just a task to complete upon discharge of the patient. With shorter hospital stays, nurses can seek out more teachable moments to deliver the constant and consistent message of heart disease risk and prevention during day - to - day care of patients. Nurses should aim to be among the primary sources of information for women on the threat of heart disease and the prevention guidelines (Robertson, 2001; Burke & Fair, 2003). When working with the multidisciplinary team, nurses can provide oversight of implementation of the

evidence-based guidelines for cardiovascular disease prevention in women (Turk, Tuite, & Burke, 2009). They can reinforce the importance of adherence to pharmacotherapy and medical regimen prescribed by their primary health care provider (Caboral, 2004).

### **Need for the Study**

However, there is a paucity of literature about staff nurses in relation to CVD risk and prevention education in women. Little is known about their practice behaviors specifically related to women and heart disease risk education. Staff nurses working at the bedside are largely responsible for health promotion and wellness of patients in the hospital setting but no study has examined their roles in CVD risk education particularly among their women patients. It is unclear whether staff nurses are actively involved in CVD risk or education especially among the women patients in their care. Their attitudes, beliefs and perceptions towards CVD risk and preventive education while caring for their women patients is not known. There is no information on whether staff nurses seek out teachable moments or opportunities to educate women about CVD risk and prevention guidelines during their daily patient care responsibilities? It would be worthwhile investigating the factors associated with staff nurses' practice intentions to teach and counsel women patients about CVD risk and prevention. Equally important would be knowledge of their personal and professional attributes that could explain

nurses' practice behaviors to teach and counsel women about CVD risk and prevention?

### **Purpose of the Study**

The primary purpose of research Study 1 and Study 2 was to explore and describe factors (attitudes, subjective norms, and perceived behavioral control) associated with nurses' practice intentions to educate women patients about heart disease risk and prevention, using the Theory of Planned Behavior (TPB) as the study framework. A secondary purpose was to determine if selected professional nurses' attributes were also associated with their practice intentions to educate women on heart disease risk and prevention.

### **Research Questions**

The first three research questions were investigated in Study 1 and Study 2. A fourth research question was posited for Study 2 only:

RQ1. Are nurses' attitudes, subjective norms, and perceived behavioral control each significantly associated with their practice intentions to provide heart disease risk and prevention education?

RQ 2. Which of the three (attitudes, subjective norms and perceived behavioral control) have the most significant association with nurses' practice intentions to provide heart disease risk and prevention education?

RQ 3. Does a relationship exist between each of the following selected nurses' professional attributes and their practice intentions (as high intenders vs. low intenders) to provide heart disease risk and prevention education?

- Basic educational nursing background
- Years of nursing practice experience
- Professional organization membership
- Knowledge of heart disease risk in women
- Knowledge of the AHA evidence based- guidelines on cardiovascular disease prevention among women

RQ 4. A fourth research question was developed for Study 2:

Will there be a significant prediction of intention with the effect of attitudes and perceived behavioral control, while controlling for the factor that is most associated (a priori) with intention (subjective norms)?

### **Research Hypotheses**

The following hypotheses were tested in Study 1 and Study 2:

H1. Attitudes, subjective norms, and perceived behavioral control are each significantly associated (positive) with nurses' practice intentions to provide heart disease risk and prevention education to the women patients in their care.

H2. Perceptions of behavioral control (control beliefs) have the most significant association (positive) on nurses' practice intentions to educate



women patients in their care about heart disease risk and prevention, when compared to attitudes and subjective norms.

H3. A significant relationship (positive) exists between each of the selected nurses' professional attributes and their practice intentions to provide heart disease risk and prevention education to the women patients in their care:

H3a. Nurses whose first nursing degree is baccalaureate level or above have higher intention scores (as "high intenders") than those with associate degree or diploma nursing backgrounds.

H3b. Nurses with more years in practice have higher intention scores (as "high intenders") compared to those with fewer years in practice.

H3c. Nurses belonging to professional nursing organizations have higher intention scores (as "high intenders") than nurses who do not.

H3d. Nurses with knowledge of women's risk of heart disease have higher intention scores (as "high intenders") than nurses who are not aware of the risk of CVD among women.

H3e. Nurses with knowledge of the AHA prevention guidelines for women have higher intention scores (as "high intenders") than those who are not aware of the guidelines ("low intenders").

H4. A fourth hypothesis was generated for Study 2: There will be no significant change in prediction of intention when adding attitudes and perceived behavioral control to subjective norms in the regression model.

## Chapter II

### RELATED LITERATURE

The primary purpose of Study 1 and 2 was to explore and describe factors (attitudes, subjective norms and perceived behavioral control) associated with nurses' practice intentions to educate women patients about heart disease risk and prevention. A secondary purpose was to determine if a relationship exists between specific nurses' professional attributes and nurses' practice intentions to educate patients about heart disease risk and prevention.

The first section of this chapter will describe the underlying theoretical framework that guided the study and the development of the survey instrument. The subsequent sections will explore literature relevant to the nurses' attitudes, beliefs, actions and perceptions towards heart disease, risk factors and patient education.

#### **The Theory of Planned Behavior**

A number of behavioral and psychological models have been used to predict and explain behavior. The Theory of Planned Behavior (TPB) by Icek Ajzen is a social cognitive model behavior that is an extension of an earlier theory, Theory of Reasoned Action (TRA). Both TPB and TRA have been

useful in many areas of research predicting a wide range of behaviors and behavioral intentions (Armitage & Conner, 2001) in patients, healthy populations and health care professionals including nurses (Limbert & Lamb, 2002).

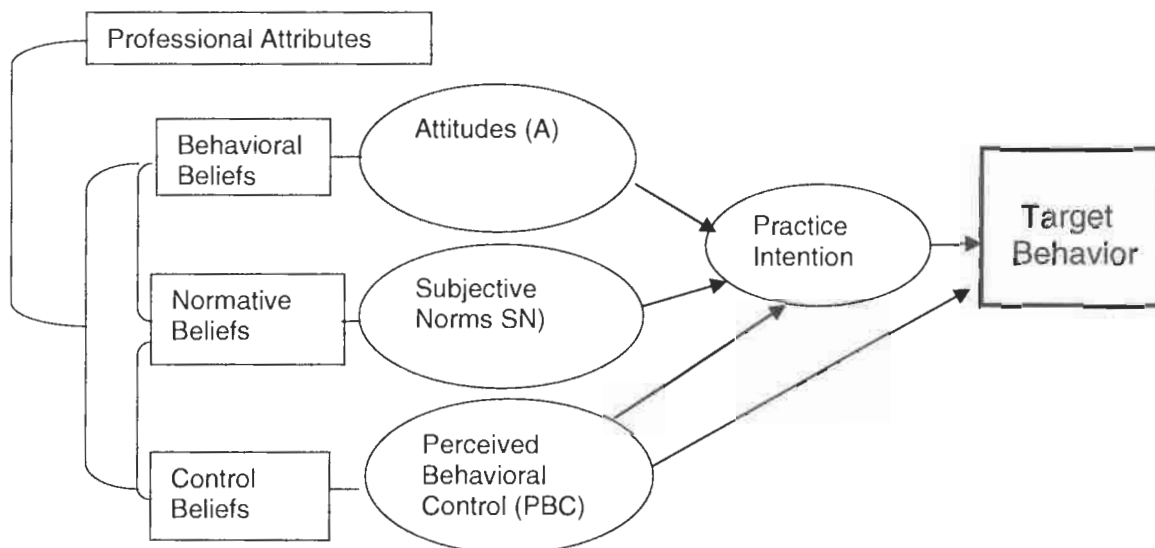
According to Icek Ajzen (1991), behavioral intention is the primary determinant or precursor to performing a desired or target behavior.

Behavioral intent is based on the assumption that individuals consider all information, which includes their personal beliefs, their environment and any resources available, before performing a behavior (Ajzen & Fishbein, 1980; Walsh, Edwards, Courtney, Wilson & Monaghan, 2005). Ajzen asserts that in the TPB, intention to perform a specific behavior can be explained by three main factors, constructs or behavioral determinants towards performing the target behavior: attitudes (A), beliefs of subjective norms (SN), and beliefs of perceived behavioral control (PBC).

Attitudes, subjective norms, and perceived behavioral control are the direct measures of a person's intent to perform a behavior (Ajzen, 1991).

According to the Theory of Planned Behavior, A, as a determinant of behavioral intention, refers to an individual's personal feelings and evaluation towards performing a target behavior (Ajzen). In this study, A refer to staff nurses' favorable and unfavorable cognitive and affective perceptions towards finding teachable moments to educate women patients in their care about their risk for heart disease and the need for prevention. SN are the individual's

beliefs and perception of how significant others will value the individual's performance of the target or expected behavior (Ajzen). In this study, SN refers to the staff nurse's perceptions of pressure from important or influential others to perform educate women patients about CVD risk and prevention. PBC is the extent to which the target behavior is seen by the individual as an easy or difficult task to perform (Ajzen). In this study, it refers to the staff nurses' perceptions whether the target behavior (educating their women patients on CVD risk and prevention) is an easy or difficult task. Figure 1 is a schematic diagram of the TPB.



*Figure 1.* The Theory of Planned Behavior showing the three measures of intention to perform a target behavior (Ajzen, 1991, p.183). Selected professional attributes of nurses (basic nursing education years in practice, professional organization membership, knowledge of CVD risk, knowledge of guidelines) are included as variables that may be associated with nurses' intentions toward the target behavior. (Adapted from Ajzen & Fishbein 1980; Ajzen, 2006)

The literature is lacking in the use of the TPB to assess nurses' intentions to practice CVD risk and prevention education, particularly in women patients. However, a few studies with similar theoretical underpinnings were reviewed for insight and direction on the theory's applicability to this research study.

Nash, Edwards, and Nebauer (1993) examined the effect of attitudes, subjective norms and perceived behavioral control on nurses' intention to assess patients' pain. Nurses are expected to perform pain assessment based on standards of nursing practice. A survey questionnaire was developed and the measurement and scoring were completed following the guidelines of the theory proponents, Ajzen & Fishbein (1980). The Attitude Intention Questionnaire completed by one hundred registered nurses sampled from a staff of five health care agencies showed support for the theoretical bases of the study, confirming that attitudes, subjective norm, and perceived control predicted the nurses' intention to conduct pain assessments. The independent effect of perceived behavioral control was highlighted. Although the survey questionnaire was developed following the guidelines set by the theory proponents, the article did not mention any validity and reliability measures of the survey tool. The small sample size and the concern about the tool's psychometric properties affect the generalizability of study. However, the study added to a body of knowledge on theory application and also highlighted

additional factors that may influence nurses' intentions to conduct pain assessments.

Puffer and Rashidian (2003) studied the applicability of the TPB in explaining nurses' intentions to provide guideline-based smoking cessation counseling. Using a cross sectional survey, 48 practice nurses completed a 52-item questionnaire. This questionnaire was an updated version of a pilot questionnaire validated using five nurses. The pilot survey questions were initially developed from semi-structured interviews of nurses eliciting salient beliefs on smoking counseling. The investigators established the reliability of the survey instrument and deemed it acceptable at Cronbach's alpha of 0.60. The study also found that the TPB constructs explained about 40% of the variance in intentions to provide smoking cessation advice, and that attitudes and perceived behavioral control were the most important predictors in providing smoking cessation advice. Subjective norm (or beliefs of social influences) contributed very little to the intent to stop smoking. The author suggested that adding more question items pertinent to this construct may produce more conclusive results on the effect on the nurses' perception of social norms. One other explanation is that the sample population of nurses had such a strong sense of control over the task that they did not have to depend on any social pressures to act on a practice expectation. The study explained other factors perceived as barriers in the target behavior of adherence to smoking cessation guidelines. Lack of time, lack of resources,

and lack of education are consistent with other study findings regarding barriers and facilitators of research utilization or application of guidelines (Olade, 2003; Pravikoff, Tanner & Pierce, 2005). Implications include the development of mechanisms to negate these barriers and to improve smoking counseling practices among nurses through staff development workshops. Despite the small sample and the low reliability in the questionnaire, the study adds evidence to the theory's applicability in predicting nurses' intentions in guideline adherence. A suggestion is given to include other extraneous variables aside from the three TPB constructs. The inclusion of demographic and professional attributes in this research project is an attempt to explore this suggestion.

Steele and Porche (2005) tested the utility of the TPB in predicting mammography intention among rural women in Louisiana. Elicitation interviews were conducted to isolate mammography beliefs in the study population and eventually used in the study instrument. The sample consisted of 318 women. Content validity of the instrument was assessed by seven experts (content validity index of .935). Internal consistency reliability was acceptable. The study indicated the appropriate use of the Theory of Planned Behavior as the underpinning framework. Statistically significant path coefficients described the exceptional relationships between the study variables, supporting the study hypothesis. Women who reported more favorable attitudes towards annual mammography, who perceived support

from significant referents and who also perceived greater control in the decision for a mammogram indicated greater intention to obtain a mammogram. Perceived behavioral control was found to have the highest correlation to mammography behavior while subjective norm had the least effect. This is another study showing minimal effect of subjective norm (social pressure) in performing a desired behavior.

Roelands, Van Oost, Depoorter, Buysse, & Stevens (2005), described whether home care nurses' intentions and current practices regarding assistive devices were related to attitudes, subjective norms, and self-efficacy. Because the study was interested in the effect of internal factors, self-efficacy replaced perceived behavioral control as one of the independent study variables. The study used a convenience sample of 64 home care nurses randomly selected from the nursing department, although the study noted that sample selection depended on who was available that day. The questionnaire on current practices had an internal consistency score of 0.90. Attitudes, subjective norm, intention and self-efficacy were measured with another questionnaire with six items for each. Internal consistency between scales was good: Cronbach's alpha was 0.79 (intention), 0.76 (attitude), 0.87 subjective norms, and 0.78 (self-efficacy). Using a multiple regression analysis, the study indicated that attitude and self-efficacy predicted significant intention to introduce assistive devices to patients with disabilities. The home care nurses identified their head of the department as a significant referent



(subjective norm factor) who expected them to introduce assistive devices to patients. The department head also expected the nurses to assess functional status and give guidance to patients on assistive devices. Subjective norm, however, was not predictive of intention. The self-efficacy score revealed the home nurses' perceptions of themselves as competent individuals in introducing assistive devices. The study also found a significant correlation between intention and nurses' current practices. The study recommends supportive interventions and educational interventions aimed at nurses' attitudes and self-efficacy towards the process of introduction of assistive devices. The inclusion of question items measuring efficacy instead of perceived behavioral control describes another option to further expand the utility of the Theory of Planned Behavior. It would have been interesting to use both perceived behavioral control along with self-efficacy and compare their measures in relation to predicting behavior performance.

The Attitude, Social influence, self-Efficacy (ASE) model has been also useful in a number of studies to explain and predict health education behaviors of persons and intermediaries, such as teachers (Paulesen, Kok, & Schaalma, 1994; Dijkstra, 1995 in Bolman, de Vries & Mesters, 2002). Often seen as an extended version of the TPB, the ASE model predicts intention by combining external variables (demographics) with the following constructs: attitude, social influence, and self-efficacy expectations.

A study by Bolman, de Vries & Mesters (2002) assessed nurses' intentions and underlying motives for continuing or discontinuing the use of a smoking cessation protocol for patients. Smoking cessation is one of the major lifestyle modifications in the AHA guidelines. Using the Attitude, Social Influence, and self-Efficacy (ASE) model, the study revealed that intention to promote the protocol was related to nurses' perceptions of the protocol. Perceived simplicity and advantages of the smoking protocol were predictors of the nurses' intentions to promote the protocol.

Within the TPB framework, perceived simplicity and advantages of the target behavior parallels with two TPB constructs: attitudes and perceived control. If nurses perceive CVD risk and preventive education (target behavior) a simple and easy task to apply in practice then their likelihood to practice such behavior increases. Although the response rate to the study was low (85 nurses), the study raises parallel points about the TPB as a framework for studying behavioral intentions of nurses in CVD risk and preventive education. The study also confirms the use of other variables outside of the TPB that can be associated with the behavioral intent to practice a particular task or behavior.

Another study by Walsh, Edwards, Courtney, Wilson, & Monaghan (2005) described pediatric nurses' intentions in fever management using knowledge, attitudes, and other factors as predictors influencing their practice behaviors. The study was based on nurses' reliance on anti-pyretics, a

practice not recommended by pediatric guidelines on fever management. An instrument was developed specifically for the study using the TPB as the framework. The survey tool development and testing followed appropriate rigor to ensure reliability and validity of results. The questionnaire was piloted by test-re-test. The final questionnaire needed another revision before data collection began. Fifty-one pediatric nurses participated in the study. The study suggested knowledge deficits in a number of areas of concern, especially absorption and side effects of the anti-pyretic. The study also demonstrated that nurses' intentions in fever management were influenced by their attitudes towards the anti-pyretic. Parents, peers, and doctors also influenced their practice intentions. Nurses with positive attitudes to the benefits of fever were less likely to administer the anti-pyretic. Although the sample population limited generalizability, the study suggests the usefulness of the TPB as the framework for research on behavioral intentions of nurses in relation to established practice guidelines and recommendations. Contrary to a majority of TPB studies where PBC was observed to have the most influence, this study suggests that nurses' subjective norms appeared to be a more influencing factor. The investigators suggested that considering the patient population of pediatric patients, the influences of parents (influential others as SN) on nurses' intentions to administer anti-pyretic medications played a role in the findings.

Kortteisto, Kaila, Komulainen, Mantyranta and Rissanen (2010), conducted a cross-sectional internet-based survey on a target population (n= 2,252) of physicians, nurses and other health care professionals to examine their intention to use clinical guidelines. Results showed that all the theory based variables were important factors associated with health care professionals' intention to apply clinical guidelines in their practice. The strongest factor affecting physicians was perceived behavioral control, while subjective norm was the strongest factor among the nurses.

### **Studies on Nurses, CVD Risk and Prevention Education**

Many nursing organizations have joined efforts with the Red Dress national campaign and other initiatives to educate women about heart disease risk. However, there is little evidence documenting staff nurses' practices regarding CVD risk and prevention education in women. The studies discussed in this section suggest successful outcomes when nurses in specialized programs or clinics were involved in health education and counseling.

One study by Vale, Jelinek, & Best (2003) documented positive patient outcomes when non-physicians (nurses and dieticians) without prescriptive authority counseled patients on CVD risk factor reduction. The study was a randomized controlled trial with adults from six medical centers who were hospitalized for various CVD procedures. The treatment group received four coaching intervention phone calls at six week intervals from nurses or

dieticians on information about CVD risk factors and specific risk factor goal targets. Written reports were mailed to the intervention group. The goal of the intervention coaching was to get patients to visit their regular physicians. The control group received usual care of discharge instructions with no follow-up. The following outcomes were measured after six months: change in fasting serum cholesterol, triglyceride levels, high density lipoproteins (HDL), low density lipoproteins, (LDL), blood pressure, body weight, body mass index and fasting glucose. Using a food frequency questionnaire, dietary intake of cholesterol, fat and fiber were monitored. Smoking was monitored using serum nicotine levels. Levels of anxiety were also measured using a validated scale. The intervention group had lower total cholesterol levels, LDL levels, better weight, and blood pressure. Intervention group participants reported starting a walking program. The study suggests the positive impact of nurses' educational interventions on lifestyle modification in controlling cardiovascular risk factors. Although the intervention required calls to discharged patients at six week intervals, a similar intervention involving frequent communication between nurses and patients during hospitalizations may be equally effective in reducing risk factors for heart disease. This study suggests the importance and successful outcomes of a built-in system or process supporting nurses to do CVD coaching intervention. Within the framework of the TPB, the coaching intervention enhanced nurses' attitudes, beliefs, and perceptions about the behavior (coaching patients). In addition, the nurses developed positive

perceptions of their abilities to accomplish CVD education (perceived behavioral control).

A study by Ansari, et al. (2003) also suggested positive outcomes among nurses involved in CVD education. Their study evaluated three types of interventions for implementing a new practice guideline advocating the use of beta-blockers, for heart failure patients. Beta-blocker therapy is one of the common forms of drug therapy in managing CVD. The three modes of interventions in this randomized control study were: 1) Control group received provider education; 2) Intervention Group 1 received computerized provider and patient notification of beta blockers; and 3) Intervention group 2 had a nurse facilitator who supervised nurses responsible for initiating and titrating the dosage of beta blocker therapy. The study revealed that the highest proportion of patients achieving the target beta blocker doses was in the nurse-facilitator group.

Nurses' knowledge on educational principles of heart failure self-management was explored by Albert et al. (2002). The study's outcome measures included overall and topic-specific perceptions of basic information pertinent to helping heart failure patients with disease self-management. With 300 nurses responding to a 20-item true or false written survey, the study concluded that nurses may not be properly educated in heart failure self-management principles. The study indicated that registered nurses scored higher on knowledge than licensed practical nurses and that nurses with a

better educational background were better prepared to teach heart failure patients about self-care.

The literature substantiates the unique but often downplayed role of nurses in cardiac patient education. Nurses have shown abilities and communication skills to promote patient adherence to CVD pharmacotherapy as prescribed by physicians. The literature review also highlights nurses' lack of awareness of CVD risk and prevention guidelines in women (knowledge) and nurses' knowledge base can affect their attitudes, beliefs and perceptions to provide CVD patient education. The study of Ansari et al. (2008) discusses other related factors that may impact nurses' subjective normative beliefs, namely inertia of previous practice patterns and the possible association with poor or non-existent support from co-workers and significant others in the workplace. Unwillingness to change usual practice patterns negates or diminishes perceived control or the performance of the expected behavior.

The barriers to health prevention education by nurses and health care professionals discussed by Ansari et al. (2008) are very similar to the barriers to adherence to guideline-based care categorized in the review of articles conducted by Cabana et al. (1999). Again these barriers can impact nurses' attitudes, subjective norms and perceived control to perform an expected target behavior or nursing practice expectation (CVD risk and prevention education to women patients). Estabrooks, Floyd, Scott-Findlay, O'Leary, & Gushta (2003) developed categories of potential individual determinants to

nurses' behavior in research utilization. Such categories as beliefs and attitudes, information (health resources) seeking qualities, professional characteristics, and education are very similar to the variables examined in this study. The TPB studies reviewed indicated that the perceived behavioral control (PBC) construct was observed to be a strong factor in predicting intention (Armitage & Conner, 2001). Inclusion of other variables may be helpful in understanding perceived behavioral control as well as the other TPB attitudes and subjective norms. According to the Theory of Planned Behavior, extraneous variables can be associated with the intention to perform a behavior (Ajzen, 1985). Based on the literature review, specific nurses' professional attributes (as extraneous variables) were selected and examined in both Study 1 and 2.

A nurse's educational background is one attribute that can impact nurses' attitudes, beliefs and perceptions to educate women on CVD risk and prevention. There are currently three most common pathways to prepare for RN licensure: diploma, associate and baccalaureate level programs. Evidence suggests a relationship between nursing education and patient safety and quality of care. Aiken's (2002) study suggested that patients cared for by nurses with a baccalaureate degree were associated with better surgical outcomes compared to patients in clinical nursing units where less than 10% of registered nurses had baccalaureate degrees. Nurse executives now seek out and prefer to hire nurses with baccalaureate degrees (AACN, 2007).



Educational background such as the initial nursing degree and highest degree obtained are among the professional attributes examined in this study.

Years of professional experience is another attribute that can affect nurses' attitudes, beliefs and perceptions. According to Benner (1984) clinical development and skill acquisition (such as finding opportunities for CVD education while providing care to women patients) in nursing practice occur in stages; and years of experiential learning is essential in the growth process and knowledge acquisition. As nurses go through various levels of proficiency they contemplate and reflect and a sense of mastery is achieved in the process (Benner). Finding teachable moments can be a skill acquired and mastered through many years in practice as nurses' organizational skills for daily patient care are refined.

Membership in professional organizations can also add to nurses' educational as well as knowledge base (The Institute of Nursing) and affect practice behavior intentions. Professional associations communicate to their membership the values of nursing that are central to societal health (American Nurses' Association Code of Ethics, 2001). Professional associations have educational journals and offer workshops that can provide nurses with information about evidence-based guidelines of care. Most websites of these associations have patient teaching resources readily available to their membership. This knowledge can again affect nurses' attitudes and their beliefs regarding CVD risk and prevention education. The Association of

Women's Health, Obstetric and Neonatal Nurses conduct workshops on health initiatives for health professionals. Evaluations of these workshops indicated a significant increase in knowledge and skill among the participants (AWHONN, 2006).

Other factors that have potential effects on nurses' practice intentions to educate patients include staffing issues such as nursing shortage and the lack of time for patient education (Estabrooks, Floyd, Scott-Findlay, O'Leary, & Gushta, 2003; Pravikoff, Tanner & Pierce, 2005 ). These may diminish nurses' perceived control over their abilities to provide CVD risk and patient education to women patients. Issues related to time for teaching and staffing were included in the survey questionnaire.

Because very little research data exist on staff nurses' practice behaviors related to heart disease risk and prevention education in women, the study was conducted to explore and describe factors influencing their practice intentions towards the target behavior. The literature discussed in this section offered insight on the valid applications of the Theory of Planned Behavior framework and underscored the uniqueness of each measurement tool. The importance of customizing each survey questionnaire to the target behavior of the study was confirmed.

### Chapter III

#### METHODS

The main purpose of both Study 1 and Study 2 was to describe factors associated with nurses' practice intentions to educate women patients about heart disease risk and prevention. These factors are based on the constructs (attitudes, subjective norms and perceived behavioral control) posited by the Theory of Planned Behavior (Ajzen, 1991) to be the antecedents of behavior, and hypothesized in this study to be associated with nurses educating women patients about heart disease risk and prevention. Other factors explored were selected professional attributes of nurses and their association with practice intentions to educate women patients about heart disease risk and prevention.

The two main research questions were: 1) Are nurses' attitudes, subjective norms, and perceived behavioral control each significantly associated with their practice intentions to provide heart disease risk and prevention education? 2) Does a relationship exist between selected nurses' professional attributes (basic educational nursing background, years in practice, professional membership, CVD knowledge, knowledge of the AHA evidence-based guidelines for cardiovascular prevention among women ) and their practice intentions (as high intenders vs. low intenders) to provide heart disease risk and prevention education?

## Research Design

The research design (Study 1 and 2) is exploratory, descriptive, and correlational, using the survey method for data collection. An exploratory design is conducted when "little is known about the phenomenon of interest" (Nieswiadomy, 2002). The literature review revealed limited research on how nurses' attitudes, subjective norms and perceived control (factors) were associated with their intentions to educate women patients in their care about heart disease risk and prevention. The study is descriptive because data collected defined the study participants' attitudes, beliefs and perceptions and their intentions to educate women patients in their care about heart disease risk and prevention. Both exploratory and descriptive studies describe the topic of interest and examine relationships among the variables (Nieswiadomy, 2002). It is correlational because the strength of the linear associations or relationships between variables is being measured (Elliott & Woodward, 2007). The survey method of data collection is one of the most common forms of non-experimental research design used in nursing and social sciences. The survey questionnaire format collects information as self-reported data (Alreck & Settle, 2004).

## Study Variables

The independent variables are: nurses' attitudes, subjective norms, perceived behavioral control, basic nursing educational background, years in practice, nurses' knowledge of women's risk, and nurses' knowledge of CVD

prevention guidelines in women. The dependent variable is nurses' practice intention to educate women patients about heart disease risk and prevention.

Definitions of each variable are based in Icek Ajzen's Theory of Planned Behavior constructs. Intention is the primary antecedent of a target behavior and is associated with a person's attitudes, beliefs and perceptions towards the target behavior. In this study, the target behavior is nurses' finding opportunities to educate women patients in their care about heart disease risk and prevention. The study aims to describe the factors associated with the intention to perform this target behavior. The factors refer to the three predictor variables of the TPB (Ajzen, 2006): attitudes, subjective norms and perceived behavioral control. In this study attitudes refer to the nurse's positive or negative beliefs and perceptions about the value of performing target behavior. Subjective norms refer to specific individuals, groups, or organizations that are regarded by nurses as significant pressure or sources of influence (influential others) in their performance of the target behavior. Perceived behavioral control refers to nurses' inherent beliefs regarding the ease or difficulty in performing the target behavior.

### **The Instrument**

The Nurses Educating Women about Cardiovascular Disease (NEWCVD) Questionnaire was developed by the research investigator to gather data on nurses' attitudes, subjective norms, and perceived behavioral control and practice intentions to provide heart disease risk and prevention

education while caring for women patients. According to Ajzen (2006), each behavioral intention is unique; therefore, a survey instrument using the TPB as its framework should be developed specifically for the target behavior of the study. The instrument also included questions on demographic information. Data were also collected on nurses' professional attributes (educational background, practice years, nurses' knowledge of women's risk of CVD, and nurses' knowledge of guidelines) that may be associated with nurses' practice intentions to perform the target behavior.

In developing survey questionnaire items, content was based on the following: literature about the TPB, the theorist's guidelines on developing questions (Ajzen, 2004), sample questions of studies using the TPB, literature on factors affecting nurses as patient educators (Marcum, Riedenour, Shaff, Hammons & Taylor, 2002), and the instruction manual on questionnaire development using the TPB by Francis et al. (2004). The research investigator's extensive background working with staff nurses in her role as an inpatient cardiac rehabilitation educator also added insight to the item questions.

The instrument is a 63-item self-administered survey questionnaire. Most of the questions use a seven-point Likert scale from responses, strongly agree (7) to strongly disagree (1). Studies in the related literature used similar rating scales (Nash, Edwards, & Nebauer, 1993; Puffer & Rashidian, 2003). According to Francis et al. (2004), the 7-option response is most often

recommended in TPB literature. The survey instrument is composed of four subscales: the attitude scale, the subjective norms scale, the perceived behavioral control scale and the intention scale. See Table 1 for a sample of item questions.

Table 1

*Sample Item Questions from the NEWCVD Questionnaire*

|  |   |                                     |
|--|---|-------------------------------------|
| <b>Intention*</b>  |   |                                     |
| # 36.  | I expect to educate my patients about heart disease risk and prevention.  |                                     |
| # 41.  | I want to educate my patients about heart disease risk and prevention.  |                                     |
| # 43.  | I intend to educate my patients about heart disease risk and prevention.  |                                     |
| <b>Perceived Behavioral Control (PBC)*</b>   |   |                                     |
| # 38.  | I am confident of my abilities to educate my patients about heart disease risk and prevention.                              |                                     |
| # 39.  | The decision to educate my patients about heart disease risk and prevention is entirely up to me.                           |                                     |
| # 40.  | I can find time to include heart disease risk and prevention education in my daily nursing routine.                         |                                     |
| <b>Subjective Norms (SN)*</b>  |   |                                     |
| # 35.  | Hospital personnel who are important to me think that I should educate my patients about heart disease risk and prevention. |                                     |
| # 37.  | My personal expectations pressure me to educate my patients about heart disease risk and prevention.                        |                                     |
| #42.   | The standards of nursing practice expect me to educate my patients about heart disease risk and prevention.                 |                                     |
| <b>Attitudes (A) ** As a nurse, educating women patients about educate my patients about heart disease risk and prevention is...</b> |   |                                     |
| # 44.  | Not Important   | 1 2 3 4 5 6 7 Very Important        |
| # 46.  | Bad nursing practice  | 1 2 3 4 5 6 7 Good Nursing Practice |
| # 48.  | Difficult   | 1 2 3 4 5 6 7 Easy                  |
| *Using the 7-point Likert scale. **Using a semantic differential scale   |   |                                     |

The last thirteen questions of the NEWCVD Questionnaire addressed demographic characteristics and professional attributes. These included: age, gender, educational background, practice setting, years of practice as a staff

nurse, employment status, professional membership to a specialty organization and professional certification. These demographic and professional attributes are common survey items used to describe the study's target population (staff nurses). Four questions addressed nurses' basic knowledge of the threat of heart disease among women. One question asked study participants about their knowledge of the AHA's evidence-based guidelines for CVD prevention in women.

### **Instrument Validation and Reliability Testing**

A panel of content experts was chosen to help establish face validity and content validity of the instrument. For instrument validation five to 10 experts are recommended (Lynn, 1986) with a range up to 10 (Rubio, Berg Weber, Tebb, Lee, & Rauch, 2003). The panel of experts for this research study consisted of seven nurses, all nurse educators with a doctoral degree. They have clinical backgrounds in at least 2 or more of the following: women's health, adult health, cardiovascular health, health promotion, school health, and adult critical care. Four have a background in psychometrics and five are currently in academe. Two are directors of nursing research in a hospital setting. All have publications related to two or more of the following: women's health, adult health, cardiovascular health, health promotion, school health, critical care, and nursing research. Four have taught nursing research in a university setting. None was particularly familiar with the Theory of Planned Behavior but the principal investigator provided information to the panel.



The panel was asked to evaluate each question. Two criteria were used to evaluate each applicable measure: the representativeness of the item within the theoretical construct's definition, and the clarity of the item. Each applicable item was rated on a scale of 1- 4 for representativeness and clarity. A value of one indicates that an item is not clear or not representative of the theoretical construct and a value of 4 indicates clarity and representativeness (Rubio et al., 2003). This 4-point system helps determine the extent to which question items need to be modified or deleted. The Content Validity Index (CVI) was then calculated for this survey questionnaire. CVI calculation is based on the relevance or the representativeness of the measure (Rubio et al., 2003). The CVI for each item was calculated by counting the number of experts who rated the question item as 3 or 4 and dividing that by the total number of experts. This is the **proportion of content experts** who rated the item as content valid (Hyrkas, Appelqvist-Schmidlechner & Oksa, 2003):

$$\text{CVI} = \frac{\text{Number of raters giving a rating of '3' or '4'}}{\text{Total number of raters}}$$

The investigator calculated the CVI (**proportion of content experts**) for each item of the NEWCVD survey questionnaire. Question items were then grouped to each of the subscale/ measures: attitude, subjective norm, perceived control, intention. To estimate the CVI for each measure, the average CVI was calculated across the items for each measure. A CVI of .80 is recommended for new measures (Davis, 1992). Hyrkas et al. (2003) also considered this rating schema: The measure is considered adequate if

calculated CVI is >79% agreement. The item is considered questionable if the CVI is 70-79% agreement, and unacceptable if the CVI is calculated at a <69% agreement.

The content validity scores for the subscales were: attitudes = .95 (95% agreement), subjective norms = .88 (88% agreement), perceived behavioral control = .98 (98% agreement), intention = .85 (85% agreement). The total average CVI for the instrument is .915 (92% agreement). Feedback and comments from the expert panel were used to further refine the survey items. Study 1 was implemented as a pilot study to determine the feasibility of the survey questionnaire and the study's data collection methods.

The TPB constructs in the NEWCVD Questionnaire were evaluated for internal consistency reliability. Cronbach's coefficient alpha (Cronbach's  $\alpha$ ) was used to assess the consistency of multiple scale items. This measure is often used in Likert type items that are summed for a composite score (Witte & Witte, 2008). A value of .70 to .80 has been noted as an acceptable value for Cronbach's  $\alpha$  (Field, 2009), although according to Kline (1999 in Field) psychological constructs (such as the TPB constructs) can often be observed to be below .70 due to the inherent diversity of such type of constructs. The researcher must then exercise caution regarding decisions based on the reliability guidelines (Cortina, 1993 in Field).

To assess whether the items in each of the summated scales measuring the direct measures of nurses' attitudes (A), subjective norms (SN)

and perceived behavioral control (PBC) formed a reliable scale, Cronbach's  $\alpha$  was computed. For direct measures of attitude, Cronbach's  $\alpha = .81$ , indicating good reliability. For subjective norms (SN), Cronbach's  $\alpha = .70$ , suggesting reasonable internal consistency. For perceived behavioral control (PBC), Cronbach's  $\alpha = .61$ , indicating minimally adequate reliability. None of the items in the PBC scale was eliminated. However, instrument redevelopment may be needed in future studies.

### **Power and Sample Size Determination**

Based on Cohen's (1988) definition of a moderate effect as  $r = .30$ , the study (two-tailed test with an alpha of .05) would need 84 study participants to obtain a power of .80 (p. 93). According to Cohen, .80 is the desired power value if no prior data is available: the "desired power convention is offered with the hope that it will be ignored whenever an investigator can find a basis in his substantive concerns in his specific research investigations to choose a value *ad hoc*" (p.56).

### **Population, Sample and Setting**

The Study 1 target population consisted of 127 registered nurses assigned in telemetry units. The Study 2 population consisted of 210 medical surgical nurses. All the nurses were confirmed employees doing direct patient care (full, part time or per diem) on the respective clinical nursing units of the participating institution. Nurses who were at least 18 years of age and in

practice as nurses for at least 6 months were eligible to participate in the research study. The study's exclusion criteria were :1) nurses involved or who have been involved in any research study with women patients, 2) nurses who are or have been in managerial positions (i.e. head nurse, unit manager, unit director) in the clinical setting, and 3) nurses who have been diagnosed with heart disease by their health care providers. These exclusion criteria ensured good representation with less variance and less bias. Nurses in the exclusion criteria may tend to have more favorable attitudes for the target behavior, may perceive the target behavior as easier (bias effect on perceived behavioral control), and may possess a stronger behavioral intent to practice CVD risk and prevention. Nurse managers, head nurses, or unit directors were excluded because the survey questionnaire included questions referring to their roles as sources of pressure and influence on nurse' practice intentions to perform the target behavior.

Data for both Study 1 and Study 2 were collected from a community hospital in southern New Jersey at two different time periods. The healthcare setting is an institution that was granted Magnet status for excellence in 2003. It is a large non-teaching institution fully accredited as an acute care facility, providing high quality health care and services to its surrounding community. It has four telemetry units and seven medical surgical units. Telemetry units are nursing units that provide care to patients needing cardiac monitoring. Telemetry patients could be admitted directly from the emergency department,

from the critical care units (Conway et al., 2006) or they could be patients transferred from a regular unit for monitoring. Telemetry nurses must provide patients with a consistent pattern of care that can enhance a patient's sense of closure and confidence of the acute phase of their disease processes (Allenbach & Steinmiller, 2004). This pattern of care should include education on pertinent information to promote cardiovascular health and well-being to reduce future cardiac events (Newens et al., 2005; Vale et al., 2003). Medical-surgical units are often referred to as the regular units which most of the patient population are admitted or transferred when acute care monitoring is no longer required. Most patients are discharged to home from this unit, making education of patients a paramount responsibility of staff nurses.

### **Ethical Considerations**

Approvals to conduct Study 1 were obtained from the Institutional Review Board (IRB) of Seton Hall University, the principal investigator's institution affiliation (Appendix A), and from Community Medical Center, the healthcare institution where the study was conducted (Appendix B). Requirements related to the Human Participation in research and ethical precautions were completed by the research investigator. After the IRB approvals, another approval to conduct research was obtained from the Nursing Research Council of the participating hospital. The research investigator presented the study proposal to the unit directors at one of the nursing administration monthly meetings. When Study 1 (pilot study) was:

replicated on medical surgical nurses (Study 2), addendums were submitted for approval to both aforementioned IRB offices.

Approval to access the study participants for both studies was also granted by the Directors of Nursing Education & Research of the participating institution. The hospital's research liaison nurse representative was the research investigator's main contact for research packet delivery, distribution and collection. The research investigator had no direct contact with the subject participants.

### **Procedure**

The research investigator prepared survey research packets (127 for telemetry and 210 for medical surgical) and drop boxes (4 for telemetry and 7 for medical surgical). Stapled to each survey research packet (10X13 manila envelopes) was the Research Participation Request letter (Appendix C). This served as the recruitment letter, stating the purpose of the research study, indicating that participation is voluntary, and that confidentiality and participant anonymity will be maintained throughout the study. Participant eligibility was determined by the completion of 5 questions in the research participation letter. Study participants were asked to answer these questions. Study participants meeting the eligibility criteria were requested to complete the survey questionnaire. Inside the research packet was the Solicitation letter (APPENDIX D) paper-clipped to the NEWCVD Questionnaire. The Solicitation letter reiterated the content of the research participation request letter but also

indicated that the return of the completed questionnaire was considered the nurses' implied consent to participate in the study. The NEWCVD Questionnaire was printed on lilac colored stationary to add to the visual appeal and instrument completion (response rate). Another study incentive (a Go Red for Women heart pin) was also in the research packet for the nurse participant to keep regardless of the nurse's eligibility or decision to participate in the study. A pen was also added inside the packet. A 9x12 return manila envelope marked "Survey" was included in the packet. This had a 2x4 white label with printed instructions regarding the return of the completed questionnaire. The staff RN was instructed to 1) seal the completed questionnaire in the return envelope, 2) replace the envelope in the original research packet envelope (10x13), and 3) drop the packet in a designated collection box located in the staff RN's nursing unit. The drop boxes were wrapped in solid lilac-colored wrapping paper labeled as "Drop Box" for NEWCVD survey Questionnaires. The deadline date was written on the drop box label. The research investigator hoped that the color of the drop box would be a reminder for nurses to complete and return the survey, increasing the return or survey response rate.

The packets were delivered to the research liaison nurse of the participating hospital. Instructions on the completion and collection procedure were reviewed with the research liaison. Survey research packets were distributed by the research liaison to the unit directors of the telemetry and

medical surgical units with instructions that the staff nurses had two weeks to complete and return the questionnaire. The research investigator maintained no contact with the study participants throughout the two week period. At the end of the two week period, the research investigator collected the questionnaire drop boxes. Of the 127 telemetry survey packets, 68 were returned and 49 were eligible for inclusion in the study. Of the 210 medical surgical survey packets, 158 were returned and closer review of the returned questionnaires revealed that only 42 were completed in full and considered eligible for data analyses.

### **Data Preparation**

After examining the returned questionnaires for completeness and eligibility, a subject code starting with TMRN 1 (Study 1) and MS 1 (for Study 2) was written on the top right corner of the questionnaire. Questionnaire responses from Study 1 were entered into the Statistical Package for Social Sciences (SPSS) version 15 by the research investigator. Study 2 data used SPSS version 17. Data were also stored on a USB memory drive. As recommended by Francis et al, 2004, data is to be entered in one SPSS file listing all variables (questionnaire items) in the same order in which they are listed in the survey questionnaire.



## Data Analyses

Descriptive statistics were used to summarize demographic characteristics, personal attributes, professional data and the scaled items obtained from the NEWCVD Questionnaire. Percentages and frequency distributions were used for nominal data (categorical/dichotomous). Likert scale responses were examined using measures of central tendency and skewness. In this study Likert scale responses were treated as approximating continuous/interval data. According to Elliott & Woodward (2007) categorical variables such as the ordinal data in a Likert scale can be treated as quantitative data as long as an assumption is made that the differences between the categories are the same. Witte and Witte (2004) also suggest that numerical measures of non-physical characteristics (attitudes, subjective norms, perceived control and practice intentions) "tend to approximate interval measurement" (p.539) and the resulting data should receive similar statistical treatment as interval or ratio data. Items assessing direct measures for each TPB construct (attitude, subjective norms, perceived control and intention) were summed and the mean was calculated to give an overall score for each of the TPB constructs. Items assessing indirect measurements of the TPB constructs were not analyzed in this study. Data distributions were examined using histograms. To answer research questions 1 and 2 correlation coefficients (Pearson's correlation or Spearman's rank correlation) were used to examine the association between direct measures of attitudes and intention;

direct measures of subjective norm and intention and perceived behavioral control and intention. Spearman's rank correlation was used instead of Pearson's correlation when normality assumptions for a certain measure were not met (Elliot & Woodward, 2007) in Study 1. Spearman's rho measures the strength of an increasing or decreasing relationship between two variables using the ranking of scores rather than the raw observed data (Elliot & Woodward). For research question 4 (Study 2), hierarchical regression was used to determine how predictor variables (attitude, subjective norms, and perceived behavioral control) go together to predict practice intention, the dependent variable (Leech, Barrett, Morgan, 2008).

Chi square tests were performed to test the null hypotheses of no association between the nurses' professional attributes (basic nursing education, number of years in practice, professional organization membership, knowledge of CVD risk in women and awareness of guidelines on CVD prevention in women) and their practice intentions. Chi-square statistical tests are used in contingency table analysis. Also known as cross tabulations, they are the most common measure of association between survey variables (Alreck & Settle, 2004), particularly categorical variables (Leech et al., 2008). The variable for intention was re-coded to generate a dichotomous value for "high intenders" and "low intenders" (intention level in relation to performing the target behavior).

## CHAPTER IV

### RESULTS

The main purpose of both Study 1 and Study 2 was to describe factors associated with nurses' practice intentions to educate women patients about heart disease risk and prevention. These factors are based on the constructs (attitudes, subjective norms and perceived behavioral control) posited by the Theory of Planned Behavior (Ajzen, 1991) to be the antecedents of behavior, and hypothesized in this study to be associated with nurses' educating women patients about heart disease risk and prevention. Other factors explored were selected professional attributes of nurses and their association with the target behavior hypothesized as extraneous variables that could impact on intention to perform the target behavior.

This section will present the findings of both Study 1 and Study 2. Study 2 was primarily conducted to investigate and describe findings of another nurse population within the same institution where Study 1 was completed, and not to compare and test mean scores of the two populations.

#### **Description of the Sample**

In Study 1, there were 127 survey questionnaires distributed to four telemetry units and 68 (53.5%) packets were returned. Nineteen of the returned questionnaires were not eligible. Forty nine survey questionnaires (38%) were eligible and included in the data analyses for Study 1. In Study 2,

of the 210 surveys distributed to the medical surgical nurses, 158 were returned and 42 deemed complete and eligible for use in the study. The majority (105) of the returned questionnaires had a lot of missing data points and one was not eligible due to a health care provider diagnosis of heart disease (exclusion criteria). The return response rate for Study 1 was favorable based on Kenward & Webb (2006) who described how national surveys of nurses have dropped to as low as 13 % compared to past high response rates of 40%. In Study 2, a follow up with the research liaison nurse on the lower response rate confirmed that another survey was conducted at the same time the NEWCDV survey was distributed. Response rates to survey questionnaires are often attributed to many factors affecting the intrinsic motivation of subject participants to respond. Factors influencing Study 1 and Study 2 participants to respond to the NEWCVD questionnaire could be related to any one or combination of the following: organizational culture expectations to support research, nurses' personal attitudes towards and perceptions of the research participation request, the nature of the questionnaire and internal or external incentives. The lower response rate observed among the medical surgical nurses (Study 2) could be attributed to the intrinsic factor of nurses' low motivation from burnout, to respond to two simultaneous questionnaire survey requests. The primary investigator continued to complete Study 2 using the convenience sample of 42 medical-surgical nurses.

Because the sample size in both Study 1 and Study 2 were less than 84, observed power was calculated based on a medium to large effect size (.50) posited in previous TBP studies (Ajzen, 1991; Armitage and Conner, 2001). As cited previously, Cohen (1988) states that an effect size posited from previous studies could be used to calculate power. Using Cohen's table, the power for Study 1 was calculated at .78 using  $n = 49$  (rounded to  $n = 50$ ). For Study 2, power was calculated at .71 based on  $n = 42$ . The significance criterion was set at the .05 level (two-tailed).

Table 2 describes the demographic information for Study 1 (telemetry RNs) study participants. The participants ranged in age from 24 years to 56 years. Most were in the 30- 49 years of age category (median age 42), almost comparable to the findings of the National Sample Survey of Registered Nurses' (NSSRN 2008) of a median age of 46 years old (U.S. Department of Health and Human Services {USDHHS}, Health Resources and Services Administration {HRSA}, 2010). Gender distribution of the sample (females= 87.8%; males = 12.2%) reflects the historical dominance of females in the nursing profession, consistent with the national survey (USDHHS, HRSA, 2010). For racial and ethnic distribution, Study 1 is composed of two major groups: White, non-Hispanic (51%) and the Asian or Pacific islanders (34.7%). This finding is not consistent with the national survey (USDHHS, HRSA, 2010) which shows that nurses are primarily White, non-Hispanic (88.4%) followed by the following distributions: Black/African American, non-Hispanic,

4.6 %; Asian or Pacific Islander non-Hispanic, 3.3% ; Hispanic 1.8 %; American Indian/Alaskan Native, 0.4% ; and two or more racial backgrounds, 1.5 %.

Table 2

*Demographic Information of Telemetry RNs (Study 1)*

| Characteristic          | Telemetry RNs |      |
|-------------------------|---------------|------|
|                         | <i>n</i>      | %    |
| Gender                  |               |      |
| Male                    | 6             | 12.2 |
| Female                  | 43            | 87.8 |
| Age in years            |               |      |
| 20-29                   | 3             | 6.2  |
| 30-39                   | 13            | 26.5 |
| 40-49                   | 18            | 36.7 |
| 50-59                   | 6             | 12.2 |
| 60 and over             | 9             | 18.4 |
| Ethnic background       |               |      |
| White, non-hispanic     | 25            | 51.0 |
| Black, non-hispanic     | 2             | 4.1  |
| Hispanic-Latino         | 1             | 2.0  |
| Asian- Pacific Islander | 17            | 34.7 |
| Multi-racial            | 2             | 4.1  |
| Other                   | 2             | 4.1  |

In Study 2, 42 questionnaires (20.6%) were used in the data analyses. Table 3 describes the demographic information of Study 2 participants (Medical- Surgical RNs). The majority of respondents were females. This is consistent with the 2008 NSSRN (USDHHS, HRSA, 2010). Most were 30-59 years of age with a mean age of 41 years of age. The majority of the Study 2

nurses were white, non-Hispanic, comparable with the national survey of nurses (USDHHS, HRSA, 2010). One other major ethnic group, the Asian-Pacific Islander (35.7%), observed among the Study 2 participants was not a major category in the national survey of nurses (USDHHS, HRSA, 2010).

Table 3

*Demographic Information of Medical- Surgical RNs (Study 2)*

| Characteristic         | Medical- Surgical RNs |      |
|------------------------|-----------------------|------|
|                        | n                     | %    |
| Gender                 |                       |      |
| Male                   | 1                     | 2.4  |
| Female                 | 41                    | 97.6 |
| Age in years           |                       |      |
| 20-29                  | 6                     | 15.0 |
| 30-39                  | 11                    | 27.5 |
| 40-49                  | 12                    | 30.0 |
| 50-59                  | 11                    | 27.5 |
| Ethnic background      |                       |      |
| White, non-hispanic    | 26                    | 61.9 |
| Black, non-hispanic    | 0                     | 0    |
| Hispanic-Latino        | 1                     | 2.4  |
| Asian-Pacific Islander | 15                    | 35.7 |
| Multi-racial           | 0                     | 0    |
| Other                  | 0                     | 0    |

Table 4 describes the professional attributes of Study 1 participants. Results show that the initial nursing degree preparation for the majority of nurse respondents was an associate degree in nursing (46.9%) compared to those with bachelor degrees (42.9%). However, the highest degree obtained among the Study 1 participants is a bachelor's degree (44.9%), consistent with

the 2008 NSSRN report (USDHHS, HRSA, 2010) stating that “a larger percentage of RNs whose highest education is a bachelor’s degree are employed in hospitals as compared to RNs with an ADN or diploma.” (USDHHS, HRSA, 2010). The findings do confirm the national trend that in most employment settings nurses had either an associate or baccalaureate degree as their highest nursing or nursing-related educational preparation (USDHHS, HRSA, 2010). In relation to the other professional attributes, a significant number of Study 1 participants (74.5%) did not belong to any professional organization, and almost half (49%) were aware of the risk of heart disease among women based on scoring correctly on all four questions about the topic. Noteworthy is that more than half of the respondents (57.1%) responded that they were aware of the AHA guidelines of care for CVD prevention among women.

Table 4

*Professional attributes of Telemetry RNs (Study 1)*

| Attribute                         | Telemetry RNs |      |
|-----------------------------------|---------------|------|
| First nursing degree (n=48)       |               |      |
| Diploma                           | 4             | 8.2  |
| Associate                         | 23            | 46.9 |
| Bachelor’s                        | 21            | 42.9 |
| Highest educational degree (n=48) |               |      |
| Diploma                           | 3             | 6.1  |
| Associate                         | 20            | 40.8 |
| Bachelor’s                        | 22            | 44.9 |
| Master’s                          | 3             | 6.1  |
| Years in Practice (n= 46)         |               |      |
| 1- 5                              | 9             | 19.6 |



|                                   |    |      |
|-----------------------------------|----|------|
| 6-10                              | 11 | 23.9 |
| 11-15                             | 13 | 28.3 |
| 16 -20                            | 6  | 13.0 |
| >21                               | 7  | 15.2 |
| Professional organizations (n=47) |    |      |
| Yes                               | 12 | 25.5 |
| No                                | 35 | 74.5 |
| Knowledge of women's risk (n=49)  |    |      |
| 2 correct responses               | 4  | 8.3  |
| 3 correct responses               | 21 | 42.7 |
| 4 correct responses               | 24 | 49.0 |
| Knowledge of guidelines (n= 49)   |    |      |
| Yes                               | 28 | 57.1 |
| No                                | 21 | 42.9 |

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A description of the professional attributes of the Study 2 participants are shown in Table 5. The majority of the nurses (52.4%) obtained their initial educational background from an associate degree program in nursing. However, for the highest nursing degree, results indicate that 50% of the nurses have their bachelor's degrees with three nurses with a Master's degree in nursing. Again, this is consistent with the national survey. The nurse respondents' years in practice show that 13% have worked for up to 5 years and 11 % were in practice for over 21 years. The rest were spread in between the grouped categories, with the least number of respondents (7.1%) belonging in the 11-15 year category. A majority (59.5%) of respondents did not belong to any professional nursing organization. Over half of the respondents (52.4%) had no knowledge of the AHA evidence - based

Guidelines; however, 73.8% answered all four questions correctly confirming their awareness of heart disease risk among women.

Table 5

*Professional Attributes of Medical- Surgical RNs (Study 2)*

| Attribute                         | Medical- Surgical RNs |      |
|-----------------------------------|-----------------------|------|
|                                   | n                     | %    |
| First nursing degree (n= 42)      |                       |      |
| Diploma                           | 4                     | 9.4  |
| Associate                         | 22                    | 52.4 |
| Bachelor's                        | 16                    | 38.1 |
| Highest nursing degree            |                       |      |
| Diploma                           | 3                     | 7.1  |
| Associate                         | 15                    | 35.7 |
| Bachelor's                        | 21                    | 50.0 |
| Master's                          | 3                     | 7.1  |
| Years in Practice (n=42)          |                       |      |
| 1- 5                              | 13                    | 31.0 |
| 6-10                              | 9                     | 21.4 |
| 11-15                             | 3                     | 7.1  |
| 16-20                             | 6                     | 14.3 |
| >21                               | 11                    | 26.2 |
| Professional organizations (n=42) |                       |      |
| Yes                               | 17                    | 40.5 |
| No                                | 25                    | 59.5 |
| Knowledge of women's risk (n=42)  |                       |      |
| 2 correct responses               | 1                     | 2.4  |
| 3 correct responses               | 10                    | 23.8 |
| 4 correct responses               | 31                    | 73.8 |
| Knowledge of guidelines (n=42)    |                       |      |
| Yes                               | 20                    | 47.6 |
| No                                | 22                    | 52.4 |

Table 6 describes other professional attributes of telemetry RNs. A vast majority of the telemetry staff RN respondents (91.8%) work as full time nurses and 83.7% confirm that their nursing curriculum discussed heart

disease and the role of the nurse. Most of the nurse participants did not indicate specialty certification.

Table 6

*Other Professional Attributes of Telemetry RNs (Study 1)*

| Other Attributes                   | Telemetry RNs |      |
|------------------------------------|---------------|------|
|                                    | n             | %    |
| Employment status (n=48)           |               |      |
| Full time                          | 45            | 93.8 |
| Part time                          | 1             | 2.0  |
| Per diem                           | 2             | 4.2  |
| CVD education in curriculum (n=44) |               |      |
| Yes                                | 41            | 93.2 |
| No                                 | 3             | 6.8  |
| Specialty certification (n= 46)    |               |      |
| Yes                                | 5             | 10.9 |
| No                                 | 41            | 89.1 |

Table 7 describes other professional attributes of the medical-surgical RNs. The majority were employed full time (85.7%), had content on cardiovascular disease education in their curriculum (88.1%) and most had no specialty certification (64.3%)

Table 7

*Other Professional Attributes of Medical –Surgical RNs (Study 2)*

| Other professional attributes | Medical Surgical RNs |      |
|-------------------------------|----------------------|------|
|                               | n                    | %    |
| Employment status (n=42)      |                      |      |
| Full time                     | 36                   | 85.7 |
| Part time                     | 4                    | 9.5  |

|                                    |    |      |
|------------------------------------|----|------|
| Per diem                           | 2  | 4.8  |
| CVD education in curriculum (n=42) |    |      |
| Yes                                | 37 | 88.1 |
| No                                 | 5  | 11.9 |
| Specialty certification (n=42)     |    |      |
| Yes                                | 14 | 34.1 |
| No                                 | 27 | 65.9 |

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To address research questions 1 and 2 (hypotheses 1 and 2), the data were examined using bivariate correlation measures. The mean scores for each of the direct measures for attitudes (A), subjective norms (SN) and perceived behavioral control (PBC) was calculated. The descriptive data summary (Study 1) on the subscale items for attitudes (A), subjective norms (SN) and intention (I) did not meet the criteria for normality. The subscale items (assumed to be scale/normal data in this study) revealed skewed distributions (more than - 1 or + 1): attitudes = -1.205, subjective norms = -1.415, and intention = -1.342. Perceived behavioral control (PBC) subscale had a normal distribution (skewness of -.344). The skewed distribution for the three subscales was further verified using histograms. The parametric measure to test for correlation (Pearson r) was not applicable because the assumption of normal distributions was not met.

According to Leech, Barrett & Morgan (2008), guidelines for skewness are often arbitrary but the general guide is if skewness is more than + 1.0 or less than - 1.0, the distribution is considered markedly skewed. Two options

are suggested for skewed data: to use a non-parametric measure or to transform the data (Leech, Barrett & Morgan). At this point during the study the research investigator decided to use the former option, using Spearman's rho correlation (Table 8). Spearman's rho for attitude and intention was  $\rho = .399$ ,  $p < .01$ . Spearman's rho for subjective norm and intention was  $\rho = .755$ ,  $p < .01$ . Spearman's rho for perceived behavioral control and intention was  $\rho = .678$ ,  $p < .01$ . Each of the findings indicates that a strong association exists between telemetry nurses' practice intention and their attitudes, perceptions of social pressures (subjective norms) and perceptions of control.

Table 8

*Correlations between Telemetry RNs' Attitudes, Subjective Norms, Perceived Behavioral Control and Practice Intentions (Study 1)*

| Spearman's Rho Factor | Practice Intention |
|-----------------------|--------------------|
| Attitude              | .399 (*)           |
| Subjective norms      | .755 (*)           |
| Perceived behavioral  | .678 (*)           |

\* Correlation is significant at the 0.01 level (2-tailed).

In Study 2, the attitude (A) score was skewed (-1.589) while the rest of the subscale items met the criteria for normal distributions. Skewness for subjective norms (SN) = -.801; perceived behavioral control (PBC) = .365; and for Intention = .869. The research investigator transformed the attitude score using the logarithm (LN) function to produce a more symmetric data (Elliott & Woodward, 2007), resulting to a skewness of = -.941. An analysis using

Pearson's  $r$  correlation coefficient indicated that there was a significant linear relationship between subjective norms and intention  $r(42) = 0.837, p < 0.01$ .

For perceived behavioral control, a significant linear relationship was also observed,  $r(42) = 0.472, p < 0.01$ . There was no significant relationship observed between attitudes and practice intention using the Pearson  $r$  correlation coefficient. See Table 9.

Table 9

*Correlations between Medical-Surgical RNs' Attitudes, Subjective Norms, Perceived Behavioral Control and Practice Intentions*

| Pearson $r$          | Practice Intention |
|----------------------|--------------------|
| Attitude             | .193 (NS)          |
| Subjective norms     | .837 (*)           |
| Perceived behavioral | .472 (*)           |

\* Correlation is significant at the 0.01 level (2-tailed).

Overall, the findings in Study 1 and Study 2 indicate that nurses' subjective norms appear to have the strongest association with participants' intention to educate women patients in their care about heart disease risk and prevention followed by perceived behavioral control. This was followed by perceived behavioral control and attitudes respectively in Study 1.

To address research question 3 (hypothesis 3), cross tabulations (chi-square statistic) were used for each of the professional attributes and the intention score dichotomized as high and low intender. No significant

associations were found between selected professional attributes of Study 1 (telemetry) RNs and their practice intention to perform the target behavior.

Table 10 summarizes the relationships between the selected professional attributes and telemetry nurses' intentions to educate women patients about heart disease risk and prevention.

Table 10

*Chi-square Results: Professional Attributes and Practice Intention of Telemetry Nurses (Study 1)*

| RQ/H3 testing<br>Chi-square test | Calculation         | P value<br>result | Result        |
|----------------------------------|---------------------|-------------------|---------------|
| Professional Attribute           |                     |                   |               |
| Nursing Degree                   | $X^2(2, 48) = 4.04$ | $p = .44$         | Not supported |
| Practice Years                   | $X^2(4, 46) = 1.70$ | $p = .79$         | Not supported |
| Organization membership          | $X^2(1, 47) = 1.09$ | $p = .29$         | Not supported |
| Knowledge of women's risk        | $X^2(1, 49) = .09$  | $p = .76$         | Not supported |
| Knowledge of guidelines          | $X^2(1, 49) = .74$  | $p = .76$         | Not supported |

*P* = < .05 level

Table 11 summarizes the findings of hypothesis 4 testing for professional attributes. Using the chi-square statistic, the study findings did not support any association between basic nursing education, years in practice, professional organization membership, and knowledge of risk in women. However, a significant association was found between nurses' intention to educate women and the nurse's knowledge of the evidence-based guidelines on prevention of CVD among women. Specifically, Study 2 findings on the

association between professional attributes and intention indicated that a high proportion of nurses with higher intention to educate women patients about heart disease risk and prevention (65% or 13 of 18) had knowledge of the evidence-based guidelines compared to those with lower intention (35% or 7 of 24).

Table 11

*Chi-square Results: Professional Attributes and Practice Intention of Medical-Surgical RNs (Study 2)*

| RQ/H3 testing<br>Chi-square test |                                 | Result        |
|----------------------------------|---------------------------------|---------------|
| Basic nursing degree             | $X^2 (2, 42) = 2.07, p = .36$   | Not supported |
| Practice years                   | $X^2 (4, 42) = 3.15, p = .53$   | Not supported |
| Organization membership          | $X^2 (1, 42) = .21, p = .76$    | Not supported |
| Knowledge of women's risk        | $X^2 (1, 42) = 1.37, p = .58$   | Not supported |
| Knowledge of guidelines          | $X^2 (1, 42) = 7.64, p = .01^*$ | Supported     |

\* $p < .05$  level

To address research question 4 (hypothesis 4), on how well perceived behavioral control and attitudes predict practice intention, when controlling for subjective norms, a hierarchical multiple linear regression was computed. The assumptions of linearity, normally distributed errors, and uncorrelated errors were checked and met (Leech, p.112). A priori studies in health behaviors had indicated the primary significance of PBC. Some studies have also indicated subjective norms (SN) as a significant predictor. Since Study 1 (pilot) indicated



the magnitude of the effect of SN on telemetry nurses' practice intentions, it was entered in the first block of the model. When subjective norm was entered alone, it significantly predicted intention,  $F(1,40) = 93.84$ ,  $p = .000$ , adjusted  $R^2 = .70$ . The  $R^2$  indicates that 70 % of the variance in practice intention could be predicted by knowing the nurse's subjective norms. When PBC and A were added,  $R^2$  change = .01. This finding suggests that no significant improvement in prediction was observed with the addition of PBC and A. This test further confirms the magnitude of the effect of subjective norms on the intentions of nurses to perform the target behavior.

Table 12

*Hierarchical Regression Summary for Subjective Norms (SN), Perceived Behavioral Control (PBC), and Attitudes Predicting Nurse Practice Intentions (n= 42)*

| Variable | B     | SEB  | $\beta$ | $R^2$ | $\Delta R^2$ |
|----------|-------|------|---------|-------|--------------|
| Step 1   |       |      |         | .70   | .70          |
| SN       | .73   | .08  | .84*    |       |              |
| Constant | 6.08  | 1.26 |         |       |              |
| Step 2   |       |      |         | .71   | .01          |
| SN       | .69   | .09  | .79**   |       |              |
| PBC      | .10   | .09  | .12     |       |              |
| A        | -4.99 |      |         |       |              |
| Constant | 5.41  | 1.41 |         |       |              |

\* $p < .05$ ; \*\*  $p < .01$

In conclusion, the study findings indicate that when compared to attitudes and perceived behavioral control, the factor with the strongest association with practice intention was subjective norm (Study 1 and Study 2).

Perceived behavioral control was the second variable with the strongest association on telemetry nurses' intention to educate women about heart disease risk and prevention. In Study 1 no significant relationships were found between professional attributes and practice intention. In Study 2, knowledge of the guidelines was significantly associated with nurses' intentions to educate women patients about heart disease risk.

## Chapter V

### DISCUSSION

This chapter will discuss the major findings in Study 1 and Study 2. Limitations and recommendations will also be presented.

In his meta-analysis of Theory of Planned Behavior (TPB) studies, Manning (2009) indicates that the theory has been used in a wide range of behaviors in social science research to include individual health behavior changes and health professionals practice behaviors. To date Study 1 and Study 2 are the first to examine the association between attitudes, subjective norms and perceived behavioral control and staff nurses' practice intentions to educate women patients about heart disease risk and prevention. Study 1 was conducted primarily as a pilot study to confirm feasibility of the use of the instrument and the proposed study methodology. The findings in Study 1 suggesting the high association of subjective norms on nurses performing the target behavior prompted the implementation of Study 2. The replication aimed to study and describe another RN population within the same institution.

The findings support the Theory of Planned Behavior and its main premise that persons' attitudes (A) towards the target behavior, their perceptions of social norms and expectations (SN), and their perceptions of control (PBC) regarding the target behavior are associated with the target behavior: practice intentions to educate women patients about heart disease

risk and prevention. In Study 2 only two of the three behavioral determinants: nurses' SN and PBC towards performing the target behavior, were significantly associated with their intentions to educate women patients about heart disease risk and prevention.

The primary finding (Study 1 and Study 2) showing the strong association with SN and the target behavior suggests four essential components : 1) select external and social forces (influential others) exist within the study participants' environment, 2) nurses value the opinion of these external and social forces, 3) these external and social forces value or expect performance of the target behavior, and 4) study nurse participants indicated high intentions to do the behavior because of that valued opinion from those influential others who set up standards and norms of practice.

Although the majority of studies (Armitage & Conner, 2001) reveal the primary significant effect of perceived behavioral control (PBC), Study 1 and Study 2 did not support such finding. Instead both showed a strong association between subjective norms and practice intention, a finding observed in a few TBP studies of health care professionals and practice behaviors. Limbert & Lamb's study (2002) indicated subjective norms as the strongest predictor of physician use of asthma treatment guidelines. Similarly, the study of Pessoa –Silva et al. (2005) also shared findings highlighting the importance of the opinions of superiors (subjective norm) among health care workers as well as their strong perception of control to perform the target

behavior: personal hand hygiene. The studies of O'Boyle (1998) on health workers' personal hand hygiene practices and Walsh et al. (2005) on pediatric nurses' use of antipyretics on their pediatric patients also indicated subjective norms as the strongest association with intention for nurses to perform the studies' target behaviors. On closer scrutiny, these studies, along with Study 1 and Study 2, suggest that the effect of subjective norms could be attributed to health care professionals' perceptions of a practice behavior that is linked to a policy, guideline or standard. This connection with a practice expectation could heighten the perception of pressure from "influential or significant others" and hence the need for the study participants to indicate intention to perform the expected behavior.

Among the item questions in the survey instrument (NEWCVD Questionnaire), the following are included as "significant or influential others" in the subjective norms subscale: physicians, cardiologists, nurse managers, nursing administration, co-workers, patients and patients' families and significant others. Two questions also note the American Heart Association and the Joint Commission (TJC). The latter is a hospital accreditation organization with standards on patient education to improve outcomes and the quality of life of patients (TJC, 2008). These various significant or influential others are linked to use of guidelines, standards, protocols, policies of patient care and patient expectations. The strong association with SN could be attributed to the value that nurses place on the standards of patient care or

policies on patient quality care expectations, which are essentially practice behaviors consistent with the target behavior (educating women patients about heart disease risk).

The findings, highlighting influences of nurses' subjective norms on the target behavior in Study 1 and later observed in Study 2, may also be due to particular attribute or attributes of the participating healthcare institution. Nurses' sense of practice expectations (to educate women patients about heart disease risk and prevention) may have been influenced by factors within the organization, shaping their beliefs and motivations (intentions) to educate women about heart disease risk and prevention. One factor could be the institution's history of Magnet status recognition. The participating institution received Magnet recognition in 2003 by the American Nurses Credentialing Center (ANCC). Magnet recognition is the highest and most prestigious distinction that healthcare institutions can receive for nursing excellence and high-quality patient care (Drenkard, 2010). To achieve this recognition, hospitals must demonstrate specific attributes about their professional nursing practice qualities and behaviors (Manojlovich, 2005). The journey to Magnet excellence creates a professional workplace environment that encourages nurses to be more engaged with patients with responsible practice behaviors (Drenkard). The slightly higher percentage of nurses with baccalaureate degrees in nursing (as highest degree obtained) in both groups of participants could also be associated with the maintaining of Magnet status standards.

Another factor similarly related in expectations to Magnet status is the hospital's re-accreditation by The Joint Commission (TJC). It is possible that Magnet status and TJC organizational expectations of compliance for professional nursing practice expectations (in educating women patients about CVD risk and prevention) contributed to the findings: strong association of subjective norms with nurses' practice intentions to educate women patients about CVD risk and prevention.

Moreover, the sense to conform to the pressures or expectations of "influential others" was noted not just in one clinical nursing unit (Telemetry) but in another (Medical-Surgical) unit, suggesting the pervasive effect of organizational culture of the health care institution. The culture may have instilled in its staff nurses certain expectations, beliefs and perceptions regarding the target behavior. Aside from having standards and protocols it is certainly possible that institutional characteristics and mechanisms may have affected nurses' perceptions of the norms (subjective norms) in relation to the target behavior. This institution belongs to one of the biggest health care organizations in New Jersey. According to Curry et al. (2011), top performing hospitals have marked differences in organizational approaches to define organizational values and goals, communication and coordination. These particular processes filter through and affect all staff and employees in various ways of thinking and in practice behaviors. Organizational theory supports the influence of work environment and culture on behaviors of employees (Klinge,

Burgoon, Afifi, & Callister, 1995). Similarly, the social cognitive theory also supports that behavior (by staff nurses) can be explained by the interaction between behavioral, personal and environmental factors (Bandura, 1977).

Regarding the non-significant association of attitude and the intention in Study 1, Ajzen (1991) points out that with respect to the influence of perceived behavioral control on intention: "...the relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention is expected to vary across behaviors and situations" (p.188). Thus, situations where subjective norm influences are powerful (as in Study 1 and Study 2) could minimize the effect of perceived behavioral control to predict intentions (Armitage & Conner, 2001). It is also possible that in Study 2, the combined strong effects of SN (subjective norms) and PBC (perceived behavioral control) may have "muted or dampened" the effect of A (attitudes) on the target behavior.

The results (Study 1) on nurses' professional attributes and their association with practice intention to perform the target behavior showed a lack of significant association. However, in Study 2, a significant association between nurses' knowledge of guidelines and practice intention was observed. It is possible that Study 2 (medical-surgical) nurses are more attuned to the guidelines since more patients are discharged to home from this clinical nursing unit than from the telemetry unit.



The descriptive summary results on the attributes have implications for the participating healthcare institution. It appears that a large proportion of nurses are not aware of the guidelines on CVD prevention in women. Opportunities for workshops and staff development initiatives can groom nurses to be champions of the AHA guidelines and on heart disease education. These can also add to staff nurses' knowledge of women's lifetime risk for heart disease. Workshops for staff nurses on motivational interviewing can enhance positive perceptions for the target behavior. Aside from the perceived effects of "influential others" or subjective norms, these workshops could also result in positive attitudes and positive sense of perceived control to perform the target behavior.

The majority of nurses in Study 1 and Study 2 do not belong to professional organizations. The institution could encourage nurses to belong to professional organizations by reimbursing or subsidizing costly membership fees or underwriting attendance at professional conferences. Institutions, through creative programming could offer staff nurses the opportunity to see what these organizations have to offer by simply having technology sessions navigating the websites of widely recognized organizations such as the AHA. The AHA website has educational resources available to their membership to download. Similar types of resources are also available for patients and the community. Webinars and online completion of continuing education units are also available for nurses' own professional development. These resources add

to staff nurses' knowledge and understanding about heart disease in women resulting in better attitudes and perceptions of empowerment among staff nurses to actively find teachable moments for heart disease risk education.

To summarize, the study results provide support of the association between behavioral determinants and a person's intention to perform the behavior, as described by the Theory of Planned Behavior (Ajzen, 2006). The overriding effect of subjective norms as the factor with the strongest association with practice intention suggests that the telemetry and medical-surgical nurses in this institution are conscious of significant others in their work environment to motivate them and influence them to be compliant with expectations and standards of care related to heart disease risk and prevention education of women patients.

This study has implications for nursing. Understanding nurses' attitudes, beliefs, and perceptions is helpful when planning non-traditional strategies to integrate nurse practice expectations related to heart disease risk and prevention education among women patients. Clinical applications could include adding risk factor assessments and targeted discussions on women's risk conducted as part of vital signs taking. An algorithm of care (targeting women's risk) can be instituted as a policy and a nurse champion of such algorithm could appeal to nurses especially most influenced by subjective norms. The targeted care algorithm may give nurses added impetus to be

involved in practice behaviors geared to heart health promotion and prevention (primary and secondary) of heart disease among women.

Knowledge of factors associated with practice intentions of nurses to educate can guide hospital administrators in the development of strategies to actively and consistently involve nurses in educating women patients about heart disease risk and prevention during any kind of interaction (teachable moments), whether it be giving medications or being at the bedside to point out healthy choices from a hospital diet. Routine nursing responsibilities should be keyed within an organizational policy as a teaching opportunity or as a jump-off point to discuss lifestyle measures linked to heart health (such as discussing lab work in terms of diet and activity). Certainly nurses can also take the lead in engaging other health care professionals in a multidisciplinary approach for heart disease risk education among women patients.

Lastly, the results of the study and the survey instrument contribute to the growing body of literature that continues to explore the feasibility of the Theory of Planned Behavior in explaining practice (behavioral) intentions among nurses.

Limitations of the study need to be acknowledged. Although the majority of the study participants reflected major characteristics from the 2008 national survey (NSSRN), both Study 1 and Study 2 had small samples that were limited to one type of hospital setting, limiting generalizability. To ensure generalizability, this study should be repeated in other types of clinical

settings, possibly comparing nurses in hospitals with magnet status with those nurses in settings that have not yet achieved this distinct recognition.

Measurement error associated with response set bias is another limitation. Given the result indicating subjective norms to have the strongest association, nurses who chose to participate may already have stronger motivations to complete the questionnaire, being responsive to the effect of "influential others" in the hospital environment compared to the non-responders. Similarly, self-report responses may be biased based on what the study participant thinks should be the desirable or expected response. The NEWCVD survey questionnaire is another limitation. This instrument was developed by the principal investigator with content validity by seven experts. Additional tests of validity and reliability are warranted to further the instrument's applicability to other nurse populations.

Low response rates from Study 2 could be related to questionnaire fatigue. Redeveloping the instrument to be shorter and incorporating case scenarios or clinical vignettes may be considered in future studies. Comparing studies of intention with actual observation or documentation of the performance of the target behavior may add another perspective to the validity and reliability of the instrument.

## Chapter VI

### SUMMARY AND CONCLUSIONS

Research literature is replete with data on heart disease as the leading cause of death in women. The effects of prevention (whether primary or secondary) and following recommended lifestyle changes on heart disease incidence are also well known. However, knowledge of heart disease risk and prevention is still lacking among women. Health care professionals must all take conscious and conscientious efforts to educate women in their care about heart disease risk and prevention measures. Nurses, particularly those in the clinical setting, play a pivotal role in heart disease risk prevention education. A first and important step in redefining staff nurses' role in heart disease risk and prevention (primary and secondary) education for women is to understand factors that may be associated with their intentions to engage or practice this target behavior.

The study findings indicate that factors such as attitudes, beliefs and perceptions are associated with nurses' practice intentions to educate women patients about heart disease risk and prevention. Nurses' subjective norms or their perceptions of significant others' expectations regarding a target behavior appear to have the most influence on telemetry and medical-surgical nurses intentions to educate women patients about heart disease risk and prevention.

Perceived behavioral control was the second variable with the strongest association with telemetry and medical surgical nurses' intention to educate women about heart disease risk and prevention. No significant relationships were found between professional attributes and practice intention in Study 1; however, in Study 2, knowledge of guidelines was significantly associated with intention.

If this health care institution intends to collaborate in the campaign to educate women about heart disease, administrative-led initiatives should take into account the effect of "influential others" on nurses' intentions to educate women patients about heart disease risk and prevention. These strategies, however, must not lose sight of promoting nurses' attitudes and perceived control towards the target behavior. Working on nurses' attitudes and their perceptions of control over the target behavior may enhance some sense of satisfaction among staff nurses. Working on the effect of attitudes may also add to a "buy-in" among staff because of the value they attach to the behavior and not because influential others expect them to perform the behavior.

Healthcare organizations must also continue to involve nurses in creative strategies that promote a culture of conscientious care for heart health education among women. Workshops on the evidence-based guidelines on the care for CVD prevention in women should be available to staff nurses on a regular basis within the work setting. These sessions can serve as a constant

reminder of the heightened need to apply evidence-based knowledge in the practice environment.

Participating in the Get with the Guidelines initiative available through the AHA is another way a health care organization can influence staff nurses' motivations to be mindful of teachable moments to reinforce lifestyle changes associated with prevention of an initial cardiac event or delay a of secondary occurrence. Adding physician and nurse champions for this initiative will be an additional influencing factor.

Availability of resources and tools for teaching about heart disease risk factors should also be considered. This can influence nurses' perceptions of control over the target behavior. A CVD risk score algorithm for risk calculation can be readily available to nurses for use when discussing traditional modifiable factors. Adapting the use of the Reynold's risk score or the Framingham risk score to stratify women's CVD risk, within the staff nurses' daily patient care responsibilities may be worthy of consideration. Many resources exist in professional organization websites that can add to nurses' perception that educating women patients is an easier task to incorporate in the day-to-day encounters with women patients. The PCNA recently posted in their July/August issue of their official journal publication, the availability of a tear off sheet called "Living Guidelines for Women: What You Need to Know." Developed by Dr. Lori Mosca through the AHA, this resource is based on the Effectiveness- Based Guidelines for the Prevention of Cardiovascular Disease

in Women- 2011 Update. Nurses can have staff development sessions on how to use this tool along with many others that are readily available to health care professionals. Integrating a variety of teaching tools and resources as part of a daily patient assessment sheet for staff nurses should be considered. These initiatives may require policy changes at the administrative level. These should delineate between the current traditional staff nurse roles in “discharge teaching”, to a more defined conscientious teaching role targeting heart disease risk factors modification among women.

Aside from the study’s implications in a healthcare setting, understanding staff nurses attitudes, perceptions and intentions to educate women patients about heart disease risk and prevention, can also impact nursing education. Curricular threads for entry-level nursing practice must include developing leadership roles in disease management models of care led by nurses. Including these in the practicum experiences of students may be beneficial. Moreover, encouraging practicum leadership roles with other health disciplines should be emphasized. With the current and growing emphasis on CVD risk preventive health care, it is likely that more health care professionals, no matter the specialty, will share in the responsibility in primary prevention or delaying or modifying a cardiac event or outcome” (Merz, 2009). Nursing curriculums must then integrate collaborative experiences with different health care professionals.



Clearly, as the largest group of healthcare professionals in the health care setting, staff nurses can play a pivotal role in educating women about heart disease risk and prevention. By targeting women patients in the hospital setting another incremental rise in awareness of heart disease risk is possible. The challenge is to re-define staff nurses' roles and creatively use their skills and ubiquitous presence in the clinical care setting to educate women patients. A better understanding of factors associated with their practice intentions to educate women about heart disease risk and prevention is an essential step towards this challenge.

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## Appendix A

## Study Approval: Institutional Review Board- Seton Hall University



May 27, 2009

Felella K. Millman  
824 Highland Avenue  
Westfield, NJ 07090

Dear Ms. Millman,

The Seton Hall University Institutional Review Board has reviewed and approved as submitted under expedited review your research proposal entitled "Factors Associated with Nurses' Practice Intentions to Provide Heart Disease Risk and Prevention Education to Women Patients". The IRB reserves the right to recall the proposal at any time for full review.

Enclosed for your records are the signed Request for Approval form and the stamped original Letter of Solicitation. Make copies only of this stamped Letter of Solicitation.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol must be reviewed and approved by the IRB prior to their implementation.

According to federal regulations, continuing review of already approved research is mandated to take place at least 12 months after this initial approval. You will receive communication from the IRB Office for this several months before the anniversary date of your initial approval.

Thank you for your cooperation.

*In harmony with federal regulations, none of the investigators or research staff involved in the study took part in the final decision.*

Sincerely,

Mary F. Ruzicka, Ph.D.  
Professor  
Director, Institutional Review Board

cc: Dr. Phyllis Hansell, Dean  
Dr. Genevieve Pinto Zipp

Presidents Hall • 400 South Orange Avenue • South Orange, New Jersey 07079-2641 • Tel: 973.313.6314 • Fax: 973.275.2361

A HOME FOR THE MIND, THE HEART AND THE SPIRIT

Appendix B  
Institutional Review Board Approval: Community Medical Center



RONALD J. DEL MAURO  
President and Chief Executive Officer  
Saint Barnabas Health Care System

MARK D. PILLA  
Executive Vice President  
Saint Barnabas Health Care System  
and  
Executive Director  
Community Medical Center

February 3, 2009

Felella K. Millman, MSN, RN  
824 Highland Avenue  
Westfield, New Jersey 07090

**RE: IRB #: 09-002**  
**Factors Associated with Nurses' Practice Intentions to Educate Women Patients about Heart Disease Risk and Prevention**

Dear Ms. Millman:

The above referenced protocol was submitted to the Institutional Review Board of Community Medical Center for Initial Review and met the requirements of Expedited Review Category 7. This protocol was reviewed on January 31, 2009 and approved on its scientific, safety, ethical and socio-economical merits in accordance with Institutional and Federal regulations of the Institutional Review Board.

This approved initial review will be subject to review within twelve (12) months of the above approval date by the Community Medical Center Institutional Review Board. Please note that this approval will expire on **January 30, 2010**.

The full Institutional Review Board of Community Medical Center will be notified of this approval at their next convened meeting and will be reflected in the minutes.

Sincerely,

Paul Simon, DO  
Chairman  
Institutional Review Board

PS\tmn



## Appendix C

## Request for Research Participation Letter (Study 1)

**Research Participants Needed:  
Please Read**

Dear Staff Nurse,

My name is Felella K. Millman, RN, and I am a doctoral candidate in the Graduate Programs in Health Sciences at Seton Hall University. As partial fulfillment of the requirements for my dissertation, I am conducting a research project entitled *"Factors Associated with Nurses' Practice Intentions to Provide Heart Disease Risk and Prevention Education to Women Patients."*

The purpose of my research study is to describe how staff nurses' attitudes (behavioral beliefs), subjective norms (normative beliefs), perceived behavioral control (control beliefs) and professional attributes are associated with their practice intentions to educate women patients about the risk of heart disease and the recommended strategies for prevention. Many factors can affect nurses' practice intentions to integrate cardiovascular risk and prevention education while caring for women patients. The Theory of Planned Behavior by Icek Ajzen (1991) provides the theoretical framework of the research study.

You are invited to participate in this research study because you are a staff nurse at CMC of the SBHCS, providing direct care to women patients in a telemetry unit.

Your participation in the study will include the completion of the **Nurses Educating Women Patients about Cardiovascular Disease (NEWCVD)** survey questionnaire found in this packet. Survey completion will take you approximately 30 minutes in total to complete. I request that you complete this questionnaire in a quiet room before the start of your shift or in the quiet of your home.

The survey questionnaire consists of questions pertaining to nurses':

1. Attitudes towards educating women patients in your care about heart disease risk and prevention including your beliefs in the outcomes of this behavior
2. Beliefs and perceptions of persons, significant others or groups who may influence (subjective norms) your intentions to educate your women patients in about heart disease risk and prevention
3. Beliefs and perceptions of the ease or difficulty in educating your women patients about heart disease risk and prevention (perceived behavioral control), which included your personal abilities and resources that you think will help or impede you from educating your women patients about heart disease risk and prevention
4. Practice intentions to educate women about heart disease risk and prevention
5. Demographics and professional attributes



Please begin by answering the following questions: Put a check (✓) mark on your answer.

1. Have you worked as a staff nurse in the telemetry unit for more than 6 months?  
Yes \_\_\_ No \_\_\_
2. Are you between the ages 24 and 60 years old?  
Yes \_\_\_ No \_\_\_
3. Have you been involved in any research study involving women patients?  
Yes \_\_\_ No \_\_\_
4. During the last 5 years have you held a unit director, head nurse or nurse manager position?  
Yes \_\_\_ No \_\_\_
5. Have you been diagnosed by your health care provider as having coronary artery disease?  
Yes \_\_\_ No \_\_\_

If you answered **YES** to questions 1 and 2 and **NO** to questions 3, 4 and 5 you **ARE ELIGIBLE** to participate in this study. Please open the research packet and read the letter of solicitation attached to the survey questionnaire. If you agree, please complete the survey questionnaire. Place the completed survey questionnaire in the return envelope (marked survey), seal the envelope and replace in the research packet. Return the research packet in the drop box in your unit within two weeks. **Please keep the enclosed letter of solicitation and my token of thanks, the Go Red for Women heart pin. Your consent to participate in this research is indicated by your return of the completed survey questionnaire.**

If you are **NOT ELIGIBLE** to participate, I thank you for your time and please return the research packet to the drop box on your unit. You do have the option to open the packet and keep the Go Red for Women heart pin.

Your participation in the research study is entirely voluntary. You may decide not to participate at any time. If you decide not to participate, you will not be penalized or lose any benefits to which you are otherwise entitled. Regardless of your eligibility or choice to participate, please accept the Go Red for Women heart pin found inside this packet.

To maintain anonymity, you will not be identified by name nor will you be described in any reports or publications about this study.

All information in this study will be kept strictly confidential. To maintain confidentiality, all data will be stored on a password protected USB memory key and kept in a locked secure physical site determined by the primary investigator.

Appendix D  
Solicitation Letter



Seton Hall University  
Institutional Review Board

MAY 27 2009

Dear Staff Nurse,

**Affiliation**

Approval Date

My name is Felella K. Millman, RN, and I am a doctoral candidate in the Graduate Programs in Health Sciences at Seton Hall University. As partial fulfillment of the requirements for my dissertation, I am conducting a research project entitled *"Factors Associated with Nurses' Practice Intentions to Provide Heart Disease Risk and Prevention Education to Women Patients."*

**Purpose**

You are invited to participate in this research study because you are a registered staff nurse (staff RN) providing direct care to patients in a telemetry unit. The purpose of this study is to describe how nurses' attitudes (behavioral beliefs), subjective norms (normative beliefs), perceived behavioral control (control beliefs) and professional attributes are associated with their practice intentions to educate women patients about the risk of heart disease and the recommended strategies for prevention.

**Procedure**

You will be asked to complete a survey questionnaire found inside this packet. The **Nurses Educating Women on Cardiovascular Disease (NEWCVD) Questionnaire** was created for this study. Content validation of this tool was done by seven nurse experts. The questionnaire items address nurses' attitudes, beliefs and perceptions regarding heart disease risk and prevention education and women patients. Most of the questions are in the form of a rating scale. The questionnaire also collects demographic information and professional attributes including age, gender, ethnicity, years of nursing experience, number of years of employment, heart disease risk knowledge, professional membership, and educational background.

It is very important that you complete the questionnaire before the start of your shift in a quiet room such as a "break room" or an empty patient room, with the door closed and free from distraction. You also have the option to complete the questionnaire in the quiet of your own home. The time required to complete the questionnaire should be no longer than 30 minutes. Upon completion, you will place the completed questionnaire in the return envelope (marked "Survey").

School of Health and Medical Sciences  
Department of Graduate Programs in Health Sciences  
Tel: 973.273.2076 • Fax: 973.275.2171  
400 South Orange Avenue • South Orange, New Jersey 07079 • [shms.shu.edu](http://shms.shu.edu)

Expiration Date  
JAN 30 2010

seal the envelope, and replace in the original research packet with the stapled solicitation letter. Please return the research packet in the drop box located in your nurse's station. Please return within 2 weeks of receipt. You may keep the informed consent form and my token of thanks for your participation, the Go Red for Women heart pin.

#### ***Voluntary Participation***

Your participation in the research study is entirely voluntary. You may decide not to participate at any time. If you decide not to participate, you will not be penalized or lose any benefits to which you are otherwise entitled. Consent to participate in this study is indicated by returning the enclosed questionnaires to the primary investigator via the drop box.

#### ***Anonymity***

You will not be identified by name nor will you be described in any reports or publications about this study. A coding system, through the use of numbers and letter found in the top right hand corner of each questionnaire will be used to maintain complete anonymity at all times.

#### ***Confidentiality***

All information in this study will be kept strictly confidential. Data will be entered into the SPSS statistical package and maintained on a USB flash drive. All research data will be stored in a locked cabinet in the primary investigator's office at Seton Hall University. The primary investigator, Felella Millman, and her dissertation committee (3) are the only individuals who will have access to all of the research data for a period of three years. Thereafter, all research data including the survey questionnaires will be destroyed.

#### ***Risks***

There is no foreseeable risk or discomfort while participating in this research project.

#### ***Benefits of Participation***

There are no proposed direct benefits of the study for you. However, the results of this study will provide hospital administrators, nurse educators, nurses and other health care professionals with information about the factors associated with nurses' practice intentions to integrate heart disease risk and prevention education while caring for their women patients. Knowledge of such factors can influence unit and organizational strategies to recognize and enhance nurses' role in educating women on heart disease, the number one threat to women's health. An executive summary of the findings will be available to the institution.

Expiration Date  
JAN 30 2010

Seton Hall University  
Institutional Review Board

MAY 27 2009

Approval Date

**Compensation**

There will be no monetary remuneration or any kind of compensation for participation in this study. However, a token of appreciation in the form of the Go Red for Women heart pin, is included in the packet. You may keep it whether you choose to participate in the study or not.

**Alternate Procedures**

There are no alternative ways to participate in this study.

**Contact Information**

You have the right to ask questions concerning this study at any time. If you have any questions concerning this study or your rights as a study participant, please contact the primary investigator, Felella Millman, through the office of Dr. Genevieve Pinto-Zipp, Dissertation Advisor and Chair of Graduate Programs in Health Sciences at Seton Hall University School of Graduate Medical Education at 973-276-2076.

This project has been approved by the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research and the SBHCS. The IRB believes that the study procedures adequately safeguard the study participant's privacy, welfare, civil liberties, and rights. The office of the IRB at Seton Hall University (Dr. Mary Ruzicka -- Director) may be reached at (973) 313 - 6314.

I hope you fully understand the purposes of this study and the lack of potential benefits of your participation. Your consent to participate in this study is indicated by returning the completed survey questionnaire to the primary investigator. An executive summary of the study findings will be available to you upon request.

Thank you for participating in the study.

Sincerely,



Felella K. Millman

Seton Hall University  
Institutional Review Board

MAY 27 2009

Approval Date

Expiration Date

JAN 30 2010