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Relationships Among Health Promotion Behaviors, Patient Engagement, and the Nurse Practitioner-Patient Partnership

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RELATIONSHIPS AMONG HEALTH PROMOTION BEHAVIORS, PATIENT ENGAGEMENT, AND THE NURSE PRACTITIONER-PATIENT PARTNERSHIP

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ABSTRACT

Individuals adopting health promotion behaviors benefit from improved health and reduced risk of chronic diseases. Trends in health care include promoting patient engagement and the development of a partnership between clinicians and patients to improve health and health outcomes. The purpose of this descriptive, correlational study was to examine the relationships between patient engagement, the nurse practitioner-patient partnership and health promotion behaviors among adults in the primary care setting. Pender's health promotion model and the recently created interactive care model provided the theoretical framework for this study. Convenience sampling was used to recruit 85 participants from a nurse practitioner primary care practice in north New Jersey. Participants were asked to complete questionnaires that measured health promotion behaviors (Health Promoting Lifestyle Profile II), the quality of the nurse practitioner-patient partnership (Patient Reactions Assessment) and a person's capacity to engage in their health care (Person Engagement Index). Results showed moderate correlation between the nurse practitioner-patient partnership and health promotion behaviors (r=.366, p<.001). There was a strong correlation between the nurse practitioner-patient partnership and patient engagement (r=.494, p<.001) and a strong correlation between patient engagement and health promotion behaviors (r=.596, p<.001). In a multiple regression analysis only a person's capacity to engage in health care significantly predicted health promotion behaviors (R^2= .362, p<.001). This model explains 36.2% of the variance in health promotion behaviors. Improving health outcomes is an important goal in today's health care system. Patient engagement is a significant predictor of health promotion behaviors. The Interactive Care Model can serve as a framework for nurse practitioners to build partnerships and support patient engagement.

Keywords: health promotion behaviors, patient engagement, nurse-patient partnership

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To my nursing peers, may this study contribute to advancing the art and science of your nursing practice.

DEDICATION

This dissertation is dedicated to my mother who encouraged me to become a nurse and to my father; his work ethic still inspires me.

This dissertation is especially dedicated to my beautiful family. Ed, you have been my rock. I could not have done this without your loving support. Joe, Philip, and Sarah, thank you for being so helpful and understanding over these past few years. I appreciate everyone's many sacrifices that enabled me to achieve this amazing and most challenging goal.

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Chapter I

Introduction

Health is influenced by one's social, economic, cultural, and environmental factors (Murdaugh et al., 2019). Importantly, the greatest predictors of health involve health behaviors such as healthy diet, exercise, disease prevention, and positive relationships (Department of Health and Human Services [DHHS], 2020). Individuals engage in various behaviors every day that influence their health in either a positive or negative way. Certain risky behaviors such as smoking, alcohol use, overeating and physical inactivity lead to poor health outcomes. One-third of all deaths in the U.S. are due to cardiovascular disease and stroke (Centers for Disease Control and Prevention, 2022). The economic burden of unhealthy behaviors is significant. According to the Centers for Disease Control and Prevention (CDC, 2022), over 16 million Americans have a smoking related health condition costing $240 billion annually. A lack of physical activity can contribute to heart disease, diabetes, cancer and obesity, and costs $117 billion every year (CDC, 2022). Healthy behaviors such as a healthy diet and physical activity can prevent cardiovascular disease, stroke and type 2 diabetes (CDC, 2022).

Health Promotion Behaviors

Staying healthy consists of adopting behaviors that promote, protect, or maintain health such as a healthy diet, physical activity, vaccinations, use of seat belts, avoiding drugs, and limiting alcohol intake (Murdaugh et al., 2019). People who engage in health promoting behaviors improve health, achieve enhanced quality of life (Murdaugh et al, 2019), and prevent the onset of chronic conditions (Khodaveisi et al., 2017). Even a low frequency of participation in health promoting behaviors, such as exercising once a week, has been associated with health benefits (Byrne et al., 2016).

Health promotion is a process of empowering individuals to achieve health goals (Murdaugh et al., 2019). Health promotion behaviors are aimed at achieving enhanced health, greater functional health status and improved quality of life for individuals, families, and communities. Some of the factors that influence health promotion behaviors studied in previous research include health orientation (Arif & Qayyum, 2019), locus of control (Stephenson-Hunter & Dardeck, 2019), self-efficacy, perceived health status (Maglione, 2021; Sohng et al., 2002), compassion fatigue, burnout, compassion satisfaction (Neville & Cole, 2013), health coaching (Maners et al., 2018), social support, self-efficacy and commitment to a plan (Maglione & Hayman, 2009), social resources (Webel et al., 2016), patient and caregiver perceived social support, number of comorbidities, and symptom distress (Ellis et al., 2017), and patient engagement (Sawesi et al., 2016). The concept of patient engagement has been shown to be a positive influence on health promotion behaviors such as exercise, overall safety, stress (Harvey et al., 2012), cancer prevention screenings, avoiding unhealthy behaviors, maintaining proper weight (Greene & Hibbard, 2011), and eating healthy (Roberts et al., 2016).

Patient Engagement

The concept of patient engagement first appeared in the literature during the 1990s (Higgins et al., 2017). Patient engagement is based on the principles of respect for autonomy and the patient's right to self-determination, thus giving patients power to express their needs and preferences regarding health care decisions (Graffigna, 2017; Krist et al., 2017). Historically, patients were viewed as passive participants in health care with little decision-making power (Will, 2011). The advent of the concept of patient engagement signaled the end of the paternalistic model of care where authoritarian providers tell patients what to do (Coulter, 2011; Krist et al., 2017). Today, patients are viewed as experts of their medical history and use their

personal health experiences to participate in the decision-making process (Krist et al., 2017).

Current recommendations from various health care agencies encourage patient participation and engagement in their health care (Courtemanche et al., 2018; Sofaer & Schumann, 2013). According to Graffigna and Barello (2018), patient engagement is a promising strategy that promotes the patient's active role in the management of their health care. There is no single agreed upon definition for the concept of patient engagement in the literature. Gruman et al. (2010) defines patient engagement as "actions individuals must take to obtain the greatest benefit from the health care services available to them" (p. 351). Patient engagement can be further described as consisting of two aims: *managing health care* and *managing one's health*. Behaviors related to *managing health care* include the patient's role during the medical visit and as a consumer of health care services. While these roles are different, engaged patients have the ability to seek health care and make health-related decisions throughout their health care journey. Behaviors related to *managing one's health* involves a patient's ability to self-manage chronic conditions, prevent disease, and adopt healthy behaviors (Gruman et al., 2010). Achieving these individual aims are vital to receiving the maximum benefit from available health care services.

The primary realms of patient engagement include a patient's involvement in decision-making, self-management of care (Krist et al., 2017), and setting goals for healthy behaviors (Esposito et al., 2016). Patients actively engaged in their health care achieve better outcomes (Longtin et al., 2010), patient safety, quality of care (Weingart et al., 2011), satisfaction with their care (Ghane et al., 2014), greater participation in shared decision making and self-management of their health (Higgins et al., 2017), and report increased frequency of health promotion behaviors (Greene & Hibbard, 2011; Roberts et al., 2016). Importantly, the degree of an individual's level of engagement influences how likely, or less likely someone is to engage in

certain behaviors. For example, higher levels of patient engagement are associated with greater likelihood of receiving preventive care, lower likelihood of using tobacco and utilizing the emergency department (Greene & Hibbard, 2011).

Nurse Practitioner-Patient Partnership

An important trend in health care is for patients to partner with their provider and function as an equal member of the health care team (Pomey et al., 2015). However, patients need the skills and confidence necessary to manage their care in partnership with their health care provider (Grady & Gough, 2014). It is through this unique provider-patient partnership that effective communication, education, and shared decision-making empowers patients to participate in self-care, health promotion behaviors, and accept responsibility for choices made (Carollo, 2015; Murdaugh, et al., 2019). The health care provider's role is to facilitate this process through sharing knowledge, values, and power with their patient (Murdaugh et al, 2019). A respectful provider-patient partnership, based on trust, facilitates patients to discuss their concerns, problems, and needs (Carollo, 2015).

Studies have shown that a quality, trusting relationship between patient and health care provider fosters patient engagement (Carollo, 2015; Graffigna et al., 2017; Komaromy et al., 2018; Wood et al., 2018). Research by Sloan and Knowles (2017) demonstrates that patients desire a partnership with their provider that includes empathy, listening and respect. Establishing a psychological, emotional, and spiritual bond between patient and provider fosters behavioral change (Drenkard et al., 2015). Providers who offer emotional support to their patients promote a partnership based on trust (Sloan & Knowles, 2017). Wood and colleagues (2018) reported that the patient experience of having a provider display genuine care and concern for them was necessary in keeping them engaged in their care. Patients report increased patient engagement

and desire to improve health and health behaviors due to a strong relationship with their primary care provider (Komaromy et al., 2018).

Conversely, Pomey et al. (2015) found that patients experience frustration and anger when health care providers fail to listen to them and lack empathy. Wood and colleagues (2018) observed that providers who failed to partner and collaborate with patients were found to be incompatible, thus leading to a poor patient-provider relationship. Hurley and colleagues (2018) found that providers who failed to establish a good rapport with their patients resulted in patients feeling detached from them. In addition, patients reported difficulty openly discussing their concerns with providers who appeared arrogant or rushed.

The importance of a strong provider-patient partnership and its influence on patient engagement is not always supported in the literature. A qualitative study by Pomey and colleagues (2015) involved semi-structured interviews with patients living with at least one chronic condition and were familiar with the concept of *patients as partners*. Some patients reported that their health care providers did not seek a strong partnership with them. Health care providers failed to listen and collaborate with them as equal partners. Consequently, these patients experienced dissatisfaction with their health care situation. Despite this, actively engaged patients reported that they were able to adapt and sought other health care providers that were able to collaborate with them, meet their needs, and achieve their goals of care. Some patients were more confrontational and reported feeling comfortable enough to tell their provider to stop and listen to their needs and concerns. These patients felt that it was important to have an honest relationship with their provider and to be able to tell them when the relationship was not meeting their health care needs. The study found that most patients wanted to be treated as a partner and participate in their plan of care. Overall, their results showed that some patients are

so actively committed to their health care that even if their health care provider fails to actively support the partnership, some patients were able to directly ask for what they needed from the provider to improve the partnership, or to take the initiative to seek a different provider.

This study will focus on the relationships among the variables of health promotion behaviors, patient engagement, and the quality of the health care provider-patient partnership. The scope of health care provider will be narrowed down to study nurse practitioners (NPs) in particular.

Nurse Practitioners and Health Promotion Behaviors

Several studies identified in the literature involving nurse practitioner-led programs, interventions, and strategies to increase health promotion behaviors in adults (Cera et al., 2019; Ritten et al., 2016). Few studies pertain to NPs practicing in primary care and their influence on health promotion behaviors. Heale and Fournier (2017) examined the patient experience of primary care in nurse practitioner-led clinics and the use of advanced access scheduling. Patients reporting higher levels of satisfaction with clinic services were significantly associated with healthier lifestyle changes and better control over medical conditions. Rickard and Hamilton (2020) examined NP practice patterns and the patient experience of nurse practitioner-led primary health care. Findings demonstrated that patients reported a high satisfaction rate with NPs due to their ability to listen and provide emotional support, involve patients in decision making and setting goals, treat patients with respect and dignity, and provide health promotion strategies.

This study will focus on the relationships among the variables of health promotion behaviors, patient engagement, and the nurse practitioner-patient partnership. Most of the literature to date focuses on various forms of patient engagement strategies and their influence on

health promotion behaviors. Little research has been found relating to the level of a patient's engagement in their health care and its influence on health promotion behaviors. The desire and capacity to engage in health care is unique and will vary among individuals (Higgins et al., 2017). It is unclear how different levels of engagement relate to the quality of the nurse practitioner-patient partnership and on health promotion behaviors. It is also unclear how the quality of the nurse practitioner-patient partnership is related to health promotion behaviors in patients. No studies have been found that examine the quality of the relationship between the nurse practitioner-patient partnership and a person's level of health care engagement on their health promotion behaviors.

Purpose

The purpose of this study is to examine the relationships between patient engagement, the quality of the nurse practitioner-patient partnership, and their impact on health promotion behaviors among adults in the primary care setting.

Problem Statement

Important goals of health promotion include reducing health risk, promoting healthy lifestyles, and promoting a healthy environment (World Health Organization [WHO], 2020). A better understanding of how to promote patients' adoption and participation of health promotion behaviors is necessary to improve the overall health of the country. The concept of patient engagement in which patients actively participate and are partners in their health care is associated with increased frequency of health promotion behaviors (Greene & Hibbard, 2011; Roberts et al., 2016). A caring partnership between provider and patient has been shown to keep patients engaged in their health and influences patients to improve health and health behaviors (Komaromy et al., 2018; Wood et al., 2018). There is limited research regarding the relationships

between patient engagement, the quality of the provider-patient partnership, and health promotion behaviors. Specifically, there is no known study that has examined these variables within the context of the nurse practitioner-patient partnership in the primary care setting. There is a need to better understand the relationship between patient engagement and the nurse practitioner-patient partnership and their influence on health promotion behaviors.

Research Questions

The overarching research question of this study is:

1. What are the relationships between and among the patients' perceived quality of the nurse practitioner-patient partnership, patient's capacity to engage in their health care, and health promotion behaviors among adults receiving primary care from nurse practitioners?

Research sub-questions of this study are:

1. What is the relationship between the patients' perceived quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care among adults receiving primary care from nurse practitioners?
2. What is the relationship between the patients' perceived quality of the nurse practitioner-patient partnership and health promotion behaviors among adults receiving primary care from nurse practitioners?
3. What is the relationship between a patient's capacity to engage in their health care and health promotion behaviors among adults receiving primary care from nurse practitioners?

Hypotheses

H1: There is a positive relationship between the patient's perceived quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care among adults receiving primary care from nurse practitioners.

H2: There is a positive relationship between a patient's perceived quality of the nurse practitioner-patient partnership and a patient's health promotion behaviors among adults receiving primary care from nurse practitioners.

H3: There is a positive relationship between a patient's capacity to engage in their health care and a patient's health promotion behaviors among adults receiving primary care from nurse practitioners.

H4: There is a positive relationship among a patients' perceived quality of the nurse practitioner-patient partnership, a patient's capacity to engage in their health care and health promotion behaviors among adults receiving primary care from nurse practitioners.

Definitions of Variables

Nurse practitioner-patient partnership is defined as a unique relationship which allows nurse practitioners to engage patients as active partners in their health journey towards a common, shared health goal. Peplau (1991) views the nurse practitioner-patient relationship on a continuum. At one end of the continuum there is no relationship and at the other end are two individuals working collaboratively together towards a shared health goal or solve a health problem. The nurse practitioner-patient partnership is operationally measured using the Patient Reactions Assessment (PRA) which examines the patient's view of the quality of the patient-provider relationship (Galassi et al., 1992).

Patient engagement is defined as "actions individuals must take to obtain the greatest

benefit from the health care services available to them" (Gruman et al., 2010, p. 351). A patient's capacity to engage in their health care will be measured using the Person Engagement Index (PEI) (Swartwout et al., 2018).

Health promotion behaviors is defined as "the positive action outcome in the health promotion model (Murdaugh et al., 2019, p. 44). The action of participating in the targeted health promotion behavior leads to improved health, function, and quality of life. Health promotion behaviors are classified into six domains: nutrition, physical activity, stress management, health responsibility, interpersonal relations, and spiritual growth (Walker et al., 1995). Health promotion behaviors is operationalized and will be measured using the adult version of the Health Promoting Lifestyle Profile [HPLP II] (Walker et al., 1995).

Inclusion and Exclusion Criteria

This study will be limited to patients seen in a nurse practitioner led primary care practice in New Jersey. Patients must be 18 years or older that are known to and receive their primary care at the nurse practitioner practice. Participants must have had a previous medical visit with the nurse practitioner at the time of data collection. Participants must be able to read and speak English well enough to complete the questionnaires and provide consent for study.

Exclusion criteria consists of adult patients that are unable to read and speak English well enough to complete questionnaires.

Conceptual Frameworks

Pender's (2011) health promotion model and the interactive care model (ICM) (Drenkard et al., 2015) will provide a theoretical basis for this study. Pender's model provides a theoretical understanding of the multifactorial components that influence health promotion behaviors. The ICM provides an understanding of the relationship between the nurse practitioner-patient

partnership and patient engagement.

***Health Promotion Model*.**

The purpose of health promotion behaviors is to improve one's health, function, and quality of life. Nola Pender's (2011) health promotion model (HPM) describes the factors that impact health behaviors from a holistic nursing viewpoint. The model first appeared in the nursing literature in 1982 and is based on social cognitive theory and expectancy-value theory. The HPM explains the multidimensional nature of individuals as they interact with their social and physical environment (Murdaugh et al., 2019). Central to the model are three domains of individual characteristics and experiences, behavior-specific cognitions, and behavioral outcomes (Pender, 2011). Individual characteristics and experiences include a person's prior behavior, which is often considered to be the best predictor of an individual's future behaviors (Murdaugh et al., 2019). Personal factors include biological, psychological, and sociocultural influences, but generally are limited to those that are most applicable to the target behavior. Individual characteristics and experiences, and behavior-specific cognitions, in conjunction with a commitment to a plan of action, result in health promotion behaviors. However, immediate competing demands or competing preferences may interfere and offset the plan of performing a health-promotion behavior. The behavioral outcome of this model is the positive action of performing the targeted health promotion behavior.

The concept of patient engagement and the nurse practitioner-patient partnership are indirectly discussed within the domain of behavior-specific cognitions and affect. Self-efficacy is a person's belief in their ability to perform a particular behavior (Murdaugh et al., 2019). An individual's perceived self-efficacy or competence is their belief in their skills and ability to engage in certain health behaviors. The greater self-efficacy in performing a health promoting

behavior, the more likely an individual will commit to a plan of action and perform that behavior (Pender, 2011). The concept of patient engagement is also rooted within the core principles of health promotion. The principles of health promotion include participation of stakeholders, and empowerment of individuals and communities to have greater control over personal, socioeconomic, and environmental factors that influence their health (Murdaugh et al., 2019).

Interpersonal influences relate to the behaviors, beliefs, or attitudes from family, peers, and health care providers (Murdaugh et al., 2019). Interpersonal influences consist of social norms, social support, and modeling (learning through observation of others). These interpersonal influences determine a person's tendency to participate in health promotion behaviors. Health care providers are an important influence on whether someone engages in health promotion behaviors (Pender, 2011). While the HPM recognizes the influences of patient engagement on health promotion behaviors, the model does not emphasize or explicate the importance of the patient provider partnership and its influence on increasing a patient's engagement in their health care. The connection between the concepts of the provider-patient partnership and patient engagement are central to the ICM, which provides additional theoretical guidance for examining the relationships between these variables. It is this partnership between patient and provider that is essential to achieving positive health care outcomes such as health promotion behaviors (Drenkard et al., 2015).

Interactive Care Model.

The interactive care model (ICM) is a recently developed care delivery process model to support health care providers and organizations in engaging patients in their health care to achieve improved outcomes (Drenkard et al., 2015). The model consists of five phases that are similar to the nursing process: assessing the person's capacity for engagement, exchanging

information and communicating choices, planning between the person and clinician, deciding interventions, and evaluating clinical outcomes and capacity for engagement.

The central feature of this model is the partnership between the provider and patient, and the partnership roles used to develop strategies to engage patients. Unique to this relationship are the seven provider-patient/family partnership roles (coaching, collaborating, navigating, whole presence, caring and trusting relationship, knowledge exchange and intentional presence) that heighten a person's engagement while building a true partnership between the provider and patient (Drenkard et al., 2015; Swartwout et al., 2018). Throughout this process model providers and patients may utilize their roles in various ways to build and strengthen the partnership and improve patient engagement (Swartwout et al., 2018). The model is based on open systems theory and encourages people to participate in their care and create strong clinician-patient-partnerships leading to improvements in quality of care, safety, and outcomes (Drenkard et al., 2015).

This study will focus on the first phase of the ICM where individuals are assessed for their capacity to be engaged in their health care. The knowledge gained from this important appraisal is used throughout the following phases to discuss choices, plan care, and adapt interventions specific to that patient (Drenkard et al., 2015). The Person Engagement Index will be used to measure a person's capacity to engage in their health care and was developed based on the ICM (Swartwout et al., 2018). The ICM will be used to explain the variables of the nurse practitioner-patient partnership and patient engagement in health care.

Significance of Study

Participating in health promotion behaviors is an important way to maintain and improve health. In a review by Hibbard and Greene (2013) individuals that are more engaged in their

health care are more likely to adopt health promotion behaviors such as a healthy diet and regular exercise, and are more likely to avoid risky behaviors such as smoking and drug use. A study involving a sample of over 33,000 primary care patients from a large health care system in the U.S. showed that health care costs were 21 percent higher among patients that had a low level of engagement in their health care compared to patients that had a high level of engagement in their health care (Hibbard et al., 2013). This study seeks to understand the important variables of patient engagement and nurse practitioner-patient partnership that may influence the adoption of health promotion behaviors.

Health care policy and rising costs have led to a paradigm shift where patients are viewed as active partners in their own health care (Barello et al., 2014; Drenkard et al., 2015). Patient satisfaction regarding the nurse practitioner in primary care is noted in the literature; however, there are no known studies regarding the quality of the nurse practitioner-patient partnership on outcomes. This study hopes to make an important contribution to nursing by testing key components of the ICM. The ICM proposes that a strong partnership between the NP and patient will improve patient engagement in their health care and thus lead to improved health outcomes (Drenkard et al., 2015). Results of this study should provide nurse practitioners with a greater understanding of their role in facilitating a strong partnership with patients to support patient engagement in their health care. This study should also clarify the degree to which the nurse practitioner-patient partnership is associated with health promotion behaviors and the degree to which patient engagement is associated with health promotion behaviors.

Chapter II

Review of the Literature

This chapter offers an overview of the health promotion model (HPM), which provides an insight into the key determinants of health promotion behaviors, and of the interactive care model (ICM), developed by researchers as an innovative approach to deliver care and engage individuals in their health care (Drenkard et al., 2015; Murdaugh et al., 2019). The HPM provides the overarching theoretical foundation for the association of the independent variables to the dependent variable specified as health promotion behaviors. The ICM provides additional theoretical specificity for understanding the independent variables of nurse practitioner-patient partnership and patient engagement as predicted contributors to health promotion behaviors. The characteristics and the congruency of aspects of these models that support the theoretical linkages of this study are explained further in this chapter. What follows is a discussion of the current literature relevant to the proposed study variables and an explanation of the proposed linkages as guided by the theoretical premises of the HPM and the ICM. Instruments available to measure each of the variables will be discussed, compared, and contrasted. The chapter will conclude with a summary of the current literature related to the study variables of nurse practitioner-patient partnership, patient engagement in health care, and health promotion behaviors.

Theoretical Framework

Health Promotion Model

The HPM incorporates both nursing and behavioral sciences to explore the processes that influence people to participate in health promotion behaviors (Murdaugh et al., 2019). The model has its theoretical underpinnings from social cognitive theory and expectancy value theory. In

social cognitive theory, individuals interact in terms of their thoughts, behavior, and the environment (Pender, 2011). In expectancy value theory, individuals will participate in activities they believe are possible and will lead to an outcome that they value (Pender, 2011). Health promotion is viewed as a process that enables a person to achieve their health goals (Murdaugh et al., 2019). The scope of health promotion ranges from disease prevention to empowering individuals to make lifestyle changes in the settings of home, workplace, school, hospital, and community (Murdaugh et al., 2019). The HPM provides a holistic view of individuals as they interact and alter their physical and interpersonal environments to meet their needs and goals (Pender, 2011). Viewed as a competence-oriented model, the HPM does not include *fear* or *threat* as the catalyst to motivate a person to adopt healthy behaviors (Murdaugh et al., 2019). This model is frequently used in nursing practice and in collaboration with patients in promoting healthy behaviors to achieve a healthy lifestyle across the life span (Pender, 2011).

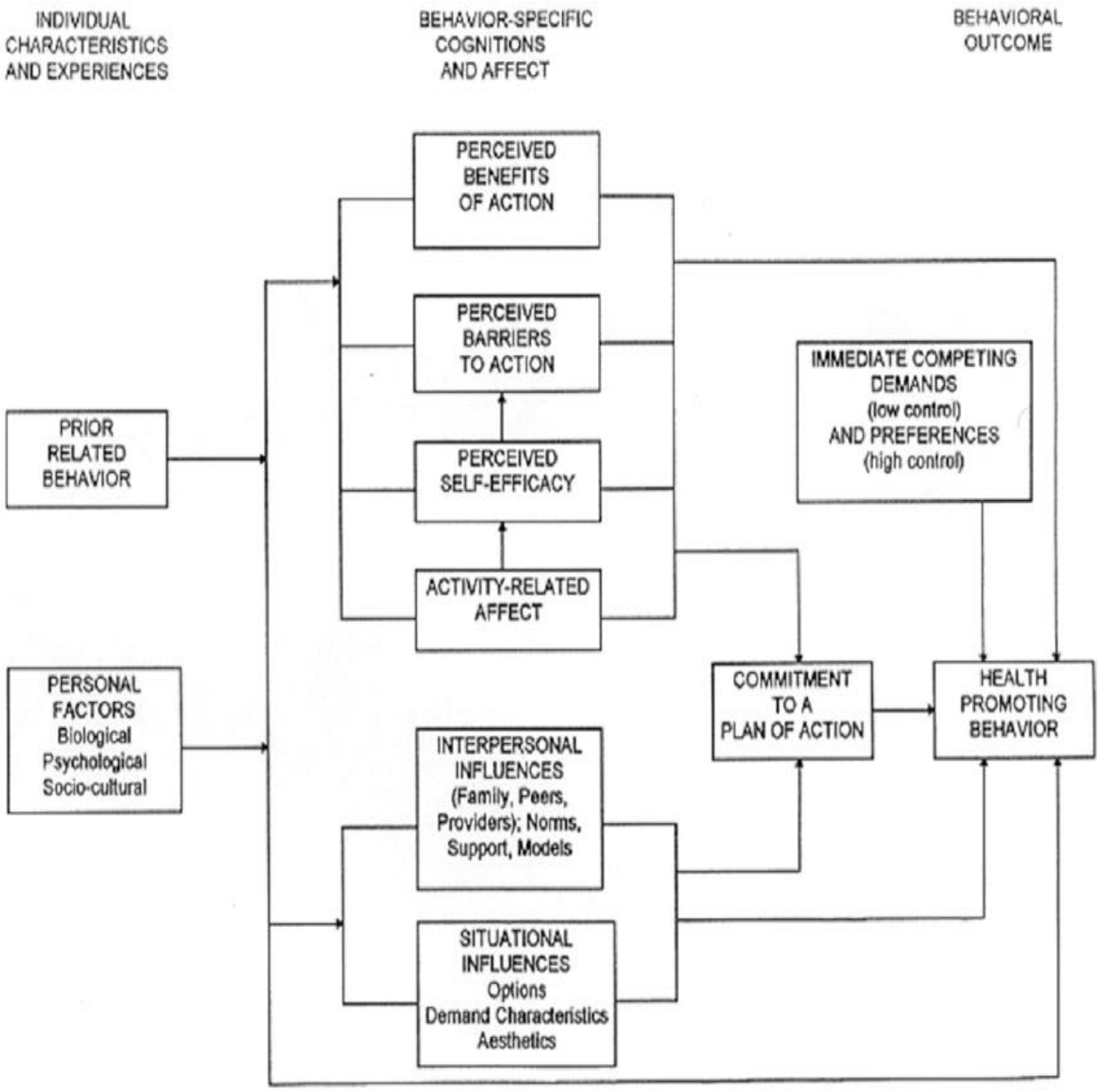
The HPM provides nursing with a framework for predicting health behaviors (Murdaugh et al., 2019). The model focuses on three main areas: individual characteristics and experiences, behavioral-specific cognitions and affect, and behavioral outcomes. Individual characteristics and experiences influence a person's action and behavior. Behavior-specific variables can be manipulated to motivate a person to adopt a positive health behavior. The resulting behavioral outcome of the HPM is the adoption of health promotion behaviors (See Figure 1).

Individual Characteristics and Experiences

The HPM suggests that *individual characteristics and experiences*, and *behavior-specific cognitions and affect* predict whether an individual will participate in health promotion behaviors (Murdaugh et al., 2019). Individual characteristics and experiences are unique to every person and affect their future behavior. Individual characteristics and experiences consist of prior

Figure 1

The Health Promotion Model



Note. Revised health promotion model. Reprinted from Health Promotion Model Diagram, by N. J. Pender, 1996**.** https://deepblue.lib.umich.edu/handle/2027.42/85351

behavior and personal factors (age, race, ethnicity, education, socioeconomic status, perceived health status and self-motivation). Prior behavior pertains to the frequency of an individual's behavior in the past, which is often viewed as a good predictor of their future behavior. The routine of a previous behavior has a direct influence on the likelihood of participating in that behavior over time. For example, an individual's daily routine of exercise in the morning becomes a habit and its repetition increases the likelihood of continuing that daily exercise routine. Prior behavior indirectly promotes or hinders participation in health promotion behaviors through behavior-specific cognitions and affect.

Behavior-Specific Cognitions and Affect

The HPM's behavior-specific cognitions and affect consist of perceived self-efficacy, perceived benefits and barriers to action, activity-related affect, interpersonal influences, and situational influences (Murdaugh et al., 2019). When a person considers engaging in a health promoting behavior, the behavior-specific cognitions and affect influence whether or not the health behavior will occur. In short, individuals are more likely to adopt behaviors they think will benefit and help them (Pender, 2011) while avoiding behaviors they believe to be too difficult (Murdaugh et al., 2019). Activities that result in more positive feelings are also more likely to be adopted. An individual's belief or perception of a particular situation can promote or hinder a healthy behavior (Murdaugh et al., 2019). Individuals are more likely to perform a behavior when they believe the behavior is safe and appropriate for the situation. Behavioral specific cognitions of self-efficacy and interpersonal relations are closely related to patient engagement and the nurse practitioner-patient partnership.

Perceived Self-Efficacy. Within the HPM, self-efficacy is an important contributing factor to the potential for personal change; it can influence whether a person is motivated to take action and change behavior (Murdaugh et al., 2019). Self-efficacy is a person's belief in their ability to perform a certain behavior. Individuals use their judgment to determine if they have the skills and confidence to manage and carry out a certain health behavior (Pender, 2011). Individuals with greater perceived self-efficacy are more motivated to participate in the healthy behaviors they believe are good at (Murdaugh et al., 2019). Higher self-efficacy results in fewer perceived barriers to participating in a certain health behavior (Pender, 2011).

Interpersonal Influences. In the HPM, interpersonal influences are the beliefs, behaviors, or attitudes of family, peers, and health care providers regarding an individual's health behavior (Murdaugh et al., 2019). Their influence may increase or decrease an individual's commitment to participating in a health promoting behavior (Pender, 2011). Close family or personal relationships may be more influential to an individual compared to neighbors and coworkers. The social norms, social support, and role modeling from important people in a person's life influences the adoption of health promotion behaviors. Nurses play an important role within the HPM by exerting their interpersonal influence to educate patients on the benefits of healthy behaviors, assist them to overcome barriers, promote patient self-efficacy, and use positive reinforcement to encourage health promotion behaviors.

Situational Influences. Situational influences are the personal perceptions and beliefs of external factors from the environment that may promote or hinder participation in health promotion behaviors (Murdaugh et al., 2019). Individuals are more likely to commit to performing a health behavior if they feel safe and comfortable in their environment. For example, individuals may be deterred from exercising outdoors in bad weather and may explore

options of exercising indoors. Situational influences should be considered when developing strategies to adopt and maintain health promotion behaviors (Murdaugh et al., 2019).

Commitment to a Plan of Action. Behavioral outcomes, such as health promotion behaviors, require the individual's commitment to a plan of action. Commitment to a plan of action is the intention to complete a certain health behavior and includes strategies that are designed to reinforce the health behavior (Murdaugh et al., 2019). An individual's commitment to a plan may not be enough to yield the participation in a certain health behavior. Individuals that develop strategies to initiate, perform, and reinforce healthy behaviors are more likely to be successful in their commitment to a plan of action. These strategies are unique to the individual and should be developed based on their preferences. The greater the commitment to the plan of action, the more likely a person will perform the health behavior and continue the behavior over time (Pender, 2011).

Immediate Competing Demands and Preferences. Competing demands and competing preferences are behavioral influences that occur immediately before participating in a planned health promotion behavior (Murdaugh et al., 2019). Such factors can interfere with a plan to participate in a health promotion behavior. Individuals have little control over competing demands such as work or family obligations. Competing preferences are last minute impulses that individuals have a high degree of control over through self-regulation and self-control (Murdaugh et al., 2019). Individuals strongly dedicated to a plan of action may complete a planned behavior despite competing demands or preferences.

Behavioral Outcome: Health Promotion Behavior.

The positive outcome of the HPM is the adoption of health promotion behavior(s) (Murdaugh et al., 2019). According to Walker et al. (1995) health promotion behaviors include

nutrition, physical activity, health responsibility, spiritual growth, interpersonal relations, and stress management. Health promotion behaviors lead to better health and quality of life (Murdaugh et al., 2019).

Congruency of Study Variables with the HPM

Health Promotion Behavior. This study will examine the influence of the independent variables of patient engagement and the nurse practitioner-patient partnership on the dependent variable of health promotion behavior. The HPM will provide the theoretical framework for understanding predictors of the behavior outcome, health promotion behaviors (Murdaugh et al., 2019). Individuals adopt health promotion behaviors with the intention and desire of achieving positive health outcomes. Health promotion behaviors are important because they lead to improved health and better quality of life. Health promotion behaviors include physical activity, nutrition, health responsibility, managing stress, interpersonal relationships, and spiritual growth.

Patient Engagement. Patient engagement is not directly referred to in the HPM; however, self-efficacy is a similar concept. The HPM includes self-efficacy as one of the behavior-specific variables that can be modified through nursing intervention towards attaining health promoting behavior (Murdaugh et al., 2019). Self-efficacy pertains to a person's confidence in their ability to perform a certain behavior (Murdaugh et al., 2019). According to Kimerling and colleagues (2020), for individuals to be engaged in their health care, they must have a high self-efficacy. Similarly, Yun et al. (2020) found that among postoperative patients' self-efficacy was a driver of patient engagement. Patients with high self-efficacy were more engaged in their postoperative care and had better outcomes. Patients with low self-efficacy exhibited more anxiety about their self-care skills and required more health care resources.

A basic assumption in the HPM is that individuals can assess their own competence and

modify or change their health behaviors (Pender, 2011). Similarly, patient engagement is a behavior that enables patients to be involved in their health care and in making informed health care decisions (Coulter, 2011). Patient engagement and self-efficacy share the commonality of describing the degree with which a person takes an active role in making choices conducive to the promotion of one's own health.

Nurse Practitioner-Patient Partnership. Nurse practitioners represent a part of the interpersonal environment that influence individuals (Pender, 2011). As mentioned previously, family, peers, and health care providers serve as a primary source of interpersonal influence on a person's health behavior (Murdaugh et al., 2019). The closeness of these relationships may develop and change over time and over the course of someone's life span. The HPM does not directly discuss the partnership between the patient and the nurse practitioner. Instead, the HPM refers to the influence a nurse practitioner may have on an individual's adoption of a health promotion behavior.

The role of the nurse within the HPM is to collaborate with individuals, families, and the community to promote a positive environment for changing unhealthy behaviors and promoting healthy behaviors (Pender, 2011). The nurse functions as a catalyst for change, aids in the change process, and motivates individuals to maintain healthy behaviors (Murdaugh et al., 2019). The nurse practitioner-patient partnership is a unique relationship which allows nurse practitioners to engage patients as active partners in their health journey towards a common goal (Peplau, 1991). While the HPM does not explain the specific attributes of the nurse practitioner-patient partnership, it can be inferred that the relationship is important based on a health care provider's status as a primary source of *interpersonal influence* on an individual's health behavior. Interpersonal influences are one of the behavior-specific variables within the HPM, that

influence an individual to adopt health promoting behaviors (Murdaugh et al., 2019).

Interactive Care Model

In this study, the interactive care model (ICM) provides additional theoretical specificity for understanding the independent variables of nurse practitioner-patient partnership and patient engagement as predictors of health promotion behaviors (Drenkard et al., 2015). The development of the model involved several phases and processes required to identify and define the concepts and terms utilized in the model. Experts and researchers from the O'Neil Center conducted a comprehensive literature review using the databases Cumulative Index for Nursing and Allied Health Literature (CINAHL) and MEDLINE. Published articles in English with relevance to patient engagement in clinical practice, health care reform, policy, measurement, framework, and technology were identified. A gap analysis was conducted, and a draft model was created. This model was reviewed and validated by content experts from the O'Neill Center's Clinical Advisory Council and among nursing leaders from a large health care system.

Currently health care organizations are confronted with the challenge of providing quality care at a lower cost. Meanwhile patients are being increasingly encouraged to be engaged, better informed, and participate in health care decisions (Berwick et al., 2008; Swartwout et al., 2018). Further, health care providers are called upon to transition from a paternalistic patient care approach to establishing a partnership with their patients (Pomey et al., 2015). Researchers at the O'Neill Center for Patient Engagement Research created a model that addressed the changing role of patients and health care providers, as well as provide a framework for engaging patients in their own health care (Drenkard et al., 2015). The ICM will provide the theoretical framework for examination of the variables of patient engagement and nurse practitioner-patient partnership due to the model's strong focus on these two concepts. While this model includes the evaluation

of patient outcomes such as health promotion behaviors, the proposed relationship with the dependent variable of health promotion behaviors is explained using the HPM.

The ICM is a recently developed framework that directs patients to engage in their health care, encourages them to actively participate in their health care, and build strong partnerships between providers and patients (Drenkard et al., 2015; Swartwout et al., 2018). The main feature of this model is the provider-patient partnership roles that are used to build and strengthen the provider-patient partnership and improve patient engagement (Drenkard et al., 2015). The model predicts that as provider-patient partnerships strengthen, patients' engagement in their health care increases, and subsequently health outcomes improve, with an eventual improvement in overall population health.

The ICM is designed to support all health care providers, including nurse practitioners, and in all health care settings (Drenkard et al., 2015). One of the main tenets of this model is the ethical idea that patients have the right to autonomy. Practice environments and health care systems that are not conducive to patient autonomy, shared information, and the provision of care based on patient beliefs, needs, and preferences may result in ineffective patient health management (Drenkard et al., 2015). Conversely, practice environments that promote patient participation, exchanging information, and a partnership between patient and provider that is built on trust puts patients in control (Drenkard et al., 2015). Patients must be in control in order to manage their chronic health conditions and change health behaviors (Krist et al., 2017).

Summary of the Five Phases of the ICM. The ICM consists of five phases that are comparable to the nursing process. Phase one begins with the assessment of a patient's capacity to be engaged (Drenkard et al., 2015). The second phase involves the exchange of information between patient and health care provider in a fair and unbiased manner, as each patient brings

with them their expertise to the relationship. During this phase patients become educated regarding their health care choices while health care providers develop an understanding of their patients' values, beliefs, and preferences regarding their care. This information is necessary in the third phase in which the patient and health care provider share in decision making to plan and set goals. In the fourth phase interventions are selected based on a patient's capacity for health care engagement and patient needs. The final phase of the ICM entails an ongoing evaluation of outcomes that will guide clinicians in determining which interventions provide the most benefit for the patient (Drenkard et al., 2015; Swartwout et al., 2018). The ICM suggests that a person's ability to be engaged will likely influence all five phases of the model; however, this study will focus on the initial phase in which the assessment of a person's capacity to be engaged takes place.

Congruency of the Study Variables with the ICM

Health Promotion Behavior. In this study, it is predicted that the independent variables of patient engagement and the nurse practitioner-patient partnership will be positively associated with health promotion behaviors. The fifth phase of the ICM, *evaluate regularly,* examines effectiveness and outcomes of care (Drenkard et al., 2015) and this theoretically corresponds with the proposed outcome of this study, health promotion behaviors. Evaluation as with the other four phases of the ICM are part of an ongoing process (Drenkard et al., 2015). The ICM provides the framework for the evaluation at the patient, system, and community levels (Deyo et al., 2016). Evaluation of outcomes may include meeting patient goals, clinical improvement, increased patient knowledge, and self-care skills (Deyo et al., 2016). While the adoption of health promotion behaviors is not addressed specifically within the ICM, the ICM does identify similar person-level outcomes, such as medication adherence, laboratory values, blood pressure

and weight (Drenkard et al., 2015), demonstrating congruency with several health promotion outcomes. In addition, these person-level outcomes are comparable to several components of a health-promoting lifestyle based on the HPM such as health responsibility, physical activity, and nutrition.

Patient Engagement. Patient engagement has been defined by many authors in various ways and there is no one agreed upon definition to date. The ICM has adopted Coulter's (2011) definition of patient engagement in health care which involves the patient, health care professionals and health care organizations. Coulter's (2011) definition provides a broader perspective on the importance of engagement in health care, referring to engagement as patients and health care providers working together to promote and support active patient involvement in health, health care, and decision-making. Gruman and colleagues, (2010) specifically addresses the initiative of the individual patient in defining patient engagement as "actions individuals must take to obtain the greatest benefit from the health care services available to them" p. 351). This definition takes into consideration the role of the individual in managing their health and health care. The first phase of the ICM involves the assessment of an individual's capacity for engagement.

Phase I of the ICM: Assess a Person's Capacity for Engagement. The health history interview is the typical starting point to establish trust and build the nurse-patient relationship to obtain important information regarding the patient's health status (Weber & Kelley, 2018). The ICM expands on this process to include the phase *assess the person's capacity for engagement* in managing their own health care (Drenkard et al., 2015). A person's capacity to be engaged is measured during this first phase and therefore lays the groundwork on which the subsequent phases follow. The knowledge gained from this important assessment can be used to discuss

choices, plan care, and adapt interventions specific to that person (Drenkard et al., 2015). The model views this step as the establishment of a person's baseline capacity for engagement and for tracking this assessment in future health visits (Swartwout et al., 2018). A person's engagement capacity can be reassessed periodically to modify choices and plan new interventions to meet current needs (Drenkard et al., 2015; Swartwout et al., 2018). While the phases of the ICM are continuous, identifying a person's capacity to engage in their health care is deemed a vital step in the ICM (Drenkard et al., 2015; Swartwout et al., 2018).

Nurse Practitioner-Patient Partnership. The role of the health care provider from an authoritative expert (Will, 2011) to one that partners equally with patients is a significant change in health care delivery. The ICM delivers a framework that supports both patient and provider in making this role transition towards an equal partnership (Deyo et al., 2016). The model integrates various partnership roles that providers and patients are encouraged to adopt over the course of a patient's health care experience. Patients and providers build a strong partnership by taking on roles that allow them to share information, communicate, collaborate, and build a caring relationship based on trust. A quality partnership between patient and provider improves a patient's engagement in their health care.

The partnership between the provider and patient is dynamic and interconnects with five phases of the model: assessing a person's capacity for engagement, exchanging information and communicating choices, planning between the person and clinicians, setting appropriate interventions, and evaluating regularly (Drenkard et al., 2015; Swartwout et al., 2018). These five phases are necessary to bond the patient and provider towards a greater partnership (Drenkard et al., 2105; Swartwout et al., 2018).

Congruency between the HPM and ICM

The HPM provides the overarching theoretical predictions for the association of the independent variables to the dependent variable specified as health promotion behaviors. The ICM provides the theoretical linkages needed to understand the independent variables of patient engagement and the nurse practitioner-patient. partnership. The HPM and ICM are similar in several ways. The HPM and ICM both emphasize the goal of improving the health of individuals, the community, and overall population. Both models are structured to be used in all health care settings and among all health care providers throughout a patient's life span. The HPM is a competence-oriented model with an end outcome that is specific to the adoption of health promotion behaviors (Murdaugh et al., 2019). The ICM is a care delivery model created to promote the patient-health care provider partnership to improve the patient's capacity to engage in their health care, thus improving patient outcomes (Drenkard et al., 2015). Patient outcomes are varied and may include improvements in clinical measures, the acquisition of self-care skills, or the adoption of a health promotion behavior.

The HPM can be used to identify factors that predict health promotion behaviors (Murdaugh et al., 2019). An individual's perceived self-efficacy and interpersonal influences are two components of this model that are similar to the study variables of patient engagement and the nurse practitioner-patient partnership. This study aims to determine if a patient's engagement in their health care and the nurse practitioner-patient partnership will predict health promotion behaviors. In addition, the HPM supports the nurse working collaboratively with the patient towards identifying behaviors they wish to change and develop strategies to achieve that behavior change. Similarly, the ICM places strong emphasis on the importance of a strong patient-provider partnership to promote a patient's capacity to be engaged in their health care

(Drenkard et al., 2015). The ICM supports that greater patient engagement leads to improved care and better patient outcomes. Therefore, it is reasonable to expect that patient engagement and a positive nurse practitioner-patient partnership will be predictive of health promotion behaviors.

Study Variable: Health Promotion Behaviors

A literature search was conducted of published research articles from the U.S. with relevance to health promotion behaviors in adults. Database searches were conducted in CINAHL from 2009 to May 2020. The search was limited to peer-reviewed, full-text, journal articles in English. The search was limited to studies completed in the U.S. to limit any variance in health promotion practices among different cultures. The search term "health promoting behaviors" yielded 180 articles. The Boolean phrase "all adult" narrowed down the search to 103 articles. Subject major heading included "health promotion" which reduced the list to 40 articles. The search was further narrowed down to "outcomes or benefits or effects" which yielded 22 articles. The articles were reviewed, and ten studies were selected based on topic relevance.

Empirical Studies Study Variable: Health Promotion Behavior

The literature search for peer reviewed, full text, published studies in English from the U.S. relating to health promotion behaviors in adults resulted in 10 studies. Five of the studies involved health promotion intervention programs, of which only one was led by a nurse (Buchholz et al., 2012). An employee wellness program conducted over a 10-year period found that modifiable health behaviors that included a diet low in fat, aerobic exercise, non-smoking, and receiving adequate sleep were significantly associated healthy outcomes (Byrne et al., 2016). Yan et al. (2014) found that a 6-week peer education program improved dietary practices and smoking cessation was improved by college students. Walker et al. (2009) found that health

promotion intervention programs among older rural women showed significant improvements in physical activity and healthy eating over a 6-month period, and improvements in physical activity over a 12-month period. When the intervention was tailored to the individual based on Pender's behavior specific cognitions, participants had significant improvements on daily moderate physical activity and health eating at 12 months. Ipsen et al. (2014) found that an online-based health promotion program improved health promoting behaviors and quality of life among a group of individuals with disabilities in a vocational program. Buchholz et al. (2012) examined the results of a nurse-led physical activity and nutrition health promotion program among a group of uninsured, overweight adults from an urban and rural free clinic. Results showed a significant decrease in BMI from baseline to 6 months. Overall, a significant amount of past health promotion behaviors' research focused on various intervention-based programs among different populations. Most intervention-based programs focused on physical activity and healthy diet.

Hammerback et al. (2015) examined attitudes towards health promotion programs among employees in low-wage jobs. This study involved interviews with 42 couples who live together (married or unmarried) and completion of a health survey. The interviews, which lasted between 60 and 90 minutes, were transcribed, coded, and analyzed. Results from the health survey showed that most participants perceived themselves to be in good health and physically active. The data showed that 60% (n= 50) were overweight or obese and 26% (n= 22) smoked. Common themes from the interviews showed that participants had a favorable level of interest in having a workplace health promotion program and to expand the program to their partner. Most participants reported having tried to change health behaviors such as diet, physical activity, and weight loss within the past year.

Using a descriptive correlational design, health promotion behaviors have also been studied among active women in the military (n= 287) and reservists (n= 204) in the military (Agazio & Buckley, 2010). Personal factors and behavioral specific cognitions from the health promotion model were selected as predictor variables of health promotion behaviors. The average age of the sample was 37.2 years (SD = 8.9) and half the group had children. Multiple regression analyses were conducted to predict health promotion behaviors from personal factors (demographics, perception of health status, definition of health) and behavior specific cognitions (perceived self-efficacy and interpersonal influences). Results showed that perceived health status, self-efficacy and interpersonal influences were significantly predictive of health promotion behaviors among reservists with children (Adj R^2 = .617, *p*=.001). Among active-duty women with children (Adj R^2 =.324, *p* = .001) and active-duty women without children (Adj R^2 =.479, *p*= .001) only perceived self-efficacy and interpersonal influences were significant predictors of health promotion behaviors. Only interpersonal influences were found to be a significant predictor or health promotion behaviors among reservists without children (adjusted R^2 = .398, *p* = .001).

Health promotion behaviors and predictors of health promotion behaviors in women with chest pain have been investigated by Thanavaro and colleagues (2010). Study participants between the ages of 30 and 65 years were recruited from a chest pain center. The sample consisted of 39 women with an average age of 48.4 years (SD = 10) and mostly African American (61.5%; n= 24). Health promotion behaviors were measured using the Health Promoting Lifestyle Profile (HPLP II) which assesses nutrition, physical activity, spiritual growth, interpersonal relations, stress management and health responsibility. Results showed that the overall sample of women scored low in health promotion behaviors. The mean item score

(MIS) on the HPLP II was 2.4 which signifies that the women participated in healthy behaviors less than often. Interpersonal relations (MIS = 2.9) and spiritual growth (MIS=2.9) scored the highest and nutrition (MIS = 2.3) and physical activity (MIS = 1.9) scored the lowest. Multiple regression showed that education level (β= .34, p =.01), and benefits to coronary heart disease (β = .33, p =.05) were found to be predictive of health promotion behaviors.

Harding (2012) examined health promotion behaviors among cancer survivors. Data from the National Health Interview Survey was used to identify the prevalence of smoking, alcohol use, and healthy behaviors such as exercise. Survey respondents reporting a cancer diagnosis (n = 1,784) were included in this study. Seventy-eight percent (n=1400) of the sample reported having either breast, prostate, lung, colorectal, endometrial, cervical or melanoma cancer. Eighteen percent (n= 316) of the cancer survivors in this survey reported they were current cigarette smokers. Risky alcohol use was reported in 18% (n= 324) of the sample with the highest incidence in the 61-80-year age group. Approximately 25% (n=240) of cancer survivors (n= 927; 757 cases unusable and excluded from original sample) were getting their recommended level of physical activity with prevalence being highest among the 18 to 40 age group. Cancer survivors who participated in physical activity were more likely not to report feelings of hopelessness or sadness ($p < .01$) compared to those who were not physically active. Current smokers were more likely ($p < .01$) to report feelings of anxiety, sadness and hopelessness compared to former smokers or those that never smoked. This study demonstrates that among cancer survivors, health promotion behaviors such as physical activity and not smoking may lead to less psychological distress.

Johnson et al. (2015) investigated to see which constructs of the *health action and process approach model* predicted physical activity among African Americans living with

HIV/AIDS. Several constructs including action planning, coping planning, outcome expectancy, risk perception, intention, perceived barriers, spirituality, and social support were assessed. A total of 110 patients from three HIV case management agencies in Louisiana were recruited for this study. A hierarchical regression analysis was conducted to measure the variance accounted for by each predictor variable on the main dependent variable of physical activity. Results showed that action planning and coping planning (β = .44, $t(109) = 4.41$, $p < .001$), outcome expectancy (β = .20, $t(109) = 2.10$, $p < .05$), and intention (β = .21, $t(109) = 2.15$, $p < .05$) to participate in health promotion behaviors were significant predictors of physical activity among African Americans living with HIV/AIDs. These constructs are similar to Pender's (2011) *commitment to a plan of action* and *perceived benefits*, important component in the health promotion model. Individuals that perceive a benefit to participating in a healthy behavior and commit to a plan are more likely to carry out that healthy behavior.

Summary of Health Promotion Behavior Literature. This literature review of health promotion behaviors included both qualitative and quantitative research. Several studies pertained to the implementation and evaluation of health promotion programs. The health promotion programs in this review mostly focused on improving physical activity and diet. Health promotion behaviors were examined among specific populations including women in the military (Agazio & Buckley, 2010), cancer survivors (Harding, 2012), women with chest pain (Thanavaro et al., 2010), and African Americans living with HIV (Johnson et al., 2015). Employees were found to be interested in participating in a workplace health promotion program, and also wanted their partner included in the program (Hammerback et al., 2015). Self-efficacy and interpersonal influences were identified in the literature review as being important predictors of health promotion behaviors (Agazio & Buckley, 2010). According to

Pender's model, self-efficacy and interpersonal influences are important behavior specific variables that can be modified towards adopting health promotion behaviors (Murdaugh et al., 2019). Self-efficacy is a similar concept to the study variable patient engagement. Both concepts promote an individual's active role in their own health care. Interpersonal influences involve family, friends, and health care providers that influence an individual's participation in a health promotion behavior. This study will focus on the interpersonal influence that nurse practitioners have on an individual's adoption of health promotion behaviors.

Instruments to Measure Health Promotion Behavior

The literature search identified the following health promotion behaviors instruments: Health Promoting Lifestyle Profile II, Determinants of Lifestyle Behavior Questionnaire, Health Enhancement Lifestyle Profile, and the Multidimensional Health Behavior Inventory.

Health Promoting Lifestyle Profile II. The Health Promoting Lifestyle Profile II (HPLP-II) is a 52-item measure consisting of six subscales that assess the major dimensions of a health promoting lifestyle (Murdaugh et al., 2019). The original version by Walker, Sechrist, and Pender (1987) was developed from a literature review and the Lifestyle and Health Habits Assessment (LHHA). The LHHA is a 100-item instrument used in nursing to assess for positive health behaviors. The HPLP uses a 4-point Likert type scale format (1 = never, 2 = sometimes, 3 = often, 4 = routinely). During its development, the HPLP instrument was pilot tested and analyzed for internal consistency and content validity. This resulted in a 107-item measure that was further tested among a sample of 952 participants ranging in age from 18 to 88 years. Item analysis, factor analysis and reliability estimates were conducted. The resulting 48-item HPLP scale consists of six subscales: Self-actualization, Exercise, Interpersonal Support, Health Responsibility, Nutrition, and Stress Management. The internal consistency reliability as

measured by Cronbach's alpha was .922 for the total instrument and the six subscales ranged from .702 to .904. A test-retest stability coefficient was conducted on a sample of adults (N= 63) where the HPLP was administered two weeks apart. Pearson *r* = .926 for the total scale and subscales ranged from .808 to .905. The HPLP was found to have adequate validity and reliability for use in different populations.

The HPLP was revised to a 52-item Health Promoting Lifestyle Profile II (HPLP-II) (Walker et al., 1995). The revised instrument consisted of the same six dimensions, however the names of three of the dimensions were changed to provide more clarity. The subscales of Self-actualization, Exercise, and Interpersonal Support were revised to Spiritual Growth, Physical Activity, and Interpersonal Relations (respectively). The original subscales of Health Responsibility, Nutrition, and Stress Management were unchanged. The dimensions of a health promoting lifestyle are defined:

Spiritual growth relates to having a sense of purpose, personal growth, self-awareness and feelings of harmony (Walker et al., 1995).

Interpersonal Relations involves the use of communication to share thoughts and feelings to achieve intimacy and closeness in relationships with others.

Nutrition is concerned with making healthy food choices to sustain health.

Physical activity involves the regular participation in physical or leisure activities to improve fitness and health.

Health responsibility involves being actively responsible for one's own health and includes monitoring one's health, educating oneself about health and knowing when to seek a health professional.

Stress management involves one's ability to recognize stress and effectively manage

stress to control anxiety.

Validity and reliability of the HPLP-II was tested among 712 adults ranging in age from 18 to 92 years of age (Walker et al. 1995). Construct validity was tested by factor analysis which supported the six-dimensional construct of a health-promoting lifestyle (r = .678). The internal consistency reliability for the total scale was .943 and the alphas for the subscales ranged from .793 to .872. Information obtained from the HPLP-II can be used to create a health promotion plan that is tailored to each patient's specific needs (Murdaugh et al., 2019). The HPLP-II has been used extensively in research to measure health promotion behaviors in both intervention and outcome studies.

Empirical Studies using the HPLP-II. The HPLP II has been used in numerous research studies. The literature search for this paper focused on studies with similar variables to this current study. Pullen and colleagues (2001) examined the relationship between personal influences, such as perceived health status, contextual influences, such as provider counseling, and health promoting lifestyle behaviors among older women in rural Nebraska. A sample of 102 community-dwelling women, 65 years of age and older participated. Most of the participants (93.1%; n= 95) had a primary care provider that was either a physician or a physician assistant. The HPLP II was used to measure health promotion behaviors with a Cronbach's alpha of .941 for the total scale and subscales ranging between .792 to .871. Results demonstrated that most participants (52.9%; n= 54) did not receive health promotion counseling. Multiple regression analyses revealed that provider counseling was a significant predictor of health promotion behaviors (R^2 = .465, p = .003). Provider counseling involves giving information to the patient which is considered an important component of patients understanding their health and adhering to treatment (Galassi et al., 1992).

Calvert and Isaac-Savage (2013) examined the motivators and barriers to engaging in health promotion behaviors among Black men. A total of 107 men from a nonprofit national organization whose mission is to develop healthy and responsible fathers participated in this study. Health promotion behaviors was measured using the HPLP II. Cronbach's alpha for this study was .83 for the total scale and subscales ranging between .75 and .87. Results demonstrated that 96% (n= 103) of the sample were motivated to adopt health promotion behaviors because they wanted to be healthy, and 67.3% (n= 72) reported that someone in their life was a source of encouragement for them. This is consistent with the Pender's concept of interpersonal influences on an individual's participation in health promotion behaviors (Murdaugh et al., 2019). Barriers such as h*aving too many things to do* and *not knowing what to do* were found to be predictive of less participation in health promotion behaviors (Calvert & Isaac-Savage, 2013). Intentions to participate in health promotion behaviors may be hampered by barriers that decrease an individuals' commitment to a plan of action (Murdaugh et al., 2019).

Aqtash and Van Servellen (2013) investigated several variables including perceived self-efficacy, social support, and their relationship with health promotion behaviors among a group of female Arab immigrants to the U.S. A total of 205 participants completed the HPLP II which was available in Arabic and English versions. In this study, Cronbach's alphas for the total scale English version was .95, and Arabic version was .93. The sample was mostly male (58.5%; n= 120) with an average age of 41.84 years (*SD* = 11.24). Results demonstrated that perceived self-efficacy and perceived social support were significant determinants of health promotion behaviors. Self-efficacy and social support play an important role in the adoption of health promotion behaviors (Murdaugh et al., 2019).

Determinants of Lifestyle Behavior Questionnaire. The literature search identified several instruments used to measure health promotion behaviors; however, they do not measure the construct of a health promoting lifestyle. The Determinants of Lifestyle Behavior Questionnaire (DLBQ) was developed based on the Theory of Planned Behavior (Lakerveld et al., 2011). This instrument measures determinants of lifestyle behavioral change intention in adults at high risk for cardiovascular disease or type 2 diabetes mellitus.

Health Enhancement Lifestyle Profile. The Health Enhancement Lifestyle Profile (HELP) is a clinical tool developed for occupational therapists to identify and monitor health promotion activities and risk behaviors within the older adult population (Hwang, 2010). The HELP is a self-report instrument that assesses health related lifestyles within seven subscales: Exercise, Diet, Work/Education/Social Participation, Leisure, Activities of Daily Living, Psychological Well-Being/Spiritual Participation, and Other Health/Risk Behaviors. This instrument is specific to the older adult receiving treatment from an occupational therapist and may not adapt to patients receiving care from an NP in the primary care setting.

Multidimensional Health Behavior Inventory. The Multidimensional Health Behavior Inventory (MHBI) developed by Kulbok and colleagues (1999) is a 57-item questionnaire that examines the health promotion behaviors of older adolescents and young adults (18-24 years of age). The MHBI consists of 7 scales that assess diet, substance use, safety, checkup, social, stress and exercise. The purpose of this instrument is to identify health behaviors and risk avoidance behaviors that emerge during the college years.

While the DLBQ, HELP and MHBI are related to health promotion or health promotion intent, they do not capture the construct of the health promoting lifestyle in the adult population. The DLBQ is specific to individuals with cardiovascular disorders or diabetes population. The

HELP was designed for use by occupational therapists among the older adult population and the MHBI assesses health promotion among the younger population. The HPLP-II will be used in this study as it is a valid and reliable instrument to measure an individual's health promotion behavior and is used often in research. This instrument is congruent with the conceptual definition and study variable of health promotion behavior used in this study.

Study Variable: Patient Engagement

Historically, patients were considered passive participants in health care and the relationship between the health care clinician and patient was viewed as paternalistic (Longtin et al., 2010, Pomey et al., 2015). The concept of patients taking an active role in their health care first appeared in the 1960s, a time where social and consumer rights' movements encouraged a person's right to safety, right to be informed, right to choose, and the right to be heard (Eldh, Ekman, & Ehnfors, 2006; Longtin et al., 2010; van der Meide et al., 2014). The term *patient engagement* was first introduced in the health sciences literature in the 1990s (Higgins et al., 2017). Use of the term has increased dramatically over the past decade in part due to evidence linking patient engagement with improved quality of health care.

A literature search was conducted for published research articles with relevance to patient engagement and health promotion behaviors in adults. A database search was conducted in CINAHL from 2009 to May 2020. The search was limited to peer-reviewed, full-text, research articles in English. Boolean phrase terms included "health promotion behaviors" AND "patient engagement." This search resulted in 28 articles, of which four were selected for this review based on relevance to topic and definition of patient engagement.

Empirical Studies Study Variable: Patient Engagement

Tzeng and Pierson (2017) used an exploratory cross-sectional survey of community-

dwelling adults to determine what patient engagement behaviors in health care were important to them. The authors developed a survey tool, Patient Involvement Behaviors in Health Care, to collect patient preferences on 51 engagement behaviors. These behaviors were classified into ten categories including health promotion, preventive health care, seeking health knowledge, finding safe and decent care, communicating with health care professionals, organizing personal health care, paying for health care, making good treatment decisions, participating in treatment, and planning for end of life. A total of 92 surveys were included in the analysis. The sample was mostly women (63%; n= 58) between the ages of 65-74 (37%; n= 34). Results showed that 3 of the 4 engagement behaviors in the health promotion category and one item from the preventive health care category were the top four important behaviors identified by the respondents. Specifically, the patient engagement behaviors included: *finding and using services that support health behaviors*, *keeping new health behaviors going*, *following the agreed treatment plan*, and *seeking early detection of diseases*. Items scoring the lowest level of importance were in the category of planning for end of life and organizing personal health care. This study highlights that while many patient engagement behaviors are important to adults, there is a greater preference towards health promotion. Nurses and clinicians should use this information to address health promotion in adult patients.

Kimerling and colleagues (2020) conducted a qualitative study to understand an individual's patient engagement behaviors, and to better understand how high self-efficacy enhances patient engagement and low self-efficacy decreases engagement. Twenty-five semi-structured interviews were conducted with veterans from the Veterans Health Administration. The sample was mostly male (88%; n= 22) with a median age of 60 years. Analysis identified four major domains: Self-management, health information use, health care navigation, and

collaborative communication. The *self-management* domain includes health promotion. In this domain high self-efficacy for engagement behaviors was related to past successful experiences such as the ability to establish healthy routines. Past successes increased individual's self-efficacy for future behaviors. Participants with high self-efficacy for the *use of health information* sought health information routinely. High self-efficacy for *collaborative communication* enhanced the establishment of a partnership with providers. Finally, high self-efficacy for health care navigation was successful in coordinating their care among providers, specialists, and the health care system. Participants with low self-efficacy faced barriers in achieving successful experiences within the four domains identified. This study emphasizes the importance of how self-efficacy fosters patient engagement in health promotion, seeking health information, navigating health care and collaborative communication.

Kaphingst et al. (2014) examined whether patient engagement in the form of bringing questions to a physician visit was related to making better health choices and increased health knowledge. The authors developed a survey to measure patient self-reported outcomes of health knowledge and making better health choices. A statewide telephone (landline and mobile) survey was conducted. Participants had to be 18 years of age or older and English speaking. The sample (n = 3,358) consisted of women (52%; n= 1745) with a mean age of 47 years (SD = 17.9) and having a personal doctor (77%; n= 2564). Results showed that participants who brought questions to the medical visit were 1.73 times as likely (95% CI; 1.32, 2.28, $p < .0001$) to report knowing more after the visit than those who did not bring questions. Participants who brought questions to the medical visit were 1.66 times as likely (95% CI: 1.29, 2.14, $p < .0001$) to report making better health choices than those who did not bring questions. This study highlights how patient engagement, through the practice of bringing health related questions to the medical visit,

influences patient outcomes such as patient self-reported increased knowledge and ability to make better health choices.

Greene et al. (2015) conducted a longitudinal study to examine whether patient engagement is associated with health-related outcomes and whether changes in patient engagement influenced health-related outcomes over time. Data was collected from a large primary care health care system in Minnesota that routinely collects patient engagement scores, as measured by the Patient Activation Measure (PAM). The Patient Activation Measure assesses a person's readiness to engage in their health care (Murali & Deao, 2019). PAM categorizes patients' activation into 4 levels with Level 4 indicating the highest level of engagement in health care and Level 1 indicating that the individual does not engage in their health care.

Thirteen health-related outcomes involving clinical indicators, health behaviors, preventive screening, and cost utilization were collected from patient records (Greene et al., 2015). The data was organized into two groups. The first group (n = 32, 060) contained PAM scores collected at baseline and at a 2-year follow-up. The second group (n = 10,957) contained PAM scores collected at two time periods over a 2-year period.

Specifically for health behaviors, multivariate analyses examined changes in PAM scores over a two-year period (Greene et al., 2015). Results showed that there were greater odds of a positive outcome of *healthy behaviors* (not smoking and not being obese) when the PAM level was higher. A person scoring at a Level 1 had lower odds of not smoking (OR = .64, $p < .001$) and lower odds of not being obese (OR = .62, $p < .001$) than a person with a Level 4. Level 4 was the reference group (OR =1.00). While a person scoring at a Level 3 had lower odds of not being obese (OR = .79, $p < .001$), Level 2 had lower odds of not smoking (OR = .81, $p < .001$) than a person with a Level 4.

Multivariate analyses examined changes in two PAM scores taken at two points in time over two consecutive years and health behaviors (Greene et al., 2015). Participants that were at Level 1 or Level 2 over the one-year period had lower odds of not smoking (OR = .74, $p < .05$) and not being obese (OR = .53, $p < .001$), compared with a person at Level 4 reference group (OR = 1.00). Participants that dropped from a high level (3 or 4) to a low level (1 or 2) had significantly lower odds of positive health behaviors. Participants that dropped from Level 4 to Level 3 had lower odds of not being obese (OR = .75, $p < .05$) and participants that dropped from Level 3 or 4 to Level 1 or 2 had lower odds of not being obese (OR = .69, $p < .05$). The results of this study show that changes in patient engagement over time influences healthy behaviors (not smoking and not being obese) and that higher levels of patient engagement are associated with positive healthy behaviors of not smoking and not being obese.

Summary of Patient Engagement Literature. The literature search on patient engagement yielded only a few studies based on this paper's definition of patient engagement and relevance of topic. This review includes four studies involving both qualitative and quantitative data. Populations included in this review consisted of U.S. veterans, community-dwelling adults, and adult primary care patients. Findings from these studies showed that adults valued patient engagement behaviors such as maintaining new healthy behaviors (Tzeng & Pierson, 2017), and that certain patient engagement behaviors such as bringing in questions to a doctor's visit, increased patient knowledge and ability to make healthier choices (Kaphingst et al. 2014). Higher levels of self-efficacy were found to support patient engagement in health promotion and in seeking health information (Kimerling et al., 2020). Finally, a longitudinal study found that patients with higher levels of engagement had better clinical health outcomes (normal HDL and triglyceride levels), and healthier behaviors (not smoking, not being obese),

and additionally sought preventive cancer screenings (Greene et al., 2015). Based on these results it is reasonable to conclude that patient engagement and its influence on health promotion behaviors should be studied further.

Instruments to Measure Patient Engagement

The literature search identified the following patient engagement instruments: Person Engagement Index, Patient Activation Measure, Altarum Consumer Engagement Measure, and the Patient Health Engagement Scale.

Person Engagement Index. The Person Engagement Index (PEI) was developed as an instrument to capture this important construct of engagement capacity (Swartwout et al., 2018). A literature review conducted as part of the development of the PEI revealed eight elements that impact a person's capacity for engagement: 1) patient preferences, values, and needs; 2) activation/motivation; 3) health literacy; 4) disease burden; 5) preventative measures; 6) psychosocial components; 7) technology use in health care; and 8) involvement in health care safety (Swartwout et al., 2017). While many of these elements of patient engagement have existing measures, the PEI is the first known measure to contain all eight features that can affect a person's capacity to be engaged in their health care (Swartwout et al., 2017). The PEI is intended for use during the assessment of a person's capacity for engagement phase. Patients and providers can partner together and utilize the results of the PEI to develop a plan of care and select interventions specific to the patient's needs, values, and preferences. As a person's health may vary over time, their capacity to be engaged in their health care may change as well (Swartwout et al., 2018). The PEI is also intended for use in all future health visits as a method to track one's capacity for engagement in their health care throughout their lifespan. Providers must

understand when and how a person's capacity for engagement changes and adjust plans and interventions based on that new assessment (Swartwout et al., 2018; Drenkard et al., 2015).

The PEI is an 18-item instrument scored on a 5-point Likert-type response scale of agreement: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree (Swartwout et al., 2018). Patients completing the instrument are instructed to self-report their level of engagement for each item. Higher scores indicate a higher capacity for engagement. The Likert-type scale scores are converted to a 0 to 100-point score. The instrument was tested on a total of 338 adult patients on medical-surgical units from two hospital systems on the East Coast of the U.S. and two hospital systems on the West Coast of the U.S. Participants had to be at least 18 years of age and read English. The sample ranged in age between 18 – 98 years, with a mean of 56 (SD = 17.7 years). Half of the respondents were male (54%); n= 183), White (55%; n= 186), and married or living with a significant other (45%; n= 152). The sample (n=338) contained high school graduate (33.1%; n= 112), vocational (12.1%; n= 41), and four-year college degree (12.1%; n= 41).

Testing of this instrument revealed four subscales that have been found to be valid and reliable. The internal consistency reliability of the four subscales as measured by Cronbach's alpha were: (1) engagement in health care, α=.885, (2) technology use in health care, α = .854, (3) proactive approach to health care, α = .728, and (4) psychological support for health care, α = .88, and for the overall scale, α = .896. The item-total correlations for every item within the subscales are as follows: Engagement in Health Care (.398-.591), Technology Use in Health Care (.656-.685), Proactive Approach to Health Care (.339-.524), and Psychosocial Support for Health Care (.786). Item correlations for the total scale were above the .40 threshold and ranged from .431 to .625. Testing shows that each subscale is psychometrically sound.

Empirical Studies using the Person Engagement Index. A study by Sun et al. (2019) examined the sociodemographic factors that are associated with an individual's capacity to be engaged in their health care as measured by the PEI. Data from the original study that developed and validated the PEI was used in this observational, cross-sectional study (Swartwout et al., 2018). PEI scores range from 0 to 100 and results from this sample revealed a mean total PEI score equaled 77.36 (SD = 9.19). Demographic variables including age, gender, race, ethnicity, relationship, education, and employment were assessed. Education was the only variable that had a significant association with the total PEI score ($p = 0.013$), thus people with college and advanced education were associated with higher PEI scores than those that lacked a high school education. Results of a Spearman's rank-order correlation showed that the PEI subscale *engagement in health care* was significantly correlated by age ($r_s = 0.119$, $p = .029$). In a general linear regression, education level was significant (Adj $R^2 = .069$, $p = .049$) in predicting the PEI overall total score after controlling for other demographic variables. Results from this study show that a higher level of education is a significant predictor of a person's capacity to be engaged in their health care among a sample of hospitalized adults.

Patient Activation Measure. The Patient Activation Measure (PAM) measures patients' belief, knowledge, skill, and confidence in managing their health condition, working with health care providers, maintaining their health, and accessing appropriate, high-quality care (Hibbard et al., 2005). According to Murali and Deao (2019), the PAM instrument measures a person's readiness for engagement. Reliability test as measured by the Cronbach's alpha was .81 for the 13 item PAM scale (Prey et al., 2016). The PAM is widely used in health care and in research to measure a patient's knowledge, skill, and confidence in the self-management of their health.

***Empirical Studies using the Patient Activation Measure*.** Cross-sectional (Greene & Hibbard, 2011) and longitudinal (Greene et al., 2015) studies have used the PAM to examine the relationship between patient activation in their health care and health related outcomes. Both studies showed that patients with high patient activation in their health care were more likely to receive preventive cancer screenings, less likely to smoke, less likely to be obese, and more likely to have better clinical outcomes such as normal blood pressure and cholesterol levels. Patients with low activation in their health care were less likely to have better health outcomes. Another study found that higher patient engagement is associated with healthy behaviors, and that increases in PAM scores over time are also associated with improved health behaviors such as aerobic exercise (Harvey et al., 2012). Alexander and colleagues (2012) found that higher quality patient-provider communication was associated with higher levels of patient activation.

Patient Health Engagement Scale. Graffigna and colleagues (2015) developed the Patient Health Engagement (PHE) scale to measure the concept of patient engagement. This scale was developed based on the Patient Health Engagement (PHE) model. The model views patient engagement as a developmental process and multidimensional experience involving a patient's capacity to plan meaningful goals, even if living with disease (Graffigna & Barello, 2018). Internal consistency as measured by the Ordinal Alpha was 0.85. A test-retest reliability was tested among a sample of 30 participants after 15 days. The intra-class correlation coefficient (ICC) after 15 days was excellent (ICC = 0.95; CI = 0.90-0.97). Concurrent validity was assessed and a moderate correlation was found between the PHE and the Patient Activation Measure (PAM), ($r = 0.431$, $p < .001$).

***Empirical Studies using the Patient Health Engagement Scale*.** Graffigna and colleagues (2017) used the PHE-S to examine whether patient engagement and the quality of the

patient-provider relationship influenced patients' online health information-seeking behaviors (OHISB) among a group of patients with chronic disease. The quality of the patient-provider relationship was significantly correlated with patient engagement in their health care (r = .313, p < .001). Patient engagement, as measured by the PHE-scale, did not significantly correlate with patients' online health information seeking behaviors.

Altarum Consumer Engagement Measure. Duke and colleagues (2015) developed the Altarum Consumer Engagement (ACE) measure to assess an individual's engagement in health, health care decisions, and health consumerism. This instrument attempts to assess health information-seeking behaviors, online health resources and published ratings of providers. Criterion validity was measured by comparing ACE measure to the Patient Activation Measure (PAM). The Commitment subscale correlated the strongest with PAM (r_s = .65), and the informed choice subscale correlated the least (r_s = .29). Cronbach's alpha for the entire scale was not reported but the subscales ranged from .662 to .852. There were no studies found in the literature that reported using the Altarem Consumer Engagement measure.

Summary of Instruments to Measure Patient Engagement. There are similarities and differences among the four patient engagement instruments discussed in this section. Each instrument assesses patient engagement from a different perspective. The Patient Activation Measure (PAM) is a widely used instrument that focuses on a person's activation in their health care. Patient activation is a similar yet different construct from patient engagement. Activation does not address the external component of having the ability or willingness to partner with health care providers and therefore is not congruent with the definition of patient engagement as defined earlier in this paper. The Patient Health Engagement scale (PHE-S) measures patient engagement from a more psychological perspective and the Altarem Consumer Engagement

(ACE) measure assesses patient engagement from a consumer health information-seeking standpoint.

The Person Engagement Index (PEI) was developed for use during the assessment phase of the interactive care model and as a measure to regularly evaluate an individual's capacity to be engaged in their health care at any point in their health care experience (Drenkard et al., 2015). The PEI is a psychometrically sound, 18-item measure that is supported by the theoretical framework and purpose of this study. This study will use the PEI as a measure of the independent variable *patient engagement in health care*. The items assess topics such as willingness to discuss health concerns with their provider, ability to speak up and address their specific health needs with their provider, view that he/she is part of the health care team, ability to discuss and set goals with their provider, and understands their health care choices. The recently developed PEI has been used in one known study (Sun et al., 2019) to date and is suitable for use in this study.

Study Variable: Nurse Practitioner-Patient Partnership

A literature search was conducted for published research articles with relevance to the quality of the nurse practitioner-patient partnership and health promotion behaviors. A database search was conducted in CINAHL from 2009 to May 2020. The search was limited to peer-reviewed, full-text, research articles in English. Several searches were conducted using Boolean phrase terms "nurse practitioner-patient partnership" OR "nurse practitioner-patient relationship" AND "health promotion behaviors" which yielded no results. Boolean phrase terms "quality of patient-provider relationship" and subject major heading "physician-patient relations" yielded 13 articles after duplicates were removed. Another search included Boolean phrase terms "quality of relationship" AND "patient and provider" and subject major heading "physician-patient

relations" yielded 5 more articles. A final search using Boolean phrase terms "provider partnership with patient" yielded 13 articles. After reviewing articles identified in the database search a total of 6 articles were found to be relevant and included in this literature review.

Background on Nurse Practitioner-Patient Partnership

The concept of the partnership between the NP and patient is still relatively new and understudied. There is a lack of published literature on this topic. The term *relationship* between a patient and their NP is more commonly seen in the literature. The concept of *partnership* is supported to highlight the patient's active participation in making informed decisions and accepting greater responsibility for their health (Wilson, 1995). Patients offer their personal experiences and knowledge of their health condition and providers bring their expertise and knowledge to the encounter (Courtney et al., 1996; Gallant et al., 2002; Pomey et al., 2015; Slade et al., 2009; Wiggins, 2008). Important components of this partnership include bi-directional information exchange between patient and provider and seeking patient input to establish goals based on their preferences. In the end, patients have greater responsibility for their health when they are knowledgeable and make informed decisions.

A concept analysis of partnership within the nurse-patient relationship by Gallant et al., (2002) determined that the nurse transitions between the roles of educator, facilitator, and helper as a means of sharing nursing expertise and knowledge with patients. The nurse moves from the role as expert to becoming a partner with the patient, thus increasing the patient's capacity to act on their own behalf. In a more recent analysis by Hook (2006) the concept was expanded to include the partnership between the patient and health care provider across all health care disciplines. Hook (2006) identified eight partnership attributes: shared decision making, caring relationship, professional competence, shared knowledge, autonomy, reciprocal communication,

patient participation, and shared power.

Concept analyses describe partnership as a process in which patients and health care providers work together through negotiation, shared power (Gallant et al., 2002; Hook, 2006) and shared decision-making (Hook, 2006). Antecedents of partnership include provider expertise, communication skills, consideration, self-awareness, and ability to identify patient preferences during shared decision-making (Hook, 2006). Both concept analyses by Gallant and colleagues (2002) and Hook (2006) identified empowerment as the most reported consequence of partnership. Patient empowerment pertains to the process of becoming more confident and having the capacity to control one's life (Hook, 2006). Additionally, consequences of partnership include increased patient participation in the management of their health, improved utilization of health care resources and improved health outcomes.

In the concept analysis by Hook (2006); however, none of the studies were designed to measure whether partnership was present. While partnership was not directly measured, partnership attributes have been measured in various instruments. Attributes of patient-provider partnership identified in Hook's (2006) concept analysis that have been measured include collaboration, communication and information sharing (Kim et al., 2001), physician trust (Leisen & Hyman, 2001), therapeutic alliance, shared power, and shared information (Mead et al., 2002). In summary, important components of partnership include a relationship between provider and patient that evolves over time where patients participate, communicate, develop autonomy, and share in health care decisions (Hook, 2006).

Empirical Studies Study Variable: Nurse Practitioner-Patient Partnership

The database search did not identify any articles that related specifically to the quality of the nurse practitioner-patient partnership. The nurse practitioner-patient partnership is a new and

evolving concept that is understudied. In pursuit of a greater understanding of the partnerships that exists between patients and nurse practitioners or health care providers, this review includes research articles related to health care provider-patient partnerships in general. Six studies were identified from the database searches.

Partnerships between patients and care-providers have been identified within the rehabilitation setting. Slade and colleagues (2009) conducted a qualitative study to examine how participants view the use of an exercise program for chronic low back pain and how this effects their participation and engagement in exercise. The authors conducted three focus groups, each consisting of six adults with chronic low back pain who had completed an exercise program.

Findings revealed that participants wanted a partnership with their care providers during their rehabilitation (Slade et al., 2009). All participants wanted information from their care provider that they could understand including educational materials and resources. Participants desired effective communication with a provider that was a good listener. Findings also revealed that participants viewed partnership with a care provider to include their ability to discuss and establish mutual goals of care. In addition, all participants believed they developed beneficial partnerships with their health care providers when participants were free to incorporate their beliefs, values, preferences, and goals into the program. Participants voiced anger and frustration when care providers failed to listen to the patient or when information was lacking or unclear. Participants wanted a partnership that included listening, caring and respect from the care provider. The importance of maintaining continuity and the ability to follow-up with a care provider were viewed as important strengths within the partnership. Finally, all participants expressed the belief that they were experts in their body's response to activity, exercise, and treatment, and desired this acknowledgement from the care provider. In terms of outcomes, most

participants believed that they developed assertiveness skills from the partnership experienced through the exercise program.

Partnerships have also been examined between health care providers and older patients with mental illness (Schroeder, 2012). Patients from a mental health recovery social center in the northeast U.S. were recruited to participate in in-depth interviews. Data saturation was met after eight adults were interviewed. The sample included four men and four women between the ages of 57 and 63 years of age. The interviews were audiotaped, transcribed verbatim, and analyzed for common themes. Main findings demonstrated that the participants had a clear understanding of what represented a good provider-patient relationship and that sustaining a good relationship was important. The participants viewed a good provider to be one that displayed empathy and genuine care. The participants described having a feeling of belonging and connection with the provider and having the ability to easily communicate with them. Health care providers inspired hope and confidence in their patients' ability to succeed in achieving goals. Health care providers also took time to focus on patients' unique capabilities. Barriers to a good provider-patient relationship include lack of trust and providers that were emotionally distant and uncaring. Results from this study revealed that patients feel empowered to achieve goals of care when they feel supported by a good relationship with their provider.

Brion (2014) conducted interviews to examine the process of becoming and maintaining medication adherence among people infected with HIV. Flyers posted at HIV treatment centers were used to recruit participants. Data saturation was achieved at 23 interviews. The participants were mostly male (n =15) with an age range between 35 – 57 years. The interviews were audio recorded, transcribed verbatim, coded and analyzed for common themes and concepts. The main finding from this analysis was the importance of the provider-patient relationship in addressing

patients' needs as they accept, adjust, and succeed in achieving medication adherence behaviors. This group of highly medication adherent participants expressed the following provider attributes that facilitated a good relationship: taking time to listen to the patient, educate the patient, see the patient as a person and treat as a friend, always having access to the provider, and having trust in the provider. This study describes elements that support a quality provider-patient partnership, which may influence positive health behaviors such as medication adherence.

Bankoff et al., (2013) used secondary data from a larger study to examine the relationship between the quality of the provider-patient relationship (PPR) and physical health indicators such as health related quality of life (HRQOL) and viral load among a group of HIV-positive men who have sex with men (MSM). Participants were recruited from two HIV clinics in Seattle. A total of 171 HIV-positive men with a mean age of 44 years (SD not reported) participated in this study. The quality of the PPR was measured using a 9-item self-reported scale that included a subscale that measured the quality of provider information. Another subscale measured provider interactional style which assessed the caring, compassion and understanding of the provider towards the patients' worries and concerns. HRQOL was measured using the Medical Outcomes Study HIV Health Survey. Results showed that there was a small to moderate positive correlation between the quality of provider information and HRQOL (r = .23, p = .002, r^2 = .05) and interactional style (r = .20, p = 008, r^2 = .04). In addition, there was a negative correlation between low ratings of the quality of information offered (r = -.25, p = .012, r^2 = .03) and greater patient viral load. The quality of provider information was a significant predictor of viral load (F(1,160) = 5.27, p = .023). This study supports the importance of a quality PPR in improving HRQOL and physical health status.

Underhill and Kiviniemi (2012) examined the relationship between patients' perceived

quality of the provider-patient communication, quality of provider relationship building behaviors, and colorectal cancer screening. Selected items from the National Cancer Institute's Health Information National Trends Survey 2007 were used in this study. These questions measured participants' perception of the quality of provider-patient communication and providers' relationship building behaviors (patient concerns, psychological needs, shared understanding and involved in decisions). This study included a total of 4,675 surveys. The sample was half female (54.7%; n= 2557), mostly white (79%; n= 3693), and between the ages of 50 and 64 years (58.4%; n= 2730). Results showed that for participants with higher quality provider-patient communication, the odds of having a colonoscopy increased by 26% (OR 1.26; 95% CI: 1.12, 1.40, $p < .001$). Three of the four components of provider relationship building behaviors: patient concerns (OR 1.23; 95% CI: 1.10, 1.37, $p < .001$), psychological needs (OR 1.23; 95% CI: 1.09, 1.40, $p < .001$), and involved in decisions (OR 1.23; 95% CI: 1.11, 1.36, $p < .001$) were predictive of colonoscopy screening. Results from this study show that high quality provider-patient communication and high quality of the providers' relationship building behaviors were associated with patients getting their colonoscopy.

Muirhead et al., (2014) examined the dentist-patient relationship and oral health-related quality of life in older adults living in London. The dentist-patient relationship was measured by five factors related to the patients' perceived need for treatment, time taken to discuss problem, patient involvement in decision-making, respect and dignity, and confidence and trust. Using stratified random sampling a total of 772 individuals aged 65 and older were recruited. At least half were female (53.7%; n= 415) and the sample was mostly White (80%; n= 618). Results showed that older individuals with a perceived unmet dental need (PRR = 1.84; 95% CI: 1.32, 2.56, $p < 0.001$) and those with no confidence and trust in their dentist (PRR= 1.74; 95% CI:

1.01, 2.98, p = ,04) had poorer oral health-related quality of life. This study highlights the importance of a quality dentist-patient relationship in oral health-related quality of life.

Summary of Nurse Practitioner-Patient Partnership Empirical Studies. The studies in this review included both qualitative and quantitative research. Various populations were studied including adults with HIV, older people with mental illness, older people that go to the dentist, rehabilitation patients, and participants from a national survey of U.S. adults. Overall, these studies showed that individuals want a partnership with their provider based on trust and respect (Brion, 2014; Schroeder, 2012; Slade et al., 2009). Provider skills in spending time with the patient, listening, communicating, providing information, (Brion, 2014; Schroeder, 2012; Slade et al., 2009), and showing empathy and caring were all important attributes of the provider-patient partnership (Schroeder, 2012; Slade et al., 2009). Individuals also felt that sustaining the provider-patient partnership was necessary to achieve their health goals (Schroeder, 2012; Slade et al., 2009). Attributes of a quality provider-patient partnership such as provider-patient communication (Bankoff et al., 2013) was associated with improved health related quality of life, and colonoscopy cancer screenings (Underhill and Kiviniemi, 2012). The lack of patient confidence and trust in their dentist was found to be a predictor of poor oral health-related quality of life (Muirhead et al., 2014). These studies suggest that the provider-patient partnership is an important relationship that may influence an individual's quality of life, goal attainment, and health behaviors (cancer screening). It is therefore reasonable to investigate whether the nurse practitioner-patient partnership influences an individual's health promoting behavior.

Instruments to Measure Nurse Practitioner-Patient Partnership

There are no known instruments available to specifically measure the *partnership*

between patient and nurse practitioner. This section will discuss three instruments that were identified in the literature review that measure the relationship between patient and health care provider or physician.

Patient Reactions Assessment. Galassi, Schanberg and Ware (1992) developed the Patient Reactions Assessment (PRA) to measure the quality of the patient-provider relationship. This instrument consists of three 5-item subscales using a 7-point Likert-style format that is completed by the patient after the visit. The Patient Information Index (PII) subscale measures the patient's perception of the quality of the information provided about their condition, tests, treatments, and results. The Patient Affective Index (PAI) subscale measures how much the patient believes their provider understands, respects, and values them. The Patient Communication Index (PCI) subscale is the patient's self-report of their ability or difficulty in asking questions or initiating communication with their provider regarding their condition, treatment, and so forth.

To avoid the potential uneasiness of the first provider visit, the authors pilot-tested the PRA on patients who had two or more appointments with the same provider (Galassi et al., 1992). Patients were instructed to answer the questions in the PRA based on their most recent contact with their provider. Therefore, PRA scale is largely considered a visit-specific measure of the patient-provider relationship. The PRA was developed and tested among cancer patients but the items are not specific to cancer related issues and the scale has been used among various patient populations and in a variety of health care settings. In addition, the 15-item PRA measure is not provider specific and has been used among a variety of health care providers.

The PRA was tested among a sample of 197 patients from a cancer center (Galassi et al., 1992). The sample consisted of 79 men (40.1%), 116 women (58.9%), 2 unspecified (1%) with

a mean age of 49.94 years (SD = 14.96). The sample was mostly White (86.3%; n= 170), Black (7.6%; n= 15), and Native American (3.6%; n= 7). The PRA was found to have high internal consistency with a Cronbach's alpha for the total scale .91. Cronbach's alphas for the subscales: PII = .87, PCI = .91, and PAI = .90. Factor analysis confirmed the PRA to be a three-factor structure. The PRA confirmed concurrent validity based on a Mann-Whitney test for two independent samples demonstrating significant between-group differences, ($U = 0$, $p < .05$).

***Empirical Studies Using the PRA*.** Marelich and Murphy (2003) explored the association between a patient's decision-making involvement and the quality of the patient-provider relationship. Fifty HIV-positive women were recruited to participate in this descriptive correlational study. The participants received care from physicians (82%; n= 41), NPs (14%; n= 7), and other type of provider (4%; n= 2). The PRA was used to measure the quality of the patient-provider relationship. Internal consistency reliability (Cronbach's alpha) ranged from 0.83 to 0.91 for the sample. Decision-making involvement was assessed based on four questions to which no reliability or validity was established. Findings from this study showed that HIV-positive women who are involved in decision-making received more information from their provider and reported better communication with their provider. The findings support the need for health care providers to partner with their patients to increase their involvement in decision-making.

Oetzel et al. (2015), and Archipoli et al. (2016) used data from the same sample of HIV patients (n= 344) receiving care from providers at a federally funded clinic in New Mexico. The PRA was used to measure the quality of the patient-provider relationship. Internal consistency reliability (Cronbach's alpha) for the three subscales of the PRA ranged from 0.88 to 0.92, with the overall scale measuring 0.92. One study found that patient-provider relationship was

associated with greater patient satisfaction and health related quality of life (Oetzel et al., 2015). Findings from Archiopoli and colleagues (2016) found that the patient-provider relationship was associated with greater medication self-efficacy and thus improved medication adherence. Overall, findings from both studies show support that a quality relationship between patient and provider is associated with patient satisfaction, higher quality of life, greater medication self-efficacy, and medication adherence.

A study by Zrinyi et al. (2003) used the PRA to examine the patient-staff relationship to dietary self-efficacy and compliance behaviors among hemodialysis patients (n = 107) at 20 dialysis centers in Hungary. The reported Cronbach's alpha for instruments used in this study ranged from 0.84 to 0.92. Results showed a correlation between higher quality staff-patient relationships with greater dietary self-efficacy and compliance behaviors.

A study by Sikavi and Weseley (2017) used two subscales of the PRA to examine the degree psychosocial factors in the patient-oncologist relationship are associated with patient satisfaction with care, medication adherence, and general health among patients diagnosed with breast cancer. The Patient Information Index subscale was used to measure perceived physician information giving. The Patient Affective Index subscale was used to measure perceived physician supportiveness. The Patient Information Index and the Patient Affective Index were found to be reliable with Cronbach's alpha measuring 0.86 and 0.81, respectively. Findings from this study showed that physician supportiveness and physician information giving were positively associated with trust in the oncologist. This study also found physician supportiveness to be more strongly linked to satisfaction with care than trust in physician.

Patient-Doctor Relationship Questionnaire. The Patient-Doctor Relationship Questionnaire (PDRQ-9) is a 9-item instrument that measures the helping attitude of the

physician from the patient's perspective (Van der Feltz-Cornelis, 2004). The instrument was designed for use within the primary care setting to assess how well patients consider their primary care physician to be effective and helpful. This instrument was developed based on the Dutch version of Helping Alliance Questionnaire by Van der Linden. The 11-item Helping Alliance Questionnaire was modified, and pilot tested on 8 healthy participants to examine the items comprehensibility. The resulting PDRQ was a 15-item instrument with a response scale ranging from 1 (*not at all appropriate*) through 5 (*totally appropriate*). The questionnaire was handed out in three primary care practices consisting of five primary care physicians and at an epilepsy center. A total of 165 questionnaires were completed. The sample was mostly Caucasian, female (64%; n= 106), with a mean age of 41 years (SD not reported). Results of the factor analysis, reliability testing, and construct validity reduced the PDRQ to a one-factor structure consisting of 9-items that focus on the empathetic style and availability of the doctor. Findings showed that the instrument was able to discriminate between patients from the primary care practice and the epilepsy clinic. Internal consistency reliability as measured by the Cronbach's alpha was .94. The PDRQ-9 does not measure the quality of care, technical skills, or communication skills of the physician. The PDRQ-9 measures the helping attitude of the primary care physician from the perspective of the patient.

Empirical Studies Using the PDRQ-9. Weng and colleagues (2011) examined the relationship between surgeon's emotional intelligence and empathy with the patient-surgeon relationship and patient satisfaction. The PDRQ-9 was used to measure the patient-surgeon relationship. A total of 50 surgeons and 549 outpatients participated in this study. The sample of surgeons was essentially male (97.1%; n= 48) with a mean age of 43.14 years (SD = 8.59). The sample of patients was 51.9% male (n= 285) with a mean age of 45.4 years (SD = 19.07). In

addition to the PDRQ-9, patients completed surveys pertaining to satisfaction with surgeon and self-reported health status before and after surgery. Cronbach's alpha for the PDRQ-9 was .89. Results showed that older surgeons ($r = .35$, $p < .001$) and surgeons with higher levels of emotional intelligence ($r = .45$, $p < .001$) were more likely to have a positive relationship with their patients. Patients reported greater satisfaction ($r = .95$, $p < .001$) with better-rated patient-surgeon relationships.

Porcerelli and colleagues (2014) conducted an additional validity study of the PDRQ-9. A total of 180 adult patients from a primary care clinic participated. The sample was mostly female (68%; n= 122) and Caucasian (63%; n= 113) with a mean age of 37.83 years (SD= 14.4). Construct validity using factor analysis was conducted and confirmed a single factor structure. Internal consistency reliability using Cronbach's alpha was .96. Convergent validity, the degree to which an instrument correlates with other validated instruments, was tested using the Difficult Doctor Patient Relationship Questionnaire-10 (DDPRQ-10). The DDPRQ-10 measures the doctor reported degree of difficulty in the patient encounter. Correlational analyses showed that the PDRQ-9 was significantly and negatively correlated with the DDPRQ-10 ($r = -.22$, $p = .003$). That is, patients that rated their relationship with their primary care provider more positively, the less difficult the primary care provider rated their encounter with the patient. Discriminant validity was assessed by comparing the patient PDRQ-9 ratings of *physicians* to patient PDRQ-9 ratings of *residents* using *t*-test. Results showed that the t-test was significant (p=.01), indicating that the PDRQ-9 was able to discriminate between groups, that is more favorable ratings were given to physicians (n=23, M=43.17, SD= 4.42) compared to residents (n=157, M= 40.30, SD = 6.84). Overall, results of this study support the use of the PDRQ-9 as a reliable and valid instrument to measure the patient's view of the therapeutic aspects of the patient-physician

relationship in primary care settings.

Kim Alliance Scale. The Kim Alliance Scale (KAS) is a 30-item instrument that assesses the quality of the therapeutic relationship between patient and health care provider from the patient's perspective (Kim et al., 2001). The KAS measures four dimensions of the patient-provider relationship which include empowerment (6-items), collaboration (8-items), communication (11-items), and integration (5-items). This instrument may be used in various health care domains including medicine, nursing, and psychotherapy. The initial version of the KAS was tested on a small sample of 68 registered nurses (60 women and 8 men). The sample was 65% Caucasian (n= 44), 13% Asian American (n= 9), 7% Mexican American (n= 5), and 6% African American (n= 4). Internal consistency reliability using Cronbach's alpha for the total KAS was .94. The Cronbach's alpha for the dimensions ranged from .71 to .87. Generalizability of the findings were limited due to a high education level of the sample: doctoral degree (7%; n= 5), master's degree (60%; n= 41), baccalaureate degree (22%; n= 15), associate's degree (6%; n= 4), and high school diploma (4%; n= 3). The use of only registered nurses into the sample represented a potential sampling bias.

The KAS was revised to measure the quality therapeutic alliance between patient and provider (Kim et al., 2008). The refined KAS (KAS-R) was used to examine the association between the therapeutic alliance and patient satisfaction with care. A total of 601 patients were recruited from two outpatient clinics mostly serving retirees and military families. The sample was mostly female (79%; n= 477), Caucasian (48.8%; n= 293), and a high percentage of Asian/Pacific Islander (25.6%; n= 154). Both clinics consisted of family practitioners, internists, pediatricians, combined internist/pediatrician, NPs, and physician assistants. The KAS-R consists of 16 items and 4 final factors (collaboration integration, empowerment, and

communication subscales). Internal consistency reliability for the subscales ranged from .75 to .80 with the total scale measuring .89. Results from this study did find that the quality of the therapeutic alliance was a significant predictor for patients' satisfaction with care. In summary, the KAS-R was found to be a reliable and valid instrument in measuring the therapeutic alliance between patient and provider in the outpatient clinic setting.

***Empirical Studies Using the KAS*.** No published studies using the KAS or KAS-R were found in this literature search. However, Alvarez and colleagues (2016) assessed the psychometric properties of the KAS - Communication subscale (KAS-CM) along with a shared decision-making scale to evaluate patient-centered outcomes. This study was conducted among English and Spanish speaking mental health patients receiving treatment from behavioral health providers. The 11-item KAS-CM subscale measures patient-provider communication from the patient perspective on a 4-point Likert scale. The KAS-CM was tested on a sample of 239 participants of which 160 were English speaking and 79 were Spanish speaking. Results showed that on three items there were differences in cultural or language characteristics between the two groups indicating differences in the patient experience of communication. Internal consistency reliability for the KAS-CM as measured by the Cronbach's alpha was adequate (total scale = .66, English = .61, and Spanish = .78).

Summary of Instruments Measuring the Nurse Practitioner-Patient Partnership. None of the instruments found within the literature search specifically measured the quality of the patient-nurse practitioner partnership. The instruments discussed examined various components of the patient- provider relationship such as communication, affect, information, helping attitude, empowerment, collaboration, and integration. The literature review identified bidirectional communication, shared knowledge and information, shared decision-making,

shared power, trust, respect, and feeling listened to as important components of the partnership between patient and NP. The KAS-R, PRA, and PDRQ-9 contained 16 items or less, while the 30-item KAS was a much longer questionnaire. All instruments demonstrated acceptable psychometric properties.

After comparing and contrasting the PRA, KAS, KAS-R and the PDRQ-9, the PRA was found to be a short questionnaire that measures three important components of the patient-provider partnership (communication, affect, information) and therefore is suitable for measuring the nurse practitioner-patient partnership. The PRA has been used in several studies and among various populations including adults living with HIV, cancer patients, hemodialysis patients, and patients with a chronic health condition. The measure has been used to examine the patient-provider partnership with shared decision-making, quality of life, medication self-efficacy, medication adherence, diet self-efficacy, compliance behavior, patient self-management and patient satisfaction.

Patient Engagement and the Nurse Practitioner-Patient Partnership Literature Review

This section presents empirical studies with relevance to the unique relationship between the concepts of patient engagement and the nurse practitioner-patient partnership. A literature search was conducted for published research articles in CINAHL from 2009 to May 2020. The search was limited to peer-reviewed, full-text, research articles in English. Searches were conducted using the following Boolean phrase terms “patient engagement,” “engagement in care,” “nurse practitioner-patient partnership,” “doctor-patient relationship,” and “nurse-patient relationship.” The search yielded 56 articles. Duplicates were removed and articles were reviewed for relevance to the topic. A total of four articles are included in this section of the review.

Three of the articles involved qualitative methods including focus groups and interviews. Findings from these studies showed that patients believed health care providers promoted patient engagement by sharing information openly and honestly with them (Sloan & Knowles, 2017). A relationship built on trust was necessary to promote patients' active participation (duPon et al., 2019; Sloan & Knowles, 2017) and in bi-directional communication (duPon et al., 2019; Hurley et al., 2018). Providers who took the time to establish a rapport with patients and listen to their needs promoted patient-provider communication (Hurley et al., 2018). Patient-provider communication was important in sustaining patients' engagement in their health care (Hurley et al., 2018). Effective patient-provider communication enabled providers to collaborate with patients to address health concerns (Hurley et al., 2018).

A quantitative study examined the influence of patient engagement and the quality of the patient-provider relationship on patients' online health information seeking behaviors among patients with chronic health conditions (Graffigna et al., 2017). Results showed that the quality of the patient-provider relationship was significantly correlated with patient engagement in their health care ($r = 0.313$, $p < .001$). In conclusion these studies lend support for the important role that the patient-provider relationship may play on a patient's engagement in their health care. Further study to investigate the nurse practitioner-patient partnership and whether it influences patient engagement is of interest.

Conclusion

The CDC estimates the following proportion of deaths in 2014 that were preventable among individuals under the age of 80 years due to: heart disease (30%), cancer (15%), chronic lower respiratory disease (36%), and stroke (28%) (Garcia et al., 2016). Promoting healthy behaviors and a healthy lifestyle is an important and necessary step towards decreasing the high

incidence of preventable deaths in the U.S. A literature review was conducted to better understand the dependent variable of health promotion behaviors and the independent variables of patient engagement, and the nurse practitioner-patient partnership. A review of health promotion behaviors literature has shown that individuals and their spouses/partners are interested in workplace health promotion programs (Hammerback et al., 2015). Common health behaviors that individuals make an effort to change include diet, exercise, and weight loss (Buchholz et al., 2012; Hammerback et al., 2015; Walker et al., 2009). Several studies involved specific health promotion intervention programs designed to address diet, physical activity, smoking, and sleep behaviors among various populations (Buchholz et al., 2012; Byrne et al., 2016; Walker et al., 2009; Yan et al., 2014). Outcomes from health promotion behavior interventions include improvements in physical activity (Walker et al., 2009), quality of life (Ipsen et al., 2014), and weight loss (Buchholz et al., 2012).

Behavior specific cognitions including self-efficacy and interpersonal influences, from the health promotion model were found to be predictive of health behaviors among active duty military women (Agazio & Buckley, 2010). Self-efficacy and interpersonal influences are similar concepts to the independent variables of patient engagement and the nurse practitioner-patient partnership. Similar with self-efficacy, patient engagement promotes an individual's active role in their health care. Patient engagement behaviors such as bringing questions to their health care provider visit increased patient knowledge and ability to make healthy choices (Kaphingst et al., 2014). Patients with higher levels of engagement in their health care had better clinical outcomes (normal HDL), healthier behaviors (not smoking), and obtained preventive cancer screenings compared to patients with low levels of patient engagement (Greene et al., 2015).

Few patient engagement instruments are noted in the literature. Patient engagement is a

broad concept and further study is warranted to understand how it relates to the concept of health promotion behaviors. The Person Engagement Index by Swartwout et al. (2018) will be used to measure actions taken by a patient to obtain the greatest benefit from health care services (Gruman et al., 2010). Items in this instrument assess actions such as information seeking, setting health care goals, and active participation to address health concerns.

The literature search did not uncover any articles pertaining specifically to the quality of the nurse practitioner-patient partnership as this is a new and evolving concept. This review did examine providers that deliver HIV care, rehabilitation care, dentists, and health care providers. These studies support that patients want a partnership with their provider that is based on trust and respect (Brion, 2014; Schroeder, 2012; Slade et al., 2009). Important provider skills to achieve partnership include communication, listening, caring/empathy, and providing information (Brion, 2014; Schroeder, 2012; Slade et al., 2009). A strong provider-patient partnership was associated with improved health related quality of life, goal attainment, and health behaviors (Schroeder, 2012; Slade e al., 2009; Muirhead et al., 2014; Underhill & Kiviniemi, 2012). Since quality provider-patient partnerships are associated with goal attainment and healthy behaviors it is reasonable to further investigate the nurse practitioner-patient partnership and its influence on patient health promotion behaviors.

To date the nurse practitioner-patient partnership has been understudied and therefore it is important to investigate this concept and health promotion behaviors. Nurse practitioners make up a growing percentage of primary care providers in rural and nonrural settings (Barnes et al., 2018). In the U.S. nurse practitioners account for 26 percent of primary care providers (Agency for Healthcare Research and Quality, 2018). It is estimated that 87.1% of newly graduated nurse practitioners are trained in primary care (McMurrey, 2019). It is important to further understand

the relationship between the primary care nurse practitioner-patient partnership and its influence on patient engagement. The linkages between patient engagement, the patient-nurse practitioner partnership, and health promotion behaviors needs further study. Examining these relationships has the potential to yield important data that may improve an individual's adoption of health promotion behaviors.

Chapter III

Methodology

This chapter provides an overview of the research design, setting, sample, sampling procedures, ethical considerations, research instruments, data collection, and data analysis methods used in this study.

Research Design

A nonexperimental, descriptive, correlational design was used to examine the relationships among the study variables of patient engagement in health care, patient-nurse practitioner partnership, and health promotion behaviors. The cross-sectional nature of this study design involves data collection and analysis of a phenomena at a given point in time (Polit & Beck, 2021). Descriptive correlational studies describe the status of a concept and examine relationships and connections between variables, but do not suggest causality (Polit & Beck, 2021).

Population and Sample

Patients were recruited with permission from one nurse practitioner (NP) primary care practice setting in northern New Jersey (Appendix A). Convenience sampling was used to recruit patients until the required sample size was met. The practice consisted of three female, adult primary care NPs serving a caseload between 2,800 and 3,000 patients. On average the practice provided care to 90 patients per week. Two of the NPs were in their early 60s each with 27 years of experience, and the other in her mid-30s with 5 years of experience. Eligible participants had to be at least 18 years of age, able to read English and complete the study questionnaires, and have had at least one previous health care encounter with their NP. Patients in this practice select a primary care NP for routine annual health exams and follow-up care for chronic conditions. In

the event of an acute illness, care is provided by the any available NP.

Sample Size and Statistical Power

An *a priori* power analysis using the software program G*Power (Faul et al., 2007) was conducted to determine the sample size required to detect a medium effect between the independent variables (engagement in health care and nurse practitioner-patient partnership) and dependent variable (health promotion behavior) in this study. According to Polit and Beck (2021) nursing research usually has small to medium effects. Results from the G*power analysis using *F* test, linear multiple regression fixed mode, R^2 deviation from zero, medium effect size (0.15), and power of 0.80 with an alpha of 0.05 resulted in a necessary sample size of 68.

Setting

This study took place during the Covid-19 pandemic. During this period NPs provided care either through the traditional face-to-face encounter or via telehealth. To decrease virus transmission, telehealth was the preferred method of patient care for nurse practitioners during weeks of high transmission rates. Face-to-face encounters were provided during periods of low transmissibility. There were two settings for data collection in this study. First, all patients that visited the patient portal and read the letter of solicitation were prompted to click on the Qualtrics link to gain access to the consent and study questionnaires. Patients had the option of using any computer or location of their choosing to access the patient portal.

The second data collection setting took place at the NP primary care center. Patients receiving face-to-face care from the NPs at the primary care center were provided questionnaires in a paper format. Patients were given the opportunity to complete the questionnaires while in the office or outside the office in a location of their choosing. Participants were given the option of returning the paper formatted questionnaires to the drop box located at the NP practice or

mailing them to this researcher. Alternately, participants receiving face-to-face care were given the option to complete the questionnaires online at a computer and location of their choice. The Qualtrics link was located on the letter of solicitation.

Ethical Considerations

Approval for this study was granted 26 July 2021, from Seton Hall University Institutional Review Board (Appendix B) to recruit participants for this study through the New Perspectives Health Care patient portal. An amendment (Appendix C) was approved on 23 March 2022, to allow this researcher to recruit participants from the waiting room of the New Perspectives Health Care NP practice. This study is confidential. No personal data or personal identifiers from participants were collected. A letter of solicitation (Appendix D) including a link to the online informed consent (Appendix E) and surveys were placed onto the NP practice patient portal by the NPs.

Participants recruited from the waiting room of the NP primary care practice were provided with a letter of solicitation. Interested participants were asked to provide written informed consent (Appendix F). Participants were instructed to complete the surveys in paper format and to refrain from using any personal identifiers such as name or address. Participants were given the option of mailing the consent and questionnaires back to this researcher. A stamped prepaid envelope was made available to participants upon request. Participation in this study was voluntary and no monetary compensation or incentives were provided.

Data Collection Procedures

A link to the letter of solicitation describing the study purpose, consent form, demographic sheet (Appendix G), and questionnaires was created through Qualtrics, an online survey management system. Data collection for this study took place during the Covid-19

pandemic. The NP practice traditionally evaluated patients in face-to-face health care encounters. However, due to the Covid-19 pandemic the NP practice increased their utilization of telehealth to reduce the transmission of the virus.

Participants were recruited in three ways. First, a letter of solicitation was posted on the NP practice patient portal along with a Qualtrics link containing the consent, demographic sheet, and questionnaires. The second enrollment plan involved recruiting patients that received NP care during a face-to-face encounter at the NP primary care practice. An 11” x 14” framed research recruitment sign (see Appendix H) was placed on a 4-foot stand in the waiting room of the NP practice. The research sign directed interested patients to pick up a letter of solicitation containing the Qualtrics link to the consent and study questionnaires. Participants were free to complete the questionnaires on a computer and in a location of their choosing.

The third enrollment plan involved this researcher recruiting potential participants from the waiting room of the NP primary care practice. A letter of solicitation explaining the study purpose was provided to potential participants. Participants providing written informed consent were given a 9” X 12” manila envelope containing a *research packet*. This research packet contained the demographic sheet and study questionnaires stapled together. Participants were free to complete the research packet in a location of their choice. Participants were instructed to return the completed research packet to the manila envelope, seal, and place in a secure, locked box located next to the research sign. The manila envelopes were numbered in sequence “001”, “002”, and so on. The participants were instructed to avoid placing any personal identifiers on the research packet or manila envelope. This researcher recruited participants twice a week over an eight-week period. The research packets were removed from the secure locked box at the end

of each recruitment day. Data was collected at the NP office and via Qualtrics until an adequate sample was obtained.

Instruments

This section offers a discussion on the demographic data questionnaire and three instruments used to measure the independent and dependent variables. Health promotion behaviors were measured using the Health Promoting Lifestyle Profile II. Patient engagement was measured using the Engagement in Health Care subscale and the nurse practitioner-patient partnership was measured using the Patient Reactions Assessment. A demographic data questionnaire was created to assess various characteristics of the study sample. Time to complete the demographic sheet and all three questionnaires was recorded at 20 minutes.

Health Promoting Lifestyle Profile II. The Health Promoting Lifestyle Profile II (HPLP-II) (Appendix I) is a 52-item instrument that measures the major components of a health promoting lifestyle (Walker et al., 1995). The HPLP II uses a 4-point Likert type scale format (1 = never, 2 = sometimes, 3 = often, 4 = routinely). Patients that complete this instrument are instructed to select the frequency in which they engage in each behavior listed. Higher scores suggest greater involvement in health promotion behaviors. Examples of questions contained in this instrument include 1) *get enough sleep* and 2) *follow a planned exercise program*. The HPLP II achieved a Flesch-Kincaid readability score of 74.2. A score between 70 and 80 is considered fairly easy to read and indicates a 7th grade reading level (Terblanche & Burgess, 2010). HPLP-II is licensed in Creative Commons and available for use (Appendix J).

The original version by Walker, Sechrist, and Pender (1987) was developed from a literature review and the Lifestyle and Health Habits Assessment (LHHA). The LHHA contains 100 items and is used by nurses to assess patients' positive health behaviors. The HPLP

instrument was pilot tested on a sample of 173 nursing students. Internal consistency was high with Cronbach's alpha at .919 (Walker et al., 1987). Stability was assessed two weeks later by administering the HPLP for a second time to 92 students. Test-retest reliability was found to be stable (r=.854). Content validity was established through a content evaluation by four nursing experts in the field of health promotion. This resulted in a 107-item measure that was further tested among a sample of 952 adult participants ranging in age from 18 to 88 years from two midwestern states. Item analysis, factor analysis and reliability estimates were conducted on the 107-item scale. Corrected item-total correlations were computed for the total scale and subscales. Items that lowered the scale's internal consistency, as measured by Cronbach's alpha, were deleted and resulted in a 70-item scale. Construct validity was established by conducting a factor analysis on the remaining 70 items. Principal axis factoring extraction and oblique rotation was performed. Items that did not strongly load onto a factor were deleted which resulted in a 48-item scale. A final 6 factor structure was supported which explained 47.1% of the variance of the 48-item scale.

The resulting 48-item HPLP scale consists of six subscales: Self-actualization, Exercise, Interpersonal Support, Health Responsibility, Nutrition, and Stress Management (Walker et al., 1987). The internal consistency reliability as measured by Cronbach's alpha was .922 for the total instrument and the 6 subscales ranged from .702 to .904. A test-retest reliability coefficient was conducted on a sample of adults (N= 63) where the HPLP was administered two weeks apart. Pearson r = .926 for the total scale and subscales ranged from .808 to .905. In summary the HPLP was found to have adequate validity and reliability for use in different populations.

The HPLP was revised to a 52-item Health Promoting Lifestyle Profile II (Walker et al., 1995). Based on a literature review three subscales were renamed to more accurately reflect their

content. The HPLP-II six subscales include: Spiritual Growth, Interpersonal Relations, Physical Activity, Health Responsibility, Nutrition, and Stress Management. Validity and reliability were tested among a sample of 712 adults ranging in age from 18 to 92 years. Construct validity was tested by factor analysis which supported the six-dimensional construct of a health-promoting lifestyle. Convergent validity was tested with the Personal Lifestyle Questionnaire. The Personal Lifestyle questionnaire is an instrument to measure the construct of positive health practices (Mahon et al., 2002). Convergent validity testing showed a strong correlation between the HPLP-II and the Personal Lifestyle Questionnaire (r = .678).

Criterion-related validity was tested concurrently with instruments to measure perceived health status and quality of life. Pearson's correlation coefficient showed significant correlations (r = .269 to.491). Internal consistency reliability as measured by Cronbach's alpha was .943 for the entire scale. Cronbach's alphas for the subscales range from .793 to .872. Stability of the HPLP-II was assessed by a 3-week test-retest reliability coefficient, r = .892. In summary the HPLP-II has been found to be a valid and reliable instrument to measure health promotion behaviors. The HPLP-II is used frequently in nursing research (Murdaugh et al., 2019) and is suitable for use in this study.

***Person Engagement Index*.** The Person Engagement Index (PEI) is an 18-item instrument and used to measure the independent variable of patient engagement in health care (Swartwout et al., 2018). Examples of questions from this subscale include 1) *I take actions to make sure I am the healthiest I can be,* and 2) *If I have a concern about my health, I take action to address it*. The PEI assesses an individual's capacity to engage in their health care based on their needs, values, and preferences (Drenkard et al., 2015). The PEI consists of four subscales: Engagement in health care, technology use in health care, proactive approach to health care, and

psychological support for health care (Swartwout et al., 2018). Permission to use the PEI was granted by GetWellNetwork, Inc. (Appendix K).

The PEI is scored on a Likert-type response scale ranging from 1 to 5, where 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree (Swartwout et al., 2018). The responses are converted to a 0 to 100-point score using the following mathematical calculation: (patient score-minimum score)/(maximum score-minimum score) multiplied by 100 (Drenkard et al., 2017). For example, if a patient scores a five for all 18 items in the PEI: (90-18)/(90-18) = 72/72 = 1 multiplied by 100 equals 100%. Each subscale is scored individually using the same formula. Higher scores indicate a higher capacity to be engaged in one's health care.

Readability of the scale was assessed using the Flesch-Kincaid Reading Ease and the Flesch-Kincaid Grade Level (Swartwout et al., 2018). The PEI yielded a Flesch-Kincaid Reading Ease score of 72.3. Scores between 70.0 and 79.0 are fairly easy to read and suggest a 7th grade reading level (Terblanche & Burgess, 2010). The Flesch-Kincaid Grade Level for the PEI was 6.9, indicating a 6th grade reading level (Swartwout et al., 2018). This scale contains questions that assess whether a person understands their health care choices, ability to take action to be healthy, ability to discuss health care goals with their provider, and views self as part of the health care team.

The original 24 item PEI was developed based on the assessment phase of the interactive care model (ICM) (Swartwout et al., 2018). The purpose of the assessment phase is to measure an individual's capacity to be engaged in their health care (Drenkard, et al., 2015). Development of the PEI involved a literature review and expert consultation to establish item content validity (Swartwout et al., 2017). Pilot testing was conducted among a sample of 100 older, community

dwelling adults. Construct validity was examined by conducting an exploratory factor analysis with principal axis factoring extraction and orthogonal varimax rotation. A five-factor solution was supported based on the scree plot and percent variance explained. The five factors accounted for 61.7% of the total variance. Results demonstrated good internal consistency reliability with Cronbach's alpha = .882 for the entire scale. Cronbach's alphas for the subscales are as follows: Knowledge of Health Care Status =.886, Proactive Approach to Health Care =.780, Motivation to Manage Health Care =.742, Psychosocial Support for Health Care =.658 and Technology Use in Health Care =.796. The PEI was found to be a valid and reliable scale to measure a person's capacity to engage in their health care, however further testing of the psychometric properties among other populations and settings was warranted.

Swartwout et al. (2018) conducted further testing on the PEI in two phases. Phase I consisted of patient interviews involving the PEI. Items were revised based on the feedback obtained during the patient interviews. Cognitive testing was conducted by trained nurse educators to examine patient comprehension, interpretation, and general response to the items. Findings showed that patients had an overall good understanding of the questions and minor revisions were made.

Phase II involved testing the PEI among a sample of 338 medical-surgical inpatients from five health care facilities located on either the East or West Coast of the U.S (Swartwout et al., 2018). The mean age of the participants was 56 years (*SD* = 17.7). Exploratory factor analysis with principle axis factoring extraction and orthogonal varimax rotation was conducted and resulted in a four-factor solution. The four factors explained 63.9% of the total variance. The first factor (Engagement in Health Care) accounted for 39.2% of the total variance. Internal consistency reliability for the entire scale as measured by Cronbach's alpha =.896. Cronbach's

alphas for the subscales are as follows: Engagement in Health Care = .885, Technology Approach to Health Care =.854, Proactive Approach to Health Care = .728, and Psychological Support for Health Care = .880. Overall, the PEI has been found to be a valid and reliable instrument to assess a person's capacity to be engaged in their health care.

The PEI is a recently developed instrument and at this time only one published study was identified in the literature. Sun et al. (2019) examined the correlations between sociodemographic factors and a person's capacity to be engaged in their health care as measured by the PEI. Results showed that education was the only socio-demographic factor that was significantly associated with the total PEI score ($p = 0.013$). Thus, participants with college or higher levels of education had higher capacity to be engaged in their health care compared to those with less than high school education. Age was the only socio-demographic factor that was significantly associated with the subscale Engagement in Health Care ($r = .119$, $p = 0.029$). A general linear regression analysis was conducted of the PEI, subscales, and patient demographic factors. After controlling for age, gender, race, ethnicity, employment, and relationship status, patient education level was statistically significant in predicting the total PEI score (Adj $R^2 = 0.029$, $p = 0.049$). Psychometrics of the PEI and its subscales were not reported in this study.

The PEI measures a person's capacity to engage in their health care (Swartwout et al., 2018). Results from this measure are used to design and plan care based on the patient's needs and preferences. To date there is a minimum of research using the PEI. Therefore, this study will use the entire 18-item PEI with particular attention paid to the Patient Engagement in Health Care subscale based on its specificity in measuring the construct of patient engagement in health care. This study will examine and report on the internal consistency reliability of the entire PEI, thus contributing to the psychometrics of this newly developed instrument.

Patient Reactions Assessment. The Patient Reactions Assessment (PRA) is a 15-item instrument to measure the perceived quality of the patient-provider relationship (Galassi et al., 1992). The PRA was designed to be used with any health care provider including the nurse practitioner (NP). The PRA consists of three subscales: Patient Affective Index (PAI), Patient Information Index (PII), and the Patient Communication Index (PCI). The PAI measures how much the patient perceives the NP values, understands, respects, and expresses interest in what the patient has to say. The PII measures, from the patient perspective, how well the NP explains information about the patient's condition, treatments, tests, and how well patients understand this information. The PCI measures the patient's self-report of their ability to initiate a discussion and communicate their health concerns with the NP. The PRA was used to measure the nurse practitioner-patient partnership. Permission to use the PRA was obtained from Dr. John P. Galassi (Appendix L).

The instrument uses a 7-point Likert -style response scale where 1 = very strongly disagree, 2 = strongly disagree, 3 = disagree, 4 = unsure, 5 = agree, 6 = strongly agree, and 7 = very strongly agree. Higher scores indicate a greater quality nurse practitioner-patient partnership. To prevent response bias, seven of the 15 questions in the PRA are negatively worded and thus the scoring is reversed. Patients completing the PRA should have had one previous visit with their NP at the time of the survey. Patients completing the PRA are asked to think about their recent contact with the NP and to answer each question based on how they felt. Examples of questions from the PRA include 1) *Is warm and caring toward me*, and 2) *treatment procedure clearly explained*. The PRA scored 66.1 on the Flesch-Kincaid reading ease assessment. Scores ranging from 60 to 69 are considered acceptable and suggests a reading level between the 8th and 9th grade (Terblanche & Burgess, 2010).

The initial 56-items in the PRA were developed based on a literature review, modified items from existing instruments, and feedback from patients, caregivers, and the research team (Galassi et al., 1992). Face validity was assessed by four oncology nurses and thirteen counseling students. Poorly worded items were either rewritten or deleted and reassessed by 15 oncology nurses. This resulted in 51 items which were sorted into three categories: affective, information, and communication. The 51-item PRA measure was tested on a sample of 220 cancer patients with a mean age of 51.36 years (*SD*=13.89). Three separate exploratory factor analyses of the three factors (affective, information and communication) were conducted to reduce the number of items to 19. The 19-item scale was further reduced to a final 15-item instrument by removing items that lowered internal consistency as measured by Cronbach's alpha.

An initial confirmatory factor analysis was conducted to determine if the three factors are interrelated, separate, or interrelated to the degree that the measure is a single factor (Galassi et al., 1992). Results showed that the oblique model fit the data well demonstrating that the factors were correlated. A second confirmatory factor analysis of the final 15-item PRA was conducted on a new sample of 197 cancer patients with a mean age of 49.94 years (*SD* = 14.96). Results showed that the three-factor oblique model provided the best fit for the data.

Internal consistency reliability as measured by Cronbach's alpha for the total scale was .91. Cronbach's alphas for the subscales: PII = .87, PCI = .91, and PAI = .90 (Galassi et al., 1992). Concurrent validity was established by two raters at the cancer clinic independently sorting the staff (6 physicians, one resident and one nurse) into two groups (more effective relationship or less effective relationship) based on their overall perception of how well they related to their patients. The patient-completed PRAs from both groups were compared using a Mann-Whitney test for two independent samples. Results confirmed a significant difference

between the two groups ($U = 0$, $p < .05$). Concurrent validity was established due to the PRA being able to discriminate between a group of providers having more effective patient relationships from a group of providers having less effective patient relationships.

The PRA has been used in other populations to measure the quality of the patient-provider relationship among the HIV population (Oetzel et al., 2015; Archipoli et al., 2016) hemodialysis patients (Zrinyi et al., 2003), and a German version PRA-D (Brenk-Franz et al., 2017) was used among patients in primary care.

The PRA measures the quality of the patient-provider partnership based on three important components (affect, information, and communication) (Galassi et al., 1992). The PRA may be used to measure the partnership between any health care provider and their patient. The PRA has been used in various populations including primary care. Therefore, this instrument is suitable to measure the study variable of the nurse practitioner-patient partnership.

Patient Demographic Data Sheet. Patient demographics including age, gender, marital status, race, ethnicity, highest level of education, work status, reason for visit, type of NP visit, and number of previous visits with nurse practitioner was collected for use in descriptive statistics (See Appendix G).

Analysis of Data

Data from questionnaires and the demographic sheet were analyzed using the IBM SPSS Statistics, version 25. The demographic sheet collected the following data: discrete (age), categorical (gender, marital status, race/ethnicity, education level, work status, income) and dichotomous variables (telehealth or in-person encounter). Univariate descriptive statistics examines one variable at a time (Polit & Beck, 2021) and was used to describe the characteristics of the sample. The sample was described using analyses of frequencies, measures of central

tendency, variance, standard deviations, range, and percentages. Internal consistency reliability for all three instruments (Person Engagement Index, Patient Reaction Assessment and Health-Promoting Lifestyle Profile II) were calculated using Cronbach's alpha.

Research questions and hypothesis testing

Prior to statistical analysis, the data was reviewed for accuracy of data entry and for missing data. A frequency distribution table was constructed to identify outliers by examining the highest and lower scores. Visual inspection of how the data fell on a scatterplot was used to confirm the presence of any outliers. The presence of an outlier was carefully examined for possible data entry mistakes, sampling error, and natural variation.

Various inferential statistical analyses were conducted with the intention of answering the research questions and for hypotheses testing. Bivariate descriptive statistics such as the Pearson's correlation coefficient (*r*) can be used in correlational analysis to evaluate relationships between two variables (Polit & Beck, 2021). Pearson's correlation coefficient provides the magnitude and direction of the relationship (positive or negative) between two variables (Polit & Beck, 2021) and assesses whether there is a linear relationship between two variables (Green & Salkind, 2011). Pearson's correlation coefficient may be calculated to assess the relationship among three quantitative variables (Green & Salkind, 2011). The Health Promoting Lifestyle Profile II (HPLP-II), Person Engagement Index (PEI), and the Patient Reactions Assessment (PRA) measured the study variables as a continuous variable using interval data, therefore a Pearson's *r* correlation coefficient was computed to assess the relationship among the main study variables. The statistical significance was set at $p < .05$.

A bivariate scatterplot of each predictor variable and the dependent variable was conducted to assess for a nonlinear relationship and to detect outliers (Green & Salkind, 2011).

Confidence intervals around the sample mean indicate the possible size of the effect (White & White, 2015) and was calculated for all bivariate analyses.

Multivariate analysis examines the influence of two or more predictor variables on a continuous dependent variable (Polit & Beck, 2021). Multiple regressions were calculated to explain the relative contributions of each of independent variables (patient engagement in health care and nurse practitioner-patient partnership) on the dependent variable (health promotion behaviors). Prior to the multiple regression, test assumptions for normality, linearity, homoscedasticity, and multicollinearity were assessed.

Summary

This study applied a descriptive correlational design to examine the relationship between and among patient engagement in health care, nurse practitioner-patient partnership and health promotion behaviors among a sample of adults receiving primary care from nurse practitioners. The HPLP-II (Walker et al., 1995), the PRA (Galassi et al., 1992) and the Person Engagement Index (Swartwout et al., 2018) were used to collect data on the main study variables. A demographic sheet was used to collect data on the characteristics of the sample. All data were statistically analyzed using the IBM SPSS Statistics, version 25.

Chapter IV

Results

Introduction

This chapter describes the results of a descriptive correlational study that analyzed the variables of the nurse practitioner-patient partnership, a patient's capacity to engage in their health care, and health promotion behaviors within the setting of a nurse practitioner primary care practice. Data was collected from August 18, 2021 until June 24, 2022. Participants were recruited from the online nurse practitioners' patient portal of the practice. The patient portal directed participants to a Qualtrics link containing the study consent, demographic sheet, and three study questionnaires. Participants were also recruited directly from the nurse practitioners' office waiting room. This principal researcher provided interested participants with a research packet containing the consent, demographic sheet, and three study questionnaires. Participants consenting to this study were asked to complete the following instruments: Health-Promoting Lifestyle Profile II (Walker et al., 1995), Person Engagement Index (Swartwout et al., 2018), and Patient Reactions Assessment (Galassi et al., 1992). All data were analyzed using the IBM SPSS Statistics, version 25.

Preliminary Data Analysis

Preliminary data analysis included the screening for accuracy, missing data, and outliers. All items in the Health-Promoting Lifestyle Profile II (HPLP II) (Walker et al., 1995) and the Person Engagement Index (PEI) (Swartwout et al., 2018) contain positively worded questions. The Patient Reactions Assessment (PRA) (Galassi et al., 1992) contained seven items that were negatively worded. Those seven items were reverse coded prior to data analysis.

Online data obtained through Qualtrics automatically uploaded into an SPSS data file.

Data collected in the office waiting room was manually uploaded into the SPSS data file. Several data checks were conducted by this researcher to ensure the accuracy of data entered into the SPSS data file. The SPSS data file was examined for missing data in the demographic sheet and the three study questionnaires. Missing data in the demographic sheet were minimal, appeared to be nonrandom, and pertained to ethnicity, income, and age. Item missing data for the HPLP II, PRA, and PEI were minimal and appeared to be random. Mean scores of those missing items were calculated and used to replace the missing data items prior to data analysis.

The total of 95 participants consented to participate in this study which consisted of participants from the online patient portal (N=20) and from the nurse practitioners' office waiting room (N=75). One participant from the online patient portal completed only 4% of the survey. This case was not included in the final study analysis due to insufficient data. The final sample from the online patient portal (N=19) was included in the study analysis.

Data from seven participants recruited from the nurse practitioners' office waiting room (N=75) were excluded from data analysis for various reasons. Four participants returned the research packet with at least one or more questionnaires 100% incomplete. These cases were not included in the final study analysis. Two participants did not meet inclusion criteria and were excluded from the final study analysis. One participant did not return the research packet. This decreased the sample from the nurse practitioners' office waiting room (N=68).

The data file from the online patient portal (N=19) and from the nurse practitioners' office waiting room (N=68) were examined for outliers. Outliers were identified using Mahalanobis distance. The Mahalanobis distance is examined against chi-square (X^2) criteria with degrees of freedom equal to the number of variables in the analysis (Mertler et al., 2022). The critical criteria for outliers is a value for the Mahalanobis distance that is significant at $p >$

.001. The chi square (X^2) critical value at $p > .001$, $df = 2$ is 13.816. Using this statistical procedure two outliers had a Mahalanobis distance greater than 13.816. Both cases were examined closely and found to be free of any data entry errors (Mertler et al., 2022). The cases were found to contain responses that were extreme and in this researcher's view found to be different from the rest of the sample. According to Mertler et al. (2022) cases may be removed from analysis if the case is believed to be different from the sample. Both outlier cases originated from the nurse practitioners' office waiting room sample (N=68). The two outliers were removed from final data analysis resulting in a nurse practitioners' office waiting room sample (N=66). The final sample size (N=85) included participants from an online patient portal (N=19) and participants from the nurse practitioners' office waiting room (N=66) was included in this study's final data analysis.

Assumptions

The data was assessed for normality, linearity, multicollinearity, and homoscedasticity. Univariate normality was examined by skewness and kurtosis for both independent and dependent variables. Values for skewness and kurtosis should be between + 1 and – 1 (Mertler et al., 2022). Skewness values that fall between -0.5 and 0.5 indicate the distribution is almost symmetric (Menon, 2022). Values for skewness that fall between ±.5 and ± 1.0 are considered moderate (Menon, 2022). The health promotion behaviors variable was approximately symmetric with a skewness of .169. The skewness for the patient's capacity to engage in health care variable was also fairly symmetric and negative at -.182. The skewness for the nurse practitioner-patient partnership variable was moderately symmetric and negative at -.532. The values for skewness all fell between the acceptable range of +1 and -1; no data transformations were required (Mertler et al., 2022).

The kurtosis for the distribution of each variable (health promotion behaviors, patient's capacity to engage in health care, and the nurse practitioner-patient partnership) all fell within the acceptable range between +1 and -1; no data transformations were conducted (Mertler et al., 2022). See Table 1 for a summary of skewness and kurtosis of the study variables.

Table 1

Main Study Variables Skewness and Kurtosis

Variable/ Instrument	N	Skewness	Kurtosis
Health Promotion Behaviors/HPLP II	85	.169	-.171
NP-Patient Partnership/PRA	85	-.532	-.659
Patient Engagement/PEI	85	-.182	-.567

To assess normality of the dependent variable, health promotion behaviors, the Kolmogorov-Smirnov statistic, with Lilliefors significance level was assessed to determine if the data followed a normal distribution (Mertler et al., 2022). The null hypothesis for this test of normality is that the data is normally distributed. The Kolmogorov-Smirnov statistic resulted in $p = .200$, the null hypothesis was retained. The presence of a non-statistically significant result supports the assumption that the data is normally distributed.

Linearity and homoscedasticity between the independent and dependent variables was assessed by creating a residual scatterplot of the standardized predicted values along the X-axis and standardized residuals along the Y-axis (Mertler et al., 2022). Visual inspection of the scatterplot showed that the residuals were not curved and that the overall shape was similar to a

rectangle. Points were scattered symmetrically between +2 and -2.5 along the X-axis and Y- axis with a greater concentration of scores in the center.

Multicollinearity between the independent variables (predictor variables) was examined using three methods. First, a bivariate correlation using the Pearson correlations coefficient between the independent variables of patient's capacity to engage in health care and the nurse practitioner-patient partnership were calculated (r = .495). This result being less than .70 supports the assumption that multicollinearity between the independent variables does not exist (Dormann et al., 2013).

Tolerance and the variance inflation factor (VIF) were calculated to assess for multicollinearity (Mertler et al., 2022). Tolerance ranges from 0 to 1. Multicollinearity is violated if the tolerance of an independent variable is less than 0.1. In this study, tolerance for both independent variables were calculated at .756. Thus 75.6% of the variance for each of the independent variables was not explained by its linear relationship with the other independent variable. The variance inflation factor (VIF) examines the presence of a strong linear relationship between the independent variables (Mertler et al., 2022). VIF values greater than 10 suggest multicollinearity. The VIF for this study was 1.32 therefore no evidence of multicollinearity was found.

Description of Sample

The sample (N=85) was 74.1% female (N=63) and 25.9% male (N=22). The average age of the sample was 57 (M= 56.76 years, SD = 13.73) (see Figure 2). The ages range from 20 to 82 years with a median age of 60 years. The average female age was 57 (N=62, M=57.48 years, SD=13.72). One female did not disclose her age. The average male age was 55 (N=22, M=54.73

years, SD=13.8). Tables 2 through 4 present demographic data and characteristics of the nurse practitioner visit. Frequencies, percentages, and the number of missing data items are reported.

Most of the sample was female (74.1%), married (62.4%), non-Hispanic/Latino (97.3%), and White (96.5%). The sample was highly educated with college graduate (34.1%) and graduate school (30.6%) making up most of the sample. The sample was mostly employed full time (57.6%) earning between $50,000 and $74,999 annually (20.3%).

Most patients (89.4%) had an in-person office visit with their nurse practitioner. Most of the patients received a routine check-up (68.2%). The majority of patients have had 10 or more encounters with their nurse practitioner (75.3%) and their most recent visit was with their usual nurse practitioner (80%).

Figure 2

Histogram of Participant Age (N=84) *Missing* (N=1)

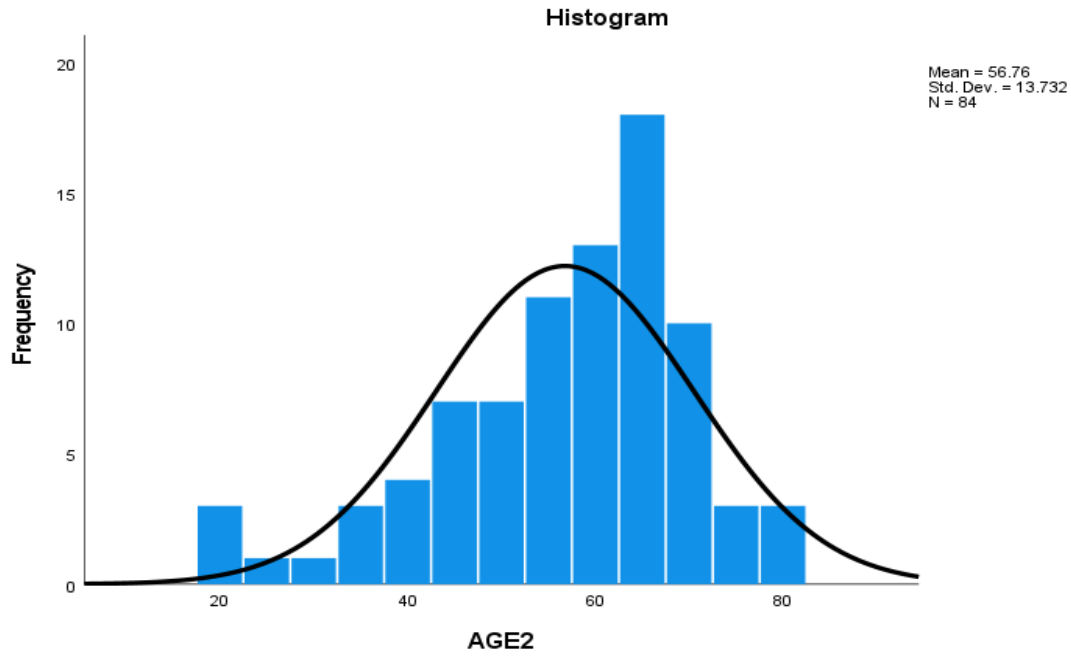


Table 2

Participant Demographics (N-85)

Demographics	N/Missing	Frequency	Percentage
Gender	85/0		
Female		63	74.1
Male		22	25.9
Other		0	0
Marital Status	85/0		
Single		10	11.8
Married		53	62.4
Divorced/Separated		14	16.5
Widowed		6	7.1
Unmarried Partner		2	2.4
Ethnicity	74/11		
Hispanic or Latino		2	2.7
Not Hispanic or Latino		72	97.3
Race	84/1		
American Indian/Alaska Native		0	
Asian		1	1.2
Black/African American		4	4.7
Native Hawaiian/Pacific Islander		1	1.2
White		82	96.5
Highest level of education	85/0		
Less than High School		0	0
High School graduate/GED		12	14.1
Some college		15	17.6
College graduate		29	34.1
Graduate school		26	30.6
Vocational school		3	3.5
Work Status	85/0		
Full-time		49	57.6
Part-time		9	10.6
Unemployed		16	18.8
Student		3	3.5
Homemaker		5	5.9
Unable to work		3	3.5
Annual Income	79/6		
$0 - $24,999		11	13.9
$25,000 – 49,999		12	15.2
$50,000 - $74,999		16	20.3
$75,000 - $99,999		12	15.2
$100,000 - $149,999		12	15.2
$150,000 or more		16	20.3

Table 3

Demographic Data Based on Gender (Male, N=22) (Female, N=63)

Demographic	N/Missing	Male: Frequency/ %	N/Missing	Female: Frequency/ %
Marital Status	22/0		63/0	
Married		13/59.1		40/63.5
Divorced/Separated		4/18.2		10/15.9
Education	22/0		63/0	
College graduate		5/22.7		24/38.1
Graduate school		7/31.8		19/30.2
Work Status	22/0		63/0	
Full-time		17/77.3		32/50.8
Part-time		1/ 4.5		8/12.7
Annual Income	20/2		59/4	
$0 - $24,999		1/ 4.5		10/15.9
$25,000 - $49,999		1/ 4.5		11/17.5
$50,000 - $74,999		3/13.6		13/20.6
$75,000 - $99,999		3/13.6		9/14.3
$100,000 – $149,999		5/22.7		7/11.1
$150,000 or more		7/31.8		9/14.3

Table 4

Characteristics of the Nurse Practitioner Visit

Characteristic	N/Missing	Frequency	Percentage
Type of Encounter	85/0		
Telehealth		9	10.6
In-person office visit		76	89.4
Reason for Visit	85/0		
Routine check-up		58	68.2
New concern		15	17.6
Chronic condition		11	12.9
Worsening condition		1	1.2
Number of times treated by NP	85/0		
2 or more, but less than 5 times		13	15.3
5 or more, but less than 10 times		8	9.4
10 or more times		64	75.3
Visit with usual NP	85/0		
Yes		68	80
No		17	20

Description of Main Study Variables

Table 5 presents the main study variables and instruments used to measure that variable. The table includes the results for each instrument for mean, standard deviation (SD), minimum and maximum scores, actual range of scores for this study, and Cronbach's Alpha. Higher scores on the HPLP II indicate a higher degree of health promotion behaviors. Higher scores on the PEI indicate a greater capacity to engagement in one's health care. Higher scores on the PRA indicate a greater quality of the partnership between the patient and nurse practitioner.

The Cronbach's alpha was calculated for each instrument in this study. The Health Promotion Lifestyle Profile II (HPLP II) demonstrated a Cronbach's alpha of .944, the Patient Reactions Assessment (PRA) Cronbach's alpha was calculated at .918, and the Person Engagement Index (PEI) Cronbach's alpha was assessed at .931.

Table 5

Main Study Variables and Instruments

Variable/ Instrument	N	Mean/SD	Min/Max Score	Range of Scores	Cronbach's Alpha
Health Promotion Behaviors/ HPLP II	85	142.16/23.22	52-208	82-191	.944
NP-Patient Partnership/ PRA	85	90.82/11.37	15-105	63-105	.918
Patient Engagement/ PEI	85	80.88/12.33	0-100	50-100	.931

Bivariate Correlations

Pearson correlation coefficients between the study variables was conducted. Pearson's correlation measures the strength and direction of the relationship (Mertler et al., 2022). A strong correlation between PRA and PEI was detected (r = .494) with a statistical significance of p < .001. The results show that there was a moderate correlation between HPLP II and PRA, r = .366, with a statistical significance of p <.001. The correlation between HPLP II and PEI was found to be strong (r = .596) with a statistical significance of p <.001 (2-tailed). Table 6 outlines the results of the bivariate correlations.

Table 6

Bivariate Correlations between Health Promotion Behaviors, Patient-Nurse Practitioner Partnership, and Patient Engagement (N=85)

Variable	1	2	3
1. Health Promotion Behavior (HPLP II)	1.00		
2. NP-Patient Partnership (PRA)	.366*	1.00	
3. Patient Engagement (PEI)	.596*	.494*	1.00

*p <. 001(2-tailed)

Effect sizes (ES) based on correlation coefficients were computed to provide the strength of the relationship between variables (Berben et al., 2012). The effect size was calculated by squaring the correlation coefficient (Berben et al., 2012). Cohen (1988) recommends that effect sizes in the .20 range are considered small, .50 range are medium, and .80 are large. The effect size for PEI (ES_r = .355) indicates that a moderate portion of the variability in HPLP II (35.5%) was explained for by the level of a patient's capacity to engage in their health care. The effect size for PRA (ES_r = .134) is small and indicates that 13.4% of the variability in HPLP II was

explained by the level of the nurse practitioner-patient partnership.

The effect size for the correlation between PRA and PEI was small (ES_r = .244) and indicated that 24.4% of the variability in the nurse practitioner-patient partnership and in a patient's capacity to engage in health care was explained by the other variable. Successful engagement requires a health care provider-patient partnership in which both are actively engaged (Drenkard et al., 2015).

Confidence intervals were calculated to provide a measure of the possible size of the effect (Witte & Witte, 2015). The use of confidence intervals in findings that are statistically significant provides a "precise summary statistic of the effect" in a target population (Berben et al., 2012, p 1040). SPSS provides confidence intervals in the Coefficients Table of the multiple regression analysis. These confidence intervals are based on the unstandardized regression coefficient (*B*). To calculate confidence intervals based on the standardized regression coefficient (β), z-scores for HPLP II, PEI, and PRA were created. Table 7 summarizes the Pearson correlation coefficients, effect size, and confidence intervals for the study variables.

Table 7

Bivariate Correlations, Effect Size, Standard Error, and Confidence Intervals (N=85)

Variables	r	ES_r	Std. Error	95% CI	
				Lower limit	Upper limit
HPLP II and PEI	.596*	.355	.088	[0.421	0.772]
HPLP II and PRA	.366*	.134	.102	[0.163	0.569]
PEI and PRA	.494*	.244	.095	[0.304	0.684]

*****$p < 0.001$

Multiple Regression

A standard multiple regression analysis was conducted to examine the independent variables of a patient's capacity to engage in health care and the nurse practitioner-patient partnership to determine which variables predicted health promotion behaviors. Data screening for outliers led to the removal of two cases. Multiple regression results indicate an overall model of one predictor (patient's capacity to engage in health care) that significantly predicted health promotion behaviors [R^2= .362, R^2_{adj} = .347, $F(2,82) = 23.31$, $p < .001$]. The variable patient's capacity to engage in health care had a significant influence on health promotion behaviors as indicated by the standardized beta (β = .550, $p < .001$) with an effect size of .567 based on Cohen's f^2. Cohen's f^2 was used to calculate the effect size within this multiple regression as both the independent and dependent variables are continuous (Selya et al., 2012). Effect sizes of .35 or greater are considered large (Selya et al., 2012). This model explains 36.2% of the variance in health promotion behaviors. Regression coefficients indicate that a patient's capacity to engage in health care positively contributes to the model, while the nurse practitioner-patient partnership contribution was not statistically significant. See Table 8 for a summary of the regression model.

Table 8

Regression Analysis Model Predicting Health Promotion Behaviors (N=85)

Variable	B	ß	*t*	*p*	Bivariate *r*	Partial *r*
NP-Partnership	.192	.094	.928	.356	.366	.102
Pt Engagement	1.04	.550	5.422	<.001	.596	.514

DV: Health Promotion Behaviors
R^2 = .362, R^2_{adj} = .347, $F(2,82) = 23.31$, $p < .001$

Research Question and Hypothesis Testing

The overarching question for this study: What are the relationships between and among the patients' perceived quality of the nurse practitioner-patient partnership, patients' capacity to engage in their health care, and health promotion behaviors among adults receiving primary care from nurse practitioners? The final regression model indicated that a patient's capacity to engage in their health care was a predictor of health promotion behaviors. Hypothesis testing was conducted to answer the following questions.

H1: There will be a positive relationship between the patient's perceived quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care among adults receiving primary care from nurse practitioners.

The Pearson product-moment correlation coefficient (r) between the quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care was calculated. Values for Pearson r range between -1.0 and +1.0. The closer results are to ± 1.0, the stronger the relationship. In this study, there was a positive strong relationship $r = .494$, $p < .001$. Values for r in the .50 range are considered a strong relationship (Cohen, 1988). Findings from this study support patients with a greater perceived quality of their partnership with the nurse practitioner have a greater capacity to engage in their health care. A key component of the Interactive Care Model is the important clinician-patient partnership that promotes patient engagement (Drenkard et al., 2015; Swartwout et al., 2018). Hypothesis 1 was supported.

H2: There is a positive relationship between a patient's perceived quality of the nurse practitioner-patient partnership and a patient's health promotion behaviors among adults receiving primary care from nurse practitioners.

This study demonstrated a positive moderate relationship ($r = .366$, $p < .001$) between the

perceived quality of the nurse practitioner-patient partnership and a patient's health promotion behavior. Values for *r* in the .30 range suggest a moderate relationship (Cohen, 1988). Findings from this study show that as the perceived quality of the nurse practitioner-patient partnership increases, the more health promotion behaviors increase. Hypothesis 2 was supported.

H3: There is a positive relationship between a patient's capacity to engage in their health care and a patient's health promotion behaviors among adults receiving primary care from nurse practitioners.

This study reports a positive strong relationship ($r = .596$, $p < .001$) between the patient's capacity to engage in their health care and a patient's health promotion behavior. Findings from this study demonstrate that as a patient's capacity to engage in their health care increases, health promotion behaviors also increase. Hypothesis 3 was supported.

H4: There is a positive relationship among a patients' perceived quality of the nurse practitioner-patient partnership, a patient's capacity to engage in their health care and health promotion behaviors among adults receiving primary care from nurse practitioners.

This study demonstrated a positive moderate relationship ($r = .366$, $p < .001$) between the perceived quality of the nurse practitioner-patient partnership and a patient's health promotion behavior and a positive strong relationship ($r = .596$, $p < .001$) between the patient's capacity to engage in their health care and a patient's health promotion behavior. Hypothesis 4 was supported.

Summary

This descriptive correlational study used a convenience sample of 85 patients receiving primary care at a nurse practitioners' office. The main research question sought to understand the relationships between and among the variables of health promotion behaviors, a person's

capacity to engage in their health care, and a patient's perceived quality of the nurse practitioner-patient partnership. The data analysis for this study provided support for all four hypotheses. The multiple regression model found that a patient's capacity to engage in their health care was statistically significant, explaining 36.2% of the variance of health promotion behaviors and showed a large effect size of (.567). The nurse practitioner-patient partnership showed a positive correlation (r = .366) with health promotion behaviors however in the multiple regression this variable was not statistically significant and did not contribute to the model.

Chapter V

Discussion of Findings

This chapter provides a discussion of this study's findings regarding the relationships between and among health promotion behaviors, a person's capacity to engage in their health care, and the nurse practitioner-patient partnership in a sample of patients receiving primary care from a nurse practitioners' practice in New Jersey. To date there have been no known studies that have examined these study variables together as measured by the Health Promoting Lifestyle Profile II (HPLP II), the Person Engagement Index (PEI), and the Patient Reactions Assessment (PRA). The findings will be examined against other empirical literature as it relates to the study variables. Linkages between this study's findings and Pender's health promotion model and the interactive care model will be discussed. Finally, strengths and weaknesses of this study will be discussed.

Main Study Findings

The main findings of this study show support for all four hypotheses. A strong positive correlation was found between the quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care among adults receiving primary care from a nurse practitioner practice. As the quality of the nurse practitioner-patient partnership increased, the patient's capacity to engage in their health care also increased. There was a moderate positive correlation between the quality of the nurse practitioner-patient partnership and health promotion behaviors. This suggests that as the quality of the nurse practitioner-patient partnership increased so did their participation in health promotion behaviors. This study also found a strong positive relationship between a person's capacity to engage in their health care and health promotion behaviors. This indicates that as a patient's capacity to engage in their health care increased, their

involvement in health promotion behaviors increased.

In the multiple regression analysis, only patient engagement was found to be a significant predictor of a patient's health promotion behaviors. The model revealed that a patient's capacity to be engaged in their health care explained 36.2% of the variance in health promotion behaviors. The nurse practitioner-patient partnership, while moderately correlated with health promotion behaviors, was not found to be statistically significant in predicting health promotion behaviors in the multiple regression model.

Demographics and Main Study Variables

A convenience sampling method was used to recruit 85 participants from a single site nurse practitioner practice in Northern New Jersey. The primary care practice consisted of 3 female nurse practitioners. Participants were recruited from the nurse practitioner online patient portal (N=19) and from the waiting room at the nurse practitioners' office (N=66). It is unknown how many patients logged onto the patient portal during the data collection period from August 18, 2021 till June 24, 2022. It is also unknown how many patients may have read the letter of solicitation for this research study on the patient portal; therefore, calculating a response rate was not possible. Estimates can be made based on a U.S. report from the Office of the National Coordinator for Health Information Technology in which during the year 2020 thirty-eight percent of patients in the U. S. accessed their patient portal at least once (Johnson et al., 2021). Since it is unknown how many patients read the letter of solicitation it can be assumed that the overall response rate from the online patient portal was low.

The sample (75.3%) had a long-term and well-known connection with their nurse practitioner having had 10 or more visits with them. Only 15.3% of the sample were treated by their usual nurse practitioner less than five times. Fewer encounters between the nurse

practitioner and patient would suggest a relationship or partnership that was less established. Regardless of longevity of care and how well-known the patients and nurse practitioners were to each other; overall participants in this sample reported a high-quality partnership with their nurse practitioner.

Continuity of care is also evident in this study's sample as most of the participants (80%) had their most recent health care visit with their usual nurse practitioner. O'Loughlin et al. (2022) found that continuity of care with the same provider facilitated building a relationship based on trust and allowed for time to meet long-term health goals. Participants in that study expressed the importance of maintaining a connection and sense of support with their health care provider (O'Loughlin et al., 2022). Building a partnership requires the participation of both health care providers and patients (Galassi et al., 1992).

While this study did not directly measure patient satisfaction with nurse practitioner care, results do suggest that the patients were likely satisfied with the care they received. Related research by Rickards and Hamilton (2020) found that patients were highly satisfied with the quality of care received by nurse practitioners in primary care. The nurse practitioners worked to build partnerships with patients by taking time to listen, provide education, and focus on health promotion. Patient satisfaction is viewed as an important measure of quality care (Barnett et al., 2022).

Most participants in this study were married (62.4%), female (74.1%), and White (96.5%). Agosta (2009) reported statistically significant higher satisfaction scores with nurse practitioner primary care among married participants compared to participants that were never married. Participants in this study were also highly educated (college-34.1%, graduate school 30.6%). The group is also well employed (full-time-57.6%, part-time-10.6%) and well-paid with

half of the participants earning over $75,000 per year (50.7%). Similarly, Cerier et al. (2018) found that individuals with high income and higher education levels were less likely to report a poor relationship with their health care provider.

This study found a strong correlation between the quality of the nurse practitioner-patient partnership and a patient's capacity to engage in their health care. Patients perceived to have a quality partnership with their nurse practitioner were associated with having the capacity to engage in their health care, such as setting health care goals, communicating health concerns to members of their health care team, and using technology to better manage their health (Swartwout et al., 2018). There is a lack of empirical research on the concepts of nurse practitioner-patient partnership and patient engagement. However, patient activation, a concept similar to patient engagement, and the patient-provider relationship have been examined in past research. A study by Mattingly et al. (2017) examined community-dwelling Medicare beneficiaries over the age of 65 years. That study demonstrated that the quality of patient-physician relationship was associated with higher levels of patient activation. Wood et al. (2018) also found that strong health care provider-patient relationships founded on trust and collaboration facilitated patient engagement in their health care. A study by Speake et al. (2021) examined the health care provider-patient relationship, patient activation, and physical activity. Their findings showed that good health care provider communication and a strong provider-patient relationship were important facilitators in patient activation and thus physical activity. Further, poor provider communication was identified as a barrier to patients building confidence about managing their health.

Results from this study found a strong correlation between a patient’s engagement in their health care and participation in health promotion behaviors. Patient engagement was found

to be a statistically significant predictor of health promotion behaviors.The multiple regression model showed that patient engagement made up 36.2% of the variance in health promotion behaviors. Related research by Rask et al. (2009) examined the relationship between patient activation and health promotion behaviors among a sample of diabetic patients. Results showed that higher patient activation was associated with healthy behaviors such as regular exercise, eye exams, and weekly foot inspections. Research by Harvey et al. (2012) found that an increase in a patient's activation was associated with an increase in aerobic exercise.

A moderate correlation was found between the nurse practitioner-patient partnership and health promotion behaviors. Patients that perceive to have a high-quality partnership with their nurse practitioner are associated with participating in healthy behaviors such as exercise, taking responsibility for one's health, managing stress, and spiritual growth. O'Loughlin et al. (2022) found that patients felt that having a strong relationship with their health care provider was necessary for discussing health promotion behaviors and sensitive health related issues.

Study Findings and the Conceptual Framework

Pender's health promotion model (HPM) (Murdaugh et al., 2019) and the interactive care model (ICM) (Drenkard et al., 2015) provided the theoretical framework for this study. Results from this study add theoretical support for the HPM and the ICM. The HPM has been used widely in nursing research to guide our knowledge and prediction of health promotion behaviors. The HPM does not directly reference patient engagement and the nurse practitioner-patient partnership but does identify similar concepts of self-efficacy and interpersonal influences as critical components of the model. Self-efficacy is one's belief that they can perform a certain behavior. Individuals with self-efficacy are more motivated to carry out healthy behaviors.

Similarly, patient engagement involves the patient's active participation in health, health

care, shared decision-making, and health promotion (Coulter, 2011). According to the HPM interpersonal influences are the relationships patients have with family, peers, and health care providers regarding their health behaviors (Murdaugh et al., 2019). Similarly, nurse practitioners are health care providers that may exert their interpersonal influence as they build a partnership with their patients.

Patient engagement and the partnership between nurse practitioners and patients are not clearly explained in the HPM. However, the linkage between these two importance concepts is fundamental to the ICM. The model provides a guide for care delivery in which nurse practitioners partner with patients to promote their engagement in their health care (Drenkard et al., 2015). Important components of the ICM such as the nurse practitioner-patient partnership, a patient's capacity to engage in their health care, and the outcome of health promotion behaviors were tested in this study. This study showed a strong positive correlation between the nurse practitioner-patient partnership and patient engagement and most importantly showed patient engagement to be a significant predictor of health promotion behaviors. The heart of the ICM is the partnership between patients and the nurse practitioners (Drenkard et al., 2015). While the nurse practitioner-patient partnership was moderately correlated with health promotion behaviors it was not found to be a significant predictor of health promotion behaviors. This finding does not lessen the theoretical strength of the ICM but does add support for the important role partnership plays in engaging patients in their health care. Results from this study do suggest that the nurse practitioners play an important role in partnering with their patients to educate them on health promotion, promote patient engagement, and set goals to participate in health promotion behaviors.

Building a partnership requires the exchange of information and bi-directional

communication between the patient and the nurse practitioner (Drenkard et al., 2015). Further, both patients and nurse practitioners must recognize each other for the expertise that they bring to the relationship. Nurse practitioners share their medical knowledge and patients share their own personal health experiences to form a partnership. Patients and nurse practitioners work together to set goals based on patient preferences. Goals may include controlling blood pressure, medication compliance, laboratory results, and the participation in health promotion behaviors. Once goals are set, patients are educated about their choices and encouraged to participate in a shared decision-making with the nurse practitioner (Drenkard et al., 2015). The more patients participate in decision-making, the more responsible and engaged they are regarding their health. Ultimately, the outcome of the ICM is to improve health and meet patients' health goals based on their needs, personal preferences, and abilities.

The ICM does not address power imbalances that may exist between patients and nurse practitioners. There are "inherent relational power imbalances" between patients and health care clinicians that may interfere with the development of partnership (Tluczek et al., 2022). The ICM stresses the necessity for health care clinicians to modify their care delivery from paternalistic to an egalitarian patient centered partnership (Drenkard et al., 2015). While the clinician may be the health care expert, the clinician is not the decision maker. The ICM does not differentiate whether or not there are phases in the nurse practitioner-patient partnership. It can be inferred that patients new to the practice are in the early stages of developing a relationship with the nurse practitioner and that a partnership based on trust and respect is evolving. How this plays into the process of engaging patients in their health care and subsequent outcomes such as health promotion behaviors is not clearly explained.

Strengths and Limitations

The HPM is a well-known model and has been used significantly in previous nursing research. Findings from this study provide additional support for this theoretical framework. A strength in this study is the inclusion of the ICM to provide extra theoretical specificity towards our understanding of the nurse practitioner-patient partnership and a person's capacity to engage in their health care. Finding from this study showed strong support for the ICM as a potentially important nursing model in health care. The ICM is applicable to all health care clinicians, practice environments, and health care systems. There is no known prior study that tests elements of the ICM (patient's capacity to engage and the nurse practitioner-patient partnership) and the outcome of health promotion behaviors.

The instruments used to measure the main study variables were found to have sound psychometrics in this study. Additionally, the Person Engagement Index (PEI) was developed based on the domains of patient engagement as defined within the ICM (Swartwout et al., 2018). This study provided additional validation for the use of the PEI. The PEI showed high scale reliability based on Cronbach's alpha.

Some limitations should be considered when interpreting the results of these finding. The cross-sectional nature of this study prevents making any causal inferences based on the findings (Wang & Cheng, 2020). The data was collected at one point in time and may not represent the overall health promotion behaviors of this population over time. Future nursing research that is longitudinal in method may provide a greater understanding of the relationships between these study variables.

This study used convenience sampling at a single nurse practitioner practice in a rural area of north New Jersey. The sample was mostly White, female, well-educated, and in a high-

income level. This sample lacked diversity in race, gender, education, income, and other socioeconomic factors, thus findings from this study may not be generalizable to the broader population of adult patients receiving primary care from nurse practitioners. While the sample size was adequate to detect a medium size effect (0.15) this is considered a limitation as a larger sample size is preferred to a small sample size in nonprobability sampling (Polit & Beck, 2021).

The Patient Reactions Assessment (PRA) assesses essential components of the health care clinician-patient relationship including the patient's: comfort level in communicating with their nurse practitioner, perceived understanding of the information provided to them by the clinician (nurse practitioner), and whether the patient felt respected by the clinician (nurse practitioner) (Galassi et al., 1992). The ICM expands the concept of the clinician-patient *relationship* to the concept of clinician-patient *partnership*. According to the ICM, the clinician-patient partnership includes collaborating, navigating, coaching, and the ability to provide care that is not only holistic but with intentional presence. An instrument that captures these partnership roles may be warranted to fully measure this construct.

The instruments used in this study were all self-report questionnaires and are thus suspect to various response biases most commonly social desirability response bias (Polit & Beck, 2021). Demographic data, such as holding health insurance, was not collected but may have added some additional understanding to the main study variables. Despite these limitations, this study contributes to our knowledge and understanding of the recently developed ICM, the main study variables, and adds validation for the use of the PEI as an instrument to measure a person's capacity to engage in their health care.

Chapter VI

Summary, Implications, Recommendations, and Conclusions

Summary

This study examined a person's capacity to engage in their health care, the nurse practitioner-patient partnership, and their relationships with health promotion behaviors. This is the first known study to examine these concepts together. A descriptive, correlational design was used to investigate the relationships between and among the main study variables. The examination of the relationships between these study variables is theoretically supported by a novel and complimentary combination of the conceptual frameworks of Pender's health promotion model (HPM) (Murdaugh et al., 2019) and the recently developed interactive care model (ICM) (Drenkard et al., 2015). This study tested components of the ICM and the findings presented provide a significant contribution in support of the model and the unique knowledge of nursing.

Convenience sampling was used to collect data among patients receiving primary care at a single nurse practitioner primary care practice in north New Jersey. The practice consists of three female nurse practitioners providing primary care for approximately 3,000 adults. Health promotion behaviors were measured using the Health Promotion Lifestyles Profile II (HPLP II) (Pender, 2011). The nurse practitioner-patient partnership was measured using the Patient Reactions Assessment (PRA) (Galassi et al., 1992), and a person's capacity to engage in their health care was measured using the Person Engagement Index (PEI) (Swartwout et al., 2018). Results from this study provide strong support for the psychometric of the recently developed PEI.

The sample was mostly female, White, well educated, employed, and financially secure.

Based on the study instruments the sample scored above average for health promotion behaviors, patient engagement, and the nurse practitioner-patient partnership. Statistical analyses showed a strong positive correlation between the nurse practitioner-patient partnership and a person's capacity to engage in their health care. A strong positive correlation between a person's capacity to engage in their health care and health promotion behaviors was also evident. There was a moderate correlation between the nurse practitioner-patient partnership and health promotion behaviors. Finally patient engagement was found to be a significant predictor of health promotion behaviors. A person's capacity to engage in one's health care explained 36.2% of the variance in health promotion behaviors. The nurse practitioner-patient partnership was not found to be a significant predictor of health promotion behaviors. In summary, both patient engagement and the nurse practitioner-patient partnership were correlated with health promotion behaviors and patient engagement was found to be a significant predictor of health promotion behaviors.

Implications for Nurse Practitioners and Nursing Practice

Results from this study have certain implications for nursing practice. Nurse practitioners play a crucial role within the health care system as they work directly with patients. They are trained in many areas and possess important skills in communicating, planning, coordinating care, educating, and patient advocacy. Some of the goals of the Affordable Care Act include improving public health, focusing on disease prevention, improving quality, and supporting patients to communicate their care preferences and take ownership for health care decisions (Lee & Emanuel, 2013). To achieve this goal nurse practitioners must partner with patients to enhance patient engagement and support patients as they accept greater responsibility for their health, health promotion behaviors, prevent disease, and in making health care decisions (Sofaer & Schumann, 2013). An important component of partnership is for nurse practitioners and patients

to view each other as experts, each with their own unique knowledge and skill set (Drenkard et al., 2015). Patients possess expertise in their own personal health experiences, beliefs, and preferences while nurse practitioners possess knowledge and skills in primary care. Nurse practitioners should encourage patients to partner with them to discuss, plan, set goals, and select interventions based on patients' needs and desires (Drenkard et al., 2017). Some examples of how nurse practitioners can partner with patients to facilitate patient engagement include being intentionally present with every health care encounter, listening thoughtfully, providing emotional support, allowing patients the opportunity to ask questions, coaching patients on self-management of their chronic conditions, collaborating with patients to set goals, including family in the care plan when necessary, and providing encouragement and praise as their patients strive towards their goals (Drenkard et al., 2017).

Nurse practitioners partnering with patients and patients functioning as equal members of the health care team are still new concepts in health care delivery (Drenkard et al., 2015). Nurse practitioners are in the unique position to assist patients in reaching this objective; however, they need education and leadership support to effectively operationalize their changing role (Deyo et al., 2016; Sofaer & Schumann, 2013).

The interactive care model (ICM) provides a framework for nurse practitioners to build partnerships with their patients, thus influence the patient's capacity to engage in their health care and improve health outcomes (Deyo et al., 2016; Drenkard et al., 2015). Nurse practitioners and all nurses are encouraged to utilize the core components of the ICM (assessment, information exchange, communicate choices, planning, interventions, and evaluation) to build an environment that will foster the nurse practitioner-patient partnership and patient engagement (Deyo et al., 2016). Competencies can be developed to support nurse practitioners in meeting the

needs of patients (Deyo et al., 2016). According to Drenkard and colleagues (2015) the ICM is relevant to nurse practitioners and all health care professionals delivering care to patients.

This study may contribute to how primary care nurse practitioners deliver care and support patients in their health promotion behaviors. Results from this study should encourage nurse practitioners to connect with their patient to build strong partnerships that will enhance patient engagement. Patients are more likely to be engaged and participate in their health care if the nurse practitioner takes time to communicate, provide information, and show an interest in the patient (Galassi et al., 1992). The adoption of this new role will require nurse practitioner education and skill training into the areas of coaching, navigating, teaching, and intentional presence (Drenkard et al., 2015). Primary care nurse practitioners should acquire training and competency in skills such as shared decision-making and motivational interviewing that promote patient engagement (Sofaer & Schumann, 2013).

Restructuring the nurse practitioner-patient encounter may be necessary to optimize how to best utilize time. It takes time for nurse practitioners to build a partnership with their patients. Patients need adequate time to express their needs and health concerns. Arranging adequate time for bidirectional information exchange where the nurse practitioner and patient bring their unique expertise to discuss, plan, and set goals is needed (Drenkard et al., 2015). Identifying, deferring, or eliminating unimportant tasks may be necessary to shift valuable time for other important activities such as communicating and listening (Drenkard et al., 2015). Better patient outcomes and decreased health care costs occur when nurse practitioners spend more time and have more contact with their patients (Judge-Ellis & Wilson, 2017).

Instruments are available to measure health promotion behaviors, provider-patient partnership, and a person’s capacity to engage in their health care. It takes time for nurse

practitioners to build partnerships with their patients. Since patient engagement is integral to building partnerships over time, it can be useful to focus on tailored interventions that can increase patient engagement and build partnership. Interventions may include health coaching, peer support, technology-based medication reminders, and educational materials (Drenkard et al., 2017). The PEI is an instrument that can be used daily in any health care environment such as the inpatient care setting or prior to an appointment with the nurse practitioner (Drenkard et al., 2017). Results provide nurse practitioners with information so that they can customize interventions to meet patient goals and improve health outcomes (Drenkard et al., 2017). For example, a patient scoring low on the engagement as measured by the PEI may need individual 1:1 coaching, frequent review of health information, easy to read educational materials with pictures and a thorough psychosocial assessment to identify social and cultural needs (Drenkard et al., 2017). Patients scoring high on patient engagement may benefit from technology-based interactive educational materials, mobile apps that provide reminders, alerts, and prompts, as well as nurse practitioner feedback on the patient's self-care management (Drenkard et al., 2017). In this situation the nurse practitioner takes on the role of collaborator and advisor to the patient as the patient transitions to accepting greater responsibility for their health care.

As a person's health changes over the course of their life, their capacity to be engaged, ability to manage their care, and social support system may change as well (Drenkard et al., 2017). Results from the PEI should be used periodically to modify how they interact with patients to communicate, set goals, and select interventions based on their current capacity to be engaged (Drenkard et al., 2017*).* Nurse practitioners can also periodically assess outcomes such as health promotion behaviors among patients to identify changes over time.

Implications for Education

Nursing students are educated and trained on the health assessment of a patient. The nursing health assessment involves data collection on a patient's current health status, beliefs, and behaviors (Murdaugh et al., 2019). This data provides the framework for building a health promotion plan (Murdaugh et al., 2019). Pender's health promotion model is one of the nursing frameworks that nursing students should be encouraged to apply when addressing their patients' health promotion behaviors. Using Pender's model, nursing students can assist patients in developing a plan for behavior change to increase health and wellness (Murdaugh et al., 2019). Various instruments exist to measure health promotion behaviors. The Health Promotion Lifestyle Profile II (HPLP II) is one of the most widely used instruments to measure healthy behaviors. Results from the HPLP II are used to identify a person's lifestyle strengths and areas for potential improvement (Murdaugh et al., 2019).

Nursing education of prelicensure nursing students, nursing faculty, practicing nurses, and nurse practitioners, nurse managers and nursing leadership require education that emphasizes patient engagement (Sofaer & Schumann, 2013) as well as the importance of the development of partnerships with patients (Drenkard et al., 2015). Competencies need to be developed that support all nurses in partnering with patients and promoting patient engagement. These competencies should be developed as they relate to accreditation standards, Baccalaureate, Masters, DNP, and NCLEX (Sofaer & Schumann, 2013). The nursing education curricula including simulation activities should be established to support nursing faculty in competency development (Sofaer & Schumann, 2013).

Recommendations for Research

Future nursing research should focus on sampling strategies to attain a more diverse and larger sample. The data for this study was taken from one site. Future research involving randomized sampling from multiple sites and from different geographical areas across the U.S. would provide a sample that is representative of the population. Further research should also examine health promotion behaviors, patient-provider partnerships, and patient engagement among other health care providers such as physicians, dentists, physician assistants, pediatricians, and gerontologists. Other health outcomes including medication compliance, readmission rates, health care costs, resource utilization, safety of care and patient experience should be further studied as a means of improving health care delivery. The main study variables should be examined in other health care settings such as hospitals and outpatient clinics.

This study did not assess the nurse practitioner-patient partnership from the nurse practitioners' perspective. Future research would benefit from knowledge gained from nurse practitioners as they build partnerships with their patients. Important research questions that need to be answered include the facilitators and barriers to building patient partnerships, engaging patients in their health care and healthy behaviors. Additionally, research should investigate interventions utilized by nurse practitioners to partner with patients and promote patient engagement.

Conclusions

Improved quality of health care, lower costs, and better health outcomes are important goals in today's health care system (Berwick et al., 2008). Individuals participating in health promotion behaviors achieve improved health, enhanced quality of life (Murdaugh et al., 2019) and avoid chronic disease (Khodaveisi et al., 2017). On a broader scale, adults taking part in

health promotion behaviors have been shown to significantly decrease health care costs and resource utilization (Maple et al., 2022; Nguyen et al., 2022). Findings from this study show that a person's capacity to engage in their health care was found to be a significant predictor of one's participation in health promotion behaviors among a group of adults receiving primary care from nurse practitioners. The nurse practitioner-patient partnership was strongly associated with a person's capacity to engage in their health and moderately associated with one's participation in health promotion behaviors. Achieving greater quality of care, improved health outcomes, and cost savings requires rethinking nursing's care delivery.

The HPM and the recently developed ICM can serve as a framework to support nurses in partnering with patients to successfully engage patients in their health and achieve improved health outcomes (Drenkard et al., 2015; Murdaugh et al., 2019). Evidence from this study support some of the main components of the recently developed interactive care model (ICM) (Drenkard et al., 2015). Strong clinician-patient partnership leads to greater engagement and thus leads to improved health outcomes such as health promotion behaviors (Drenkard et al., 2015). Pender's health promotion model and the recently developed ICM provided sound theoretical support for explaining the important associations between and among the main study variables.

References

Agazio, J. G., & Buckley, K. M. (2010). Finding a balance: Health promotion challenges of military women. *Health Care for Women International, 31*(9), 848-868. DOI:10.1080/07399332.2010.486095

Agosta, L. J. (2009). Patient satisfaction with nurse practitioner-delivered primary healthcare services. *Journal of the American Academy of Nurse Practitioners, 21*(11), 610-617. doi:10.1111/j.1745-7599.2009.00449.x

Alexander, J. A., Hearld, L. R., Mittle, J., N., & Harvey, J. (2012). *Health Services Research, 47*(3), 1201-1223. DOI:10.1111/j.1475-6773.2011.01354.x

Alvarez, K., Wang, Y., Alegria, M., Ault-Brutus, A., Ramanayake, N., Yeh, Y., Jeffries J. R., & Shrout, P. E. (2016). Psychometrics of shared decision making and communication as patient centered measures for two language groups. *Psychological Assessment, 28*(9), 1074-1086. http://dx.doi.org/10.1037/pas0000344

Aqtash, S. & Van Servellen, G. (2013). Determinants of health-promoting lifestyle behaviors among Arab immigrants from the region of the levant. *Research in Nursing & Health, 36*(5), 466-477. DOI:10.1002/nur.21555

Archiopoli, A., Ginossar, T., Wilcox, B., Avila, M., Hill, R., & Oetzel, J. (2016). Factors of interpersonal communication and behavioral health on medication self-efficacy and medication adherence. *AIDS Care, 28*(12), 1607-1614. http://dx.doi.org/10.1080/09540121.2016.1192577

Arif, N., & Qayyum, S. (2019). Health orientation and health promoting behaviors in women. *Journal of Postgraduate Medical Institute, 33*(1), 34-40.

Bankoff, S. M., McCullough, M. B., & Pantalone, D. W. (2013). Patient-provider relationship predicts mental and physical health indicators for HIV-positive men who have sex with men. *Journal of Health Psychology, 18*(6), 762-772. DOI:10.1177/1359105313475896

Barello, S., Graffigna, G., Vegni, E., & Bosio, A. C. (2014). The challenges of conceptualizing patient engagement in health care: A lexicographic literature review. *Journal of Participatory Medicine.* https://participatorymedicine.org/journal/evidence/reviews/2014/06/11/the-challenges-of-conceptualizing-patient-engagement-in-health-care-a-lexicographic-literature-review/

Barnes, H., Richards, M. R., McHugh, M. D., & Martsolf, G. (2018). Rural and nonrural primary care physician practices increasingly rely on nurse practitioners. *Health Affairs, 37*(6), 908-914. doi:10.1377/hlthaff.2017.1158

Barnett, M., Balkissoon, C., & Sandhu, J. (2022). The level of quality care nurse practitioners provide compared with their physician colleagues in the primary care setting: A systematic review. *Journal of the American Association of Nurse Practitioners, 34*(3), 457-464. doi:10.1097/JXX.0000000000000660

Berben, L., Sereika, S. M., & Engberg, S. (2012). Effect size estimation: Methods and examples. *International Journal of Nursing Studies*, *49,* 1039-1047. doi:10.1016/j.ijnurstu.2012.01.015

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: Care, health, and cost. *Health Affairs, 27*(3), 759-769. doi:10.B77/hkhaff.27.3.759

Brenk-Franz, K., Straub, B., Tiesler, F., Fleischhauer, C., Schneider, N., & Gensichen, J. (2017). Patient-provider relationship as mediator between adult attachment and self-management in primary care patients with multiple chronic conditions. *Journal of Psychosomatic*

Research, 97, 131-135. https://doi.org/10.1016/j.jpsychores.2017.04.007

Brion, J. (2014). The patient-provider relationship as experienced by a diverse sample of highly adherent hiv-infected people. *Journal of the Association of Nurses in AIDS Care, 25*(2), 123-134. http://dx.doi.org/10.1016/j.jana.2013.01.006

Buchholz, S. W., Wilbur, J. Miskovich, L., Gerard, P. (2012). An office-based health promotion intervention for overweight and obese uninsured adults; a feasibility study. *Journal of Cardiovascular Nursing, 27*(1), 68-75. DOI:10.1097/JCN.0b013e3182112829

Byrne, D. W., Rolando, L. A., Aliyu, M. H., McGown, P. W., Connor, L. R., Awalt, B. M., Holmes, M. C., Wang, L., & Yarbrough, M. I. (2016). Modifiable healthy lifestyles behaviors: 10-year health outcomes from a health promotion program. *American Journal of Preventative Medicine, 51*(6), 1027-1037. http://dx.doi.org/10.1016/j.amepre.2016.09.012

Calvert, W. J. & Isaac-Savage, E. P. (2013). Motivators and barriers to participating in health promotion behaviors in black men. *Western Journal of Nursing Research, 35*(7), 829-848. DOI:10.1177/0193945913480429

Carollo, S. (2015). Low health literacy in older women: The influence of patient-clinician relationships. *Geriatric Nursing, 36,* S38-S42. http://dx.doi.org/10.1016/j.gerinurse.2015.02.017

Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. (2022, September 8). *Health and economic costs of chronic diseases*. Accessed February 20, 2023. https://www.cdc.gov/chronicdisease/about/costs/index.htm

Cera, J. L., Twiss, J. J., Struwe, L. (2019). Implementing a nurse practitioner-led delivery model for continence care within community fitness facilities. *Urologic Nursing, 39*(1), 17-27.

doi:10.7257/1053-816X.2019.39.1.17

Cerier, E., Beal, E. W., Chakedis, J., Chen Q., Paredes, A., Sun, S., Cloyd, J. M., & Pawlik, T. M. (2018). Patient-provider relationships and health outcomes among hepatopancreatobiliary patients. *Journal of Surgical Research, 228,* 290-298. https://doi.org/10.1016/j.jss.2018.03.026

Cohen, J., 1988. *Statistical Power Analysis for the Behavioral Science*. Lawrence Erlbaum Associates, New Jersey.

Coulter, A. (2011). *Engaging patients in healthcare*. McGraw-Hill Education.

Courtemanche, C., Marton, J., Ukert, B., Yelowitz, A., & Zapata, D. (2018). Effects of the Affordable Care Act on health care access and self-assessed health after 3 years. *Journal of Health Care Organization, Provision, and Financing. 55*, 1-10. https://doi.org/10.1177/0046958018796361

Courtney, R., Ballard, E., Fauver, S., Gariota, M., & Holland, L. (1996). The partnership model: Working with individuals, families, and communities toward a new vision of health. *Public Health Nursing, 13*(3), 177-186.

Department of Health and Human Services. (2020, April 2). *Health and Human Services strategic plan, FY 2018-2022, Strategic goal 2: Protect the health of Americans where they live, learn, work, and play.* Retrieved January 28, 2021 from https://www.hhs.gov/about/strategic-plan/strategic-goal-2/index.html

Deyo, P., Swartwout, E., & Drenkard, K. (2016). Nurse manager competencies supporting patient engagement. *Journal of Nursing Administration, 46*(35), doi:10.1097/NNA.0000000000000318

Dormann, C. F., Elith, J., Bacher, S., Buchmann, C., Carl, G., Carre, G., Garcia Marquez, J. R., Gruber, B., Lafourcade, B., Leitao, P. J., Munkemuller, T., McClean, C., Osborne, P. E., Reineking, B., Schroder, B., Skidmore, A. K., Zurell, D., & Lautenbach, S. (2013). Collinearity: A review of methods to deal with it and a simulation study evaluating their performance. *Ecography, 36,* 27-46. doi: 10.1111/j.1600-0587.2012.07348.x

Drenkard, K., Swartwout, E., Deyo, P., & O'Neill Jr., M. B. (2015). Interactive care model. *Journal of Nursing Administration, 45*(10), 503-510. doi:10.1097/NNA.0000000000000242

Drenkard, K., Swartwout, E., Kite, M., & Rowe, S. (2017). *Person Engagement Index: Toolkit*. O'Neill Center at GetWellNetwork.

Duke, C. C., Lynch, W. D., Smith, B., & Winstanley, J. (2015). Validity of a new patient engagement measure: The Altarem Consumer Engagement (ACE) measure. *The Patient – Patient-Centered Outcomes Research, 13,* 559-568. DOI:10.1007/s40271-015-0131-2

Du Pon, E., Wildeboer, A. T., van Dooren, A., Bilo, H. J. G., Kleefstra, N., & van Dulmen, S. (2019). Active participation of patients with type 2 diabetes in consultations with their primary care practice nurses – what helps and what hinders: A qualitative study. *BMC Health Services Research, 19*(1), 814. doi: 10.1186/s12913-019-4572-5

Eldh, A. C., Ekman, I., & Ehnfors, M. (2006). Conditions for patient participation and non-participation in health care. *Nursing Ethics, 13*(5), 503-514.

Ellis, K. R., Janevic, M. R., Kershaw, T., Caldwell, C. H., Janz, N. K., & Northouse, L. (2017). Engagement in health-promoting behaviors and patient-caregiver interdependence in dyads facing advance cancer: An exploratory study. *Journal of Behavioral Medicine, 40,* 506-519. DOI:10.1007/s10865-016-9819-6

Esposito, E. M., Rhodes, C. A., Besthoff, C. M., & Bonuel, N. (2016). Ambulatory care nurse-sensitive indicators series: Patient engagement as a nurse-sensitive indicator in ambulatory care. *Nursing Economics, 34*(6), 303-306.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160. https://doi.org/10.3758/BRM.41.4.1149

Galassi, J. P., Schanberg, R., & Ware, W. B. (1992). The patient reactions assessment: A brief measure of the quality of the patient-provider medical relationship. *Psychological Assessment, 4*(3), 346-351. https://doi.org/10.1037/1040-3590.4.3.346

Gallant, M. H., Beaulieu, M. C., & Carnevale, F. (2002). Partnership: An analysis of the concept within the nurse-client relationship. *Journal of Advanced Nursing, 40*(2), 149-157.

Garcia, M. D., Bastian, B., Rossen, L. M., Anderson, R., Minino, A., Yoon, P. W., Faul, M., Massetti, G., Thomas, C. C., Hong, Y., & Iademarco, M. F. (2016), Potentially preventable deaths among the five leading causes of death- United States, 2010 and 2014. *Morbidity and Mortality Weekly Report, 65*(45), 1245- 1255.

Ghane, A., Huynh, H. P., Andrews, S. E., Legg, A. M., Tabuenca, A., & Sweeny, K. (2014). The relative importance of patients' decisional control preferences and experiences. *Psychology & Health, 29*(10), 1105-1118. http://dx.doi.org/10.1080/08870446.2014.911873

Grady, P. A., & Gough, L. L. (2014). Self-management: A comprehensive approach to management of chronic conditions. *American Journal of Public Health, 104*(8), e25-231. doi:10.2105/AJPH.2014. 302041

Graffigna, G. (2017). Is a transdisciplinary theory of engagement in organized settings possible? A concept analysis of the literature on employee engagement, consumer engagement and patient engagement. *Frontiers in Psychology, 8,* Article 872. doi:10:3389/fpsyg.2017.00872

Graffigna, G., & Barello, S. (2018). Spotlight on the patient health engagement model (PHE model): A psychosocial theory to understand people's meaningful engagement in their own health care. *Patient Preference and Adherence, 12,* 1261-1271. http://dx.doi.org/10.2147/PPA.S145646

Graffigna, G., Barello, S., & Bonanomi, A. (2017). The role of patient health engagement model (PHE-model) in affecting patient activation and medication adherence: A structural equation model. *PLoS ONE, 12*(6), Article e0179865. https://doi.org/10.1371/journal.pone.0179865

Graffigna, G., Barello, S., Bonanomi, A., & Lozza, A. (2015). Measuring patient engagement; Development and psychometric properties of the Patient Health Engagement (PHE) scale. *Frontiers in Psychology, 6,* Article 274. doi:10.3389/fpsyg.2015.00274

Graffigna, G, Barello, S., Bonanomi, A., & Riva, G. (2017). Factors affecting patients' online health information-seeking behaviors: The role of the Patient Health Engagement (PHE) model. *Patient Education and Counseling, 100*(10), 1918-1927. http://dx.doi.org/10.1016/j.pec.2017.05.033

Greene, J., & Hibbard, J. H. (2011). Why does patient activation matter? An examination of the relationships between patient activation and health-related outcomes. *Journal of General Internal Medicine, 27*(5), 520-526. DOI:10.1007/s11606-011-1931-2

Greene, J., Hibbard, J. H., Sacks, R., Overton, V., & Parotta, C. D. (2015). When patient activation levels change, health outcomes and costs change, too. *Health Affairs, 34*(3), 431-437. doi:10.1377/hlthaff.2014.0452

Green, S. B. & Salkind, N. J. (2011). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (8th ed.). Pearson

Gruman, J., Rovner, M. H., French, M. E., Jeffress, D., Sofaer, S., Shaller, D., & Prager, D. J. (2010). From patient education to patient engagement: Implications for the field of patient education. *Patient Education and Counseling, 78*(3), 350-356. doi:10.1016/j.pec.2010.02.002.

Hammerback, K., Hannon, P. A., Harris, J. R., Clegg-Thorp, C., Kohn, M., & Parrish, A. (2015). Perspectives on workplace health promotion among employees in low-wage industries. *American Journal of Health Promotion, 29*(6), 384-392. DOI:10.42 78/ajhp. 130924-QUAL-495

Harding, M. (2012). Health-promotion behaviors and psychological distress in cancer survivors. *Oncology Nursing Forum, 39*(2), E132-E140. DOI:10.1188/12.ONF.E132-E140

Harvey, L., Fowles, J. B., Xi, M., & Terry, P. (2012). When activation changes, what else changes? The relationship between change in patient activation measure (PAM) and employees' health status and health behaviors. *Patient Education and Counseling, 88*(2), 338-343. doi:10.1016/j.pec.2012.02.005

Heale, R., & Fournier, J. (2017). Impact of advanced access scheduling on patient care choices and health behaviors in a nurse practitioner-led clinic. *Diversity of Research in Health Journal, 1*, 33-43.

Hibbard, J. H., & Greene, J. (2013). What the evidence shows about patient activation: Better health outcomes and care experiences; fewer data on costs. *Health Affairs, 32*(2), 207-214. doi:10.1377/hlthaff.2012.1061

Hibbard, J. H., Greene, J., & Overton, V. (2013). Patients with lower activation associated with higher costs; Delivery systems should know their patients' 'scores.' *Health Affairs, 32* (2), 216-222. doi:10.1377/hlthaff.2012.1064

Hibbard, J. H., Mahoney, E. R., Stockard, J., & Tusler, M. (2005). Development and testing of a short form of the Patient Activation Measure. *Health Services Research, 40*(6), 1918-1930. DOI:10.1111/j.1475-6773.2005.00438.x

Higgins, T., Larson, E., & Schnall, R. (2017). Unraveling the meaning of patient engagement: A concept analysis. *Patient Education and Counseling, 100*(1), 30-36. http://dx.doi.org/10.1016/j.pec.2016.09.002

Hook, M. L. (2006). Partnership with patients-A Concept ready for action. *Journal of Advanced Nursing, 56*(2), 133-143. doi:10.1111/j.1365-2648.2006.03993.x

Hurley, E. A., Harvey, S. A., Winch, P. J., Keita, M., Roter, D. L., Doumbia, S., Diarra, N. H., & Kennedy, C. E. (2018). The role of patient-provider communication in engagement and re-engagement in HIV treatment in Bamako, Mali: A qualitative study. *Journal of Health Communication, 23*(2), 129-143. DOI:https://doi.org/10.1080/10810730.2017.1417513

Hwang, J. E. (2010). Reliability and validity of the Health Enhancement Lifestyle Profile (HELP). *OTJR: Occupation, Participation and Health, 30*(4), 158-168. doi:10.3928/15394492-20091225-01

IBM Corp. (2017). IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.

Ipsen, C., Ruggiero, C., Rigles, B., Campbell, D., & Arnold, N. (2014). Evaluation of an online health promotion program for vocational rehabilitation consumers. *Rehabilitation Psychology, 59*(2), 125-135. DOI:10.1037/a0036188

Johnson, E. T., Lynch, R. T., Chang, F., Bezyak, J, & Mahr, M. (2015). Expanding the health action and process approach to predict physical activity in African-Americans with hiv/aids: A hierarchical regression analysis. *Rehabilitation Counseling Bulletin, 59*(1), 30-42. DOI:10.1177/0034355215573794

Johnson C, Richwine C, & Patel V. (2021). Individuals' Access and Use of Patient Portals and Smartphone Health Apps, 2020. *ONC Data Brief, no.57*. Office of the National Coordinator for Health Information Technology: Washington DC https://www.healthit.gov

Kaphingst, K. A., Weaver, N. L., Wray, R. J., Brown, M. L. R., Buskirk, T., & Kreuter, M. W., (2014), Effects of patient health literacy, patient engagement and a system-level health literacy attribute on patient-reported outcomes: A representative statewide survey. *BMC Health Services Research, 14,* Article 475. https://doi.org/10.1186/1472-6963-14-475

Khodaveisi, M., Omidi, A., Farokhi, S., & Soltanian, A. R. (2017). The effect of Pender's health promotion model in improving the nutritional behavior of overweight and obese women. *International Journal of Community Based Nursing and Midwifery, 5*(2), 165-174.

Kim, S. C., Boren, D., Solem, S. L. (2001). The Kim Alliance Scale: Development and preliminary testing. *Clinical Nursing Research, 10*(3), 314-331.

Kim, S. C., Kim, S., Boren, D. (2008). The quality of the therapeutic alliance between patient and provider predicts general satisfaction. *Military Medicine, 173*(1), 85-90. https://doi.org/10.7205/MILMED.173.1.85

Kimerling, R., Lewis, E. T., Javier, S. J., & Zulman, D. M. (2020). Opportunity or burden? A behavioral framework for patient engagement. *Medical Care, 58*(2), 161-168.

Komaromy, M., Madden, E. F., Zurawski, A., Kalishman, S., Barker, K., O'Sullivan, P., Jurado, M., & Arora, S. (2018). Contingent engagement: What we learn from patients with complex health problems and low socioeconomic status. *Patient Education and Counseling, 101*(3), 524-531. http://dx.doi.org/10.1016/j.pec.2017.08.019

Krist, A. H., Tong, S. T., Aycock, R. A., & Longo, D. R. (2017). Engaging patients in decision-making and behavior change to promote prevention. *Information Services & Use 37*(2), 105-122. DOI 10.3233/ISU-170826

Kulbok, P. A., Carter, K. F., Baldwin, J. H., Gilmartin, M. J., Kirkwood, B. (1999). The multidimensional health behavior inventory. *Journal of Nursing Measurement, 7*(2), 177-195.

Lakerveld, J., Bot, S. D., Chinapaw, M. J., Knol, D. L., de Vet, H. C., & Nijpels, G. (2011). Measuring pathways towards a healthier lifestyle in the Hoorn Prevention Study: The determinants of Lifestyle Behavior Questionnaire (DLBQ). *Patient Education and Counseling, 85*(2), e53-e58. https://doi.org/10.1016/j.pec.2011.01.014

Leisen, B. & Hyman, M. R. (2001). An improved scale for assessing patients' trust in their physician. *Health Marketing Quarterly, 19*(1), 23- 42.

Longtin, Y., Sax, H., Leape, L., Sheridan, S. E., Donaldson, L., & Pittet, D. (2010). Patient participation: Current Knowledge and applicability to patient safety. *Mayo Clinic Proceedings, 85*(1), 53-62. doi:10.4065/mcp.2009.0248

Maglione, J. L. (2021). Health-promoting behaviors of low-income adults in a community health center. *Journal of Community Health Nursing, 38*(2), 61-72. https://doi.org/10.1080/07370016.2021.1887563

Maglione, J. L., & Hayman, L. L. (2009). Correlates of physical activity in low income college students. *Research in Nursing & Health, 32*(6), 634-646. DOI:10.1002/nur.20353

Mahon, N. E., Yarcheski, T. J., & Yarcheski, A. (2002). The revised personal lifestyle questionnaire for early adolescents. *Western Journal of Nursing Research, 25*(5), 533-547. DOI:10.1177/0193945903253000

Maners, R. J., Bakow, E., Parkinson, M. D., Fischer, G. S., & Camp, G. R. (2018). UPMC prescription for wellness: A quality improvement case study for supporting patient engagement and health behavior change. *American Journal of Medical Quality, 33*(3), 274-282. https://doi.org/10.1177/1062860617741670

Maple, J.-L., Ananthapavan, J., Ball, K., Teychenne, M., & Moodie, M. (2011). Economic evaluation of an incentive-based program to increase physical activity and reduce sedentary behaviour in middle-aged adults. *BMC Health Services Research, 22*(1), 932. https://doi.org/10.1186/s12913-022-08294-7

Marelich, W. D. & Murphy, D. A. (2003). Effects of empowerment among HIV-positive women on the patient-provider relationship. *AIDS CARE, 15*(4), 475-481. DOI:10.1080/0954012031000134719

Mattingly II, T. J., Tom, S. E., Stuart, B., & Onukwugha, E. (2017). Examining patient-provider relationship (PPR) quality and patient activation in the Medicare population. *Aging Clinical and Experimental Research 29*(3), 543-548. DOI:10.1007/s40520-016-0600-z

McMurrey, N. (2019, Jan 28). Nurse practitioner role continues to grow to meet primary care provider shortages and patient demands. *PR Newswire*. https://www.proquest.com/wire-feeds/nurse-practitioner-role-continues-grow-meet/docview/2171668754/se-2

Mead, N., Bower, P., & Hann, M. (2002). The impact of general practitioners' patient-centeredness on patients' post-consultation satisfaction and enablement. *Social Science & Medicine, 55,* 283-299.

Menon, K. (2022, February 21). The complete guide to skewness and kurtosis. https://www.simplilearn.com/tutorials/statistics-tutorial/skewness-and-kurtosis

Mertler, C. A., Vannatta, R. A., & Lavenia, K. N. (2022). *Advance and multivariate statistical methods: Practical application and interpretation.* (7th ed.). Routledge.

Muirhead, V. E., Marcenes, W., & Wright D. (2014). Do health provider-patient relationships matter? Exploring dentist-patient relationships and oral health-related quality of life in older people. *Age and Ageing, 43*(3), 399-405. doi: 10.1093/ageing/aft183

Murali, N. S., Deao, C. E. (2019). Patient Engagement. *Primary Care: Clinics in Office Practice, 46*(4), 539-547. https://doi.org/10.1016/j.pop.2019.07.007

Murdaugh, C. L., Parsons, M. A., & Pender, N. J. (2019). *Health promotion in nursing practice.* (8th ed.). Pearson.

Neville, K. & Cole, D. A. (2013). The relationships among health promotion behaviors, compassion fatigue, burnout, and compassion satisfaction in nurses practicing in a community medical center. *Journal of Nursing Administration, 43*(6), 348-354. DOI:10.1097/NNA.0b013e3182942c23

Nguyen, P., Ananthapavan, J., Tan, E. J., Crosland, P., Bowe, S. J., Gao, L., Dunstan, D. W., & Moodie, M. (2022). Modelling the potential health and economic benefits of reducing

population sitting time in Australia. *International Journal of Behavioral Nutrition and Physical Activity, 19(*1), 28. doi: 10.1186/s12966-022-01276-2.

Oetzel, J., Wilcox, B., Avila, M., Hill, R., Archipoli, A., & Ginossar, T. (2015). Patient-provider interaction, patient satisfaction, and health outcomes: testing explanatory models for people living with HIV/AIDS. *AIDS Care, 27*(8), 972-978. https://doi.org/10.1080/09540121.2015.1015478

O'Loughlin, K., Shadowen, H. M., Haley, A. D., Gilbert, J., Lail Kashiri, P., Webel, B., Huebschmann, A. G., & Krist, A. H. (2022). Patient preferences for disussing and acting on health-related needs in primary care. *Journal of Primary Care & Community Health, 13*, doi:10.1177/21501319221115946.

Pender, N. J. (2011). *Health promotion model manual*. University of Michigan. http://hdl.handle.net/2027.42/85350

Peplau, H. E. (1991). *Interpersonal relations in nursing: A conceptual frame of Rreference for psychodynamic nursing.* Springer Publishing Company.

Polit, D. F., & Beck, C. T. (2021). *Nursing research: Generating and assessing evidence for nursing practice.* (11th ed.). Wolters Kluwer.

Pomey, M. P., Ghadiri, D. P., Karazivan, P., Fernandez, N., & Clavel, C. (2015). Patients as partners: A qualitative study of patients' engagement in their health care. *PLoS ONE, 10*(4), Article e0122499. doi:10.1371/journal.pone.0122499

Porcerelli, J. H., Murdoch, W., Morris, P., Fowler, S. (2014). The patient-doctor relationship questionnaire (PDRQ-9) in primary care: A validity study. *Journal of Clinical Psychology in Medical Settings, 21,* 291-296. DOI:10.1007/s10880-014-9407-2

Prey, J. E., Qian, M., Restaino, S., Hibbard, J., Bakken, S., Schnall, R., Rothenberg, G., Vawdrey, D. K., & Creber, R. M. (2016). Reliability and validity of the patient activation measure in hospitalized patients. *Patient Education and Counseling, 99*(12), 12026-2033. http://dx.doi:10.1016/j.pec.2016.06.029

Pullen, C., Walker, S. N., Fiandt, K. (2001). Determinants of health-promoting lifestyle behaviors in rural older women. *Family & Community Health*, *24*(2), 49-72. DOI:10.1097/00003727-200107000-00008

Rask, K. J., Ziemer, D. C., Kohler, S. A., Hawley, J. N., Arinde, F. J., & Barnes, C. S. (2009). Patient activation is associated with healthy behaviors and ease in managing diabetes in an indigent population. *The Diabetes Educator, 35*(4), 622-630. DOI:10.1177/0145721709335004

Rickards, T., & Hamilton S. (2020). Patient experiences of primary care provided by nurse practitioners in New Brunswick, Canada. *The Journal for Nurse Practitioners, 16*(4), 299-304. https://doi.org/10.1016/j.nurpra.2019.12.027

Ritten, A., Waldrop, J, & Kitson, J. (2016). Fit living in progress – fighting lifelong obesity patterns (FLIP-FLOP): A nurse practitioner delivered intervention. *Applied Nursing Research, 30*, 119-124. http://dx.doi.org/10.1016/j.apnr.2015.09.006

Roberts, S., Desbrow, B., & Chaboyer, W. (2016). Feasibility of a patient-centered intervention to improve oral intakes of patients at risk of pressure ulcer: A pilot randomized control trial. *Scandinavian Journal of Caring Sciences, 30*(2), 271-280. doi: 10.1111/scs.12239

Sawesi, S., Rashrash, M., Phalakornkule, K., Carpenter, J. S., & Jones, J. F. (2016). The impact of information technology on patient engagement and health behavior change: A

systematic review of the literature. *JMIR Medical Informatics, 4*(1). doi:10.2196/medinform.4514

Schroeder, R. (2013). The seriously mentally ill older adult: Perceptions of the patient-provider relationship. *Perspectives in Psychiatric Care, 49*(1), 30-40. doi:10.1111/j.1744-6163.2012.00338.x

Selya, A. S., Rose, J. S., Dierker, L. C., Hedeker, D., & Mermelstein, R. J. (2012). A practical guide to calculating Cohen's f^2, a measure of local effect size, from PROC MIXED. *Frontiers in Psychology, 3*, Article 11. doi:10.3389/fpsyg.2012.00111

Sikavi, D., & Weseley, A. J. (2017). The relationship between psychosocial factors in the patient-oncologist relationship and quality of care: A study of breast cancer patients *Journal of Psychosocial Oncology, 35*(1), 32-46. https://doi.org/10.1080/07347332.2016.1247406

Sloan, A. G., & Knowles, A. (2017). Patient engagement: Qualitative narratives illustrate patient engagement behaviors. *Journal of Communication in Healthcare, 10*(2), 78-87. https://doi.org/10.1080/17538068.2017.1340541

Sofaer, S., & Schumann, M. J. (2013). *Fostering successful patient and family engagement: Nursing's critical role* [White paper]. Retrieved September 27, 2019. http://www. naqc. org/ WhitePaper- PatientEngagement

Sohng, K., Sohng, S., & Yeom, H. (2002). Health promoting behaviors of elderly Korean immigrants in the U.S. *Public Health Nursing, 19*(4), 294-300.

Speake, H., Copeland, R. Breckon, J., & Till, S. (2021). Challenges and opportunities for promoting physical activity in health care: A qualitative enquiry of stakeholder

perspectives. *European Journal of Physiotherapy*, *23*(3), 157-164. https://doi.org/10.1080/21679169.2019.1663926

Stephenson-Hunter, C. & Dardeck, K. (2019). Locus of control and health promotion for marginalized populations. *Journal of Social, Behavioral, and Health Sciences. 13*(1), 115-127. DOI:10.5590/JSBHS.2019.13.1.07

Sun, R., Wu, L., Barnett, S. D., Deyo, P., & Swartwout, E. (2019). Socio-demographic predictors associated with capacity to engage in health care. *Patient Experience Journal, 6*(2), 35-41. DOI:10.35680/2372-0247.1355

Swartwout, E., El-Zein, A., Barnett, S. D., & Drenkard, K. (2018). The design and testing of the psychometric properties of the person engagement Index instrument to measure a person's capacity to engage in health care. *Journal of Nursing Measurement, 26*(2), 278-295. http://dx.doi.org/10.1891/1061-3749.26.2.278

Swartwout, E., Irizarry, T., Dabbs, A. D., & Barnett, S. (2017). Exploratory pilot testing of the psychometric properties of the person engagement index instrument among older, community-dwelling adults. *Patient Experience Journal*, *4*(3), 86-94.

Terblanche, M. & Burgess, L. (2010). Examining the readability of patient-informed consent forms. *Open Access Journal of Clinical Trials*, *2*, 157-162. DOI:10.2147/OAJCT.S13608

Thanavaro, J. L., Thanavaro, S., & Delicath, T. (2010). Health promotion behaviors in women with chest pain. *Heart & Lung*, *39*(5), 394-403. doi:10.1016/j.hrtlng.2009.10.016

Tluczek, A., Grob, R., Van Gorp, S., Greene, L. C., Yu, Z., Raymond, K., Collins, L., & George, C. (2022). Partnerships in care: Qualitative analysis of different perspectives. *Journal of Communication in Healthcare, 15*(2), 80-89. https://doi.org/10.1080/17538068.2021.1993692

Tzeng, H., Pierson, J. M. (2017). Measuring patient engagement: Which healthcare behaviors are important to patients? *Journal of Advanced Nursing, 73*(7), 1604-1609, doi:10.1111/jan.13257

Underhill, M. L., & Kiviniemi, M. T. (2012). The association of perceived provider-patient communication and relationship quality with colorectal cancer screening. *Health Education & Behavior, 39*(5), 555-563. DOI:10.1177/1090198111421800

Van der Feltz-Cornelis, C. M., Van Oppen, P., Van Marwijk, H. W., De Beurs, E., & Van Dyck, R. (2004). A patient-doctor relationship questionnaire (PDRQ-9) in primary care: Development and psychometric evaluation. *General Hospital Psychiatry, 26*, 115-120. doi:10.1016/j.genhosppsych.2003.08.010

van der Meide, H., Olthuis, G., & Leget, C. (2014). Patient participation in hospital care: How equal is the voice of the client council? *Health Care Analysis, 23*, 238-252.

Walker, S. N., Pullen, C. H., Boeckner, L., Hageman, P. A., Hertzog, M., Oberdorfer, M. K., & Rutledge, M. J. (2009). Clinical trial of tailored activity and eating newsletters with older rural women. *Nursing Research, 58*(2), 74-85.

Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The Health-Promoting Lifestyle Profile: Development and psychometric characteristics. *Nursing Research, 36*(2), 76-81.

Walker, S. N., Sechrist, K. R., & Pender, N. J. (1995). *Health promotion model – Instruments to measure health promoting lifestyle: Health-promoting lifestyle profile [HPLP II]* (Adult Version). http://hdl.handle.net/2027.42/85349

Wang, X., & Cheng, Z. (2020). Cross-sectional studies: Strengths, weaknesses, and recommendations. *Chest, 158*(1S), S65-S71. DOI:https://doi.org/10.1016/j.chest.2020.03.012

Webel, A. R., Sattar, A., Schreiner, N., & Phillips, J. C. (2016). Social resources, health promotion behavior, and quality of life in adults living with HIV. *Applied Nursing Research, 30,* 204-209. https://doi.org/10.1016/j.apnr.2015.08.001

Weber, J. R. & Kelley, J. H. (2018). *Health assessment in nursing* (6th ed.). Wolters Kluwer.

Weingart, S., Chiappetta, L., Stuver, S. O., Schneider, E. C., Epstein, A. M., David-Kasdan, J. A., Annas, C. L., Fowler, F. J. Jr., & Weissman, J. S. (2011). Hospitalized patients' participation and its impact on quality of care and patient safety. *International Journal for Quality in Health Care*, 1-9, doi:10.1093/intqhc/mzr002

Weng, H., Steed, J. F., Yu, S., Liu, Y., Hsu, C., Yu, T., Chen, W. (2011). The effect of surgeon empathy and emotional intelligence on patient satisfaction. *Advances in Health Sciences Education, 16*, 591-600. DOI 10.1007/s10459-011-9278-3

Witte, R. S., & Witte, J. S. (2015). *Statistics* (10th ed.). Wiley.

Wiggins, M. S. (2008). The partnership care delivery model: An examination of the core concept and the need for a new model of care. *Journal of Nursing Management, 16,* 629-638. doi:10.1111/j.1365-2834.2008.00900.x

Will, J. F. (2011). A brief historical and theoretical perspective on patient autonomy and medical decision making. *Chest, 139*(3), 669-673. DOI:10.1378/chest.10-2532

Wilson, B. M. (1995). Promoting compliance: The patient-provider partnership. *Advances in Renal Replacement Therapy, 2*(3), 199-206.

World Health Organization (2020). *Health Promotion.* https://www.who.int/healthpromotion/about/goals/en/

Wood, T. J., Koester, K. A., Christopoulos, K. A., Sauceda, J. A., Neilands, T. B., & Johnson, M. O., (2018). If someone cares about you, you are more apt to come around: Improving

HIV care engagement by strengthening the patient-provider relationship. *Patient Preference and Adherence, 12,* 919-927. http://dx.doi.org/10.2147/PPA.S157003

Yan, Z., Finn, K., Cardinal, B. J., & Bent, L. (2014). Promoting health behaviors using peer education: A demonstration project between international and American college students. *American Journal of Health Education, 45*(5), 288-296. Doi:10.1080/19325037.2014.932727

Yun, P. S., MacDonald, C. L., Orne, J., Gutierrez-Meza, D., Buentello, G., Street, R., Naik, A. D., & Suliburk, J. W. (2020). A novel surgical patient engagement model: A qualitative study of postoperative patients. *Journal of Surgical Research, 248,* 82-89. https://doi.org/10.1016/j.jss.2019.11.025

Zrinyi, M., Juhasz, M., Balla, J., Katona, E., Ben, T., Kakuk, G., & Pall, D. (2003). Dietary self-efficacy: Determinant of compliance behaviors and biochemical outcomes in hemodialysis patients. *Nephrology Dialysis Transplantation, 18,* 1869-1873.

Appendix A

Permission Letter from New Perspectives Health Care

NEW PERSPECTIVES HEALTH CARE, LLC

13A Main Street
Suite 7
Sparta, New Jersey
07871-1941
www.newperspectivehealthcare.com
W) 973.726.0355
F) 973.726.0255

May 10, 2021

Sharon St Angelo APN co owner
Sandra Morrison APN co owner
New Perspectives Health Care LLC
13A Main Street Ste 7
Sparta NJ 07871

Dear Seton Hall University Institutional Review Board,

This letter is to grant Irene DeCelie, PHD student from Seton Hall University, permission to solicit adult patients from our nurse practitioner practice at New Perspectives Health Care located in Sparta New Jersey for her study titled "Relationships Among Health Promotion Behaviors, Patient Engagement, and the Nurse Practitioner Partnership.

A link to Irene's letter of solicitation for her study will be placed on the New Perspectives Health Care patient portal upon Seton Hall University IRB approval.

In the advent that the Covid 19 restrictions are lifted, Irene is given permission to recruit and conduct her study with patients in the office.

Sincerely,

Sharon St Angelo APN

Appendix B

Seton Hall University IRB Approval Letter

07/26/2021

Irene DeCelie
Seton Hall University

Re: 2021-217

Dear Irene,

The Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled, "Understanding the Relationships Among Patient Engagement and the Nurse Practitioner-Patient Partnership and Health Promoting Behaviors" as resubmitted. This memo serves as official notice of the aforementioned study's approval as exempt. If your study has a consent form or letter of solicitation, they are included in this mailing for your use.

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, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.

You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Sincerely,

Mara C. Podvey, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board

Phyllis Hansell, EdD, RN, DNAP, FAAN
Professor
Co-Chair, Institutional Review Board

Appendix C

Seton Hall University IRB Amendment Approval

03/23/2022

Irene DeCelie
Seton Hall University

Re: 2021-217

Dear Irene,

The Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved the amendment to your research proposal entitled, "Understanding the Relationships Among Patient Engagement and the Nurse Practitioner-Patient Partnership and Health Promoting Behaviors" as submitted. This memo serves as official notice of the aforementioned study's approval.

Approval of this amendment does not change the previous expiration date from your one-year approval period. You will receive a communication from the Institutional Review Board at least 1 month prior to the original expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research to close the study.

Thank you for your cooperation.

Sincerely,

Mara C. Podvey, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board

Phyllis Hansell, EdD, RN, DNAP, FAAN
Professor
Co-Chair, Institutional Review Board

Appendix D

Letter of Solicitation

August 5, 2021

Dear Participant,

Principal Investigator: Irene DeCelie MSN, RN, Doctoral Student

Department Affiliation: College of Nursing, Seton Hall University

Title and Purpose: A research study titled "Understanding the Relationships Among Patient Engagement and the Nurse Practitioner-Patient Partnership and Health Promoting Behaviors" is seeking participants. The purpose of this study is to understand what factors are related to individuals participating in healthy behaviors among patients who receive primary care from nurse practitioners.

Duration: The survey will take approximately 25 minutes to complete. You will only be asked to complete this survey once.

What you will be asked to do: The survey contains three questionnaires and one short demographic sheet. The *Health Promoting Lifestyle Profile II* will ask questions about your present way of life and personal habits such as: *Eat breakfast?* The *Person Engagement Index* will ask questions about your capacity to engage in your health care such as*: I am motivated to take charge of my health care.* The *Patient Reactions Assessment* will ask questions about the quality of the partnership between the nurse practitioner and you such as: *this person really respects me.* The survey is available through the New Perspectives in Health Care patient portal. The patient portal contains a Qualtrics link to the survey questionnaires. Qualtrics is a secure online survey management system. Once you click on the link you will be directed to the informed consent and if you choose to participate, click on the "I agree" button that will take you to the survey. You may complete this survey online in a location of your choosing.

Your rights to participate, say no or withdraw: Participation in this study is voluntary. You can decide to participate or not to participate. You can choose to participate in the research study now and then decide to leave the research at any time. You may refuse to participate or withdraw from the study without affecting your care. If you are completing the online survey you may withdraw from participation at any time prior to completion of all questions. If you are completing the questionnaires online and you decide not to continue, you may simply exit the survey.

Potential benefits and risks: There are no known direct benefits to participation in this study. Potential benefits may include personal satisfaction from knowing that your participation in research may help others and possibly gaining an understanding of your own health seeking

behavior. Potential risks of participation are minimal in nature and may include the 25-minutes it takes to answer the questions.

Anonymity: Your participation in this study will be kept anonymous. You will not be asked to provide your name, date of birth or other personal identifiers. At no time will the researcher be able to link the responses to any individual completing the survey.

Confidentiality and privacy: Efforts will be made to limit the use or disclosure of your personal information. This information may include the research study documents or other source documents used for the purpose of conducting the study. We cannot promise complete secrecy. Organizations that oversee research safety may inspect and copy your information. This includes the Seton Hall University Institutional Review Board who oversees the safe and ethical conduct of research at this institution.

This survey is being hosted by Qualtrics and involves a secure connection. Terms of service, addressing confidentiality, may be viewed at https://www.qualtrics.com/privacy-statement/. Upon receiving results of your survey, any possible identifiers will be deleted by the investigator. You will be identified only by a unique subject number. Your email address will be stored separately from your survey data. All information will be kept on a password protected computer accessible by the research team. The results of the research study may be published, but your name will not be used.

Consent: If you voluntarily decide to complete the survey please read and follow the instructions on the informed consent for online surveys located on the Qualtrics link.

Contact Information: If you have questions, concerns, or complaints about this research project, you can contact the principal investigator, Irene DeCelie, at irene.decelie@student.shu.edu or the principal investigator's Dissertation Committee Chairperson, Dr. Bonnie Sturm at bonnie.sturm@shu.edu or the Seton Hall University Institutional Review Board ("IRB") at (973) 761-9334 or irb@shu.edu.

I appreciate your time and consideration in this important research study. The Qualtrics link to the survey:
https://shu.co1.qualtrics.com/surveys/SV_eeq6vuhW7Y6yhhk/edit?SurveyID=SV_eeq6vuhW7Y6yhhk

Sincerely,

Irene DeCelie MSN, RN-BC
Doctoral Student
College of Nursing
Seton Hall University
400 South Orange Avenue
South Orange, NJ 07079

Appendix E

Informed Consent - Online

Informed Consent Form

Title of Research Study: Understanding the Relationships Among Patient Engagement and the Nurse Practitioner-Patient Partnership and Health Promoting Behaviors

Principal Investigator: Irene DeCelie MSN, RN, Doctoral Student

Department Affiliation: College of Nursing, Seton Hall University

Sponsor: This research is supported by the College of Nursing, Seton Hall University.

Introduction: My name is Irene DeCelie, and I am a doctoral student from the College of Nursing, Seton Hall University. I am studying factors that may influence whether an individual participates in healthy behaviors. You are being invited to participate in this research study. It is my hope that after reading this form you will agree to participate.

Summary about this research study:
The following summary of this research study is to help you decide whether you want to participate in the study. You have the right to ask questions at any time.
The purpose of this study is to determine the relationships between a person's capacity to engage in their health care, the quality of the nurse practitioner-patient partnership, and health promoting behaviors among adults in the primary care setting.
You will be asked to complete three questionnaires and a short demographic sheet.
We expect that you will be in this research study for approximately 25 minutes.
The primary risk of participation is the involvement of approximately 25 minutes of your time to complete the survey.
The main benefit of participating is personal satisfaction from helping in a research study that may benefit others and possibly gaining an understanding of your own health seeking behavior.

Purpose of the research study:

You are being asked to take part in this research study because you are at least 18 years of age and receive primary care from a nurse practitioner at New Perspectives in Health Care. You must have had at least two medical visits with the nurse practitioner at the time of you complete the survey. You must be able to read and speak English well enough to complete the questionnaires, demographic sheet and provide consent for the study.

Your participation in this research study is expected to be approximately 25 minutes.

You will be one of 68 people who are expected to participate in this research study.

What you will be asked to do:

Your participation in this research study will include providing consent for participation and the completion of three questionnaires and a demographic sheet. You **will not** be asked to provide any personal information such as your name or email address. The survey is available through the New Perspectives in Health Care patient portal. The patient portal contains a Qualtrics link to the survey questionnaires. Qualtrics is a secure online survey management system. Once you click on the link you will be directed to the survey, and you may begin answering the questions. You may complete this survey online in a location of your choosing.

The first questionnaire titled *Health Promoting Lifestyle Profile II* will ask questions about your personal habits such as "Eat breakfast." The second questionnaire titled *Person Engagement Index*

Informed Consent Form

will ask questions about your capacity to engage in your health care such as "I am motivated to take charge of my health care." The third questionnaire titled *Patient Reactions Assessment* will ask questions about the partnership between you and your nurse practitioner such as "This person really respects me." The demographic sheet will ask questions such as your age and marital status.

Completion of the three questionnaires and demographic sheet is estimated at approximately 25 minutes. You will only be asked to complete the questionnaires and demographic sheet one time. Once the questionnaires and demographic sheet are completed your participation in this study will be done.

Your rights to participate, say no or withdraw:
Participation in research is voluntary. You can decide to participate or not to participate. You can choose to participate in the research study now and then decide to leave the research at any time. If you are completing the online survey and you decide not to continue, you may simply exit the survey. Your choice will not be held against you, and it will not affect your care.

The person in charge of the research study can remove you from the research study without your approval. Possible reasons for removal include missing study visits, non-compliance with the study procedures.

Potential benefit:
There may be no direct benefit to you from this study. You may obtain personal satisfaction from knowing that you are participating in research that may help others and you may possibly gain an understanding of your own health seeking behavior.

Potential risks:
The risks associated with this study are minimal in nature and may include the 25 minutes it takes to answer the questions.

Confidentiality and privacy:

Efforts will be made to limit the use or disclosure of your personal information. This information may include the research study documents or other source documents used for the purpose of conducting the study. We cannot promise complete secrecy. Organizations that oversee research safety may inspect and copy your information. This includes the Seton Hall University Institutional Review Board who oversees the safe and ethical conduct of research at this institution.

This survey is being hosted by Qualtrics and involves a secure connection. Terms of service, addressing confidentiality, may be viewed at https://www.qualtrics.com/privacy-statement/. Upon receiving results of your survey, any possible identifiers will be deleted by the investigator. You will be identified only by a unique subject number. Your email address will be stored separately from your survey data. All information will be kept on a password protected computer accessible by the research team. The results of the research study may be published, but your name will not be used.

Data sharing:
De-identified data from this study may be shared with the research community at large to advance knowledge. We will remove or code any personal information that could identify you before files are shared with other researchers to ensure that, by current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee anonymity of your personal data.

Informed Consent Form

Cost and compensation:

You will not be responsible for any of the costs or expenses associated with your participation in this study.

There is no payment for your time to participate in this study.

Conflict of interest disclosure:

The principal investigator and members of the study team have no financial conflicts of interest to report.

Contact information:

If you have questions, concerns, or complaints about this research project, you can contact the Seton Hall University Institutional Review Board ("IRB") at (973) 761-9334 or irb@shu.edu.
If you want a copy of this consent for your records, you can print it from the screen.

If you wish to participate, please click the "I Agree" button and you will be taken to the survey.

If you do not wish to participate in this study, please select exit the browser.

Appendix F

Informed Consent - Written

Informed Consent Form

Seton Hall University
Institutional Review Board
MAR 23 2022
Approval Date
Expiration Date
JUL 23 2022

Title of Research Study: Understanding the Relationships Among Patient Engagement and the Nurse Practitioner-Patient Partnership and Health Promoting Behaviors

Principal Investigator: Irene DeCelie MSN, RN, Doctoral Student

Department Affiliation: College of Nursing, Seton Hall University

Sponsor: This research is supported by the College of Nursing, Seton Hall University.

Brief summary about this research study:
The following summary of this research study is to help you decide whether you want to participate in the study. You have the right to ask questions at any time.
The purpose of this study is to determine the relationships among the quality of the nurse practitioner-patient partnership, a patient's capacity to engage in their health care, and health promoting behaviors among adults in the primary care setting.

You will be asked to provide consent for participation and the completion of three paper formatted questionnaires and a demographic sheet.
We expect that you will be in this research study for 25 minutes.
The primary risk of participation is the time it takes to complete the study documents.
The main benefit of participation is personal satisfaction from knowing that your participation in this study may benefit others and you may gain an understanding of your own health seeking behavior.

Purpose of the research study:

You are being asked to take part in this research study because you are at least 18 years of age and receive primary care from a nurse practitioner at New Perspectives Health Care. You must have had at least two medical visits with the nurse practitioner at the time you complete the survey. You must be able to read and speak English well enough to complete the questionnaires, demographic sheet, and provide consent for the study.

Your participation in this research study is expected to last 25 minutes.

You will be one of 68 people who are expected to participate in this research study.

What you will be asked to do:

Your participation in this research study will include providing written informed consent, and the completion of a short demographic sheet and three questionnaires. The demographic sheet and questionnaires are on paper and are stapled together as a packet. Please do not print your name or any personal identifiers on the packet. You may complete the packet in a location of your choosing. It will take you approximately 25 minutes to complete the packet. Once completed, place the packet into the provided manilla envelope and seal the top. Then place the sealed manilla envelope into the secured, locked drop box located in the office waiting room. You will be asked to complete this packet only one time. Once the questionnaires and demographic sheet are completed your participation in this study will be done.

SETON HALL UNIVERSITY 1856

Informed Consent Form

The first questionnaire titled *Health Promoting Lifestyle Profile II* will ask questions about your personal habits such as "Eat breakfast." The second questionnaire titled *Person Engagement Index* will ask questions about your capacity to engage in your health care such as "I am motivated to take charge of my health care." The third questionnaire titled *Patient Reactions Assessment* will ask questions about the partnership between you and your nurse practitioner such as "This person really respects me." The demographic sheet will ask questions such as your age and marital status.

Your rights to participate, say no or withdraw:
Participation in research is voluntary. You can decide to participate or not to participate. You can choose to participate in the research study now and then decide to leave the research at any time. Your choice will not be held against you.

The person in charge of the research study can remove you from the research study without your approval. Possible reasons for removal include missing study visits, and non-compliance with the study procedures.

Potential benefits:

There may be no direct benefit to you from this study. You may obtain personal satisfaction from knowing that you are participating in a project that contributes to new information.

Potential risks:

The risks associated with this study are minimal in nature. Your participation in this research may include the 25 minutes it takes to answer the questions.

Confidentiality and privacy:

Efforts will be made to limit the use or disclosure of your personal information. This information may include the research study documents or other source documents used for the purpose of conducting the study. We cannot promise complete secrecy. Organizations that oversee research safety may inspect and copy your information. This includes the Seton Hall University Institutional Review Board who oversees the safe and ethical conduct of research at this institution.

Data sharing:
De-identified data from this study may be shared with the research community at large to advance knowledge. We will remove or code any personal information that could identify you before files are shared with other researchers to ensure that, by current scientific standards and known methods, no one will be able to identify you from the information we share. Despite these measures, we cannot guarantee anonymity of your personal data.

Cost and compensation:

You will not be responsible for any of the costs or expenses associated with your participation in this study.

There is no payment for your time to participate in this study.

SETON HALL UNIVERSITY 1856

Informed Consent Form

Conflict of interest disclosure:

The principal investigator and members of the study team have no financial conflicts of interest to report.

Contact information:

If you have questions, concerns, or complaints about this research project, you can contact the principal investigator, Irene DeCelie at irene.decelie@student.shu.edu or the principal investigator's Dissertation Committee Chairperson, Dr. Bonnie Sturm at bonnie.sturm@shu.edu or office phone: 973-761-9762 or the Seton Hall University Institutional Review Board ("IRB") at (973) 761-9334 or irb@shu.edu.

I hereby consent to participate in this research study.

Signature of participant	Date
Printed name of participant	
Signature of person obtaining consent	Date
Printed name of person obtaining consent	

Appendix G

Patient Demographic Sheet

Patient Demographic Sheet Directions: Mark the response that best describes you.

Age	_____years
Gender	☐ Male ☐ Female ☐ Other
Describe your most recent nurse practitioner visit	☐ Telehealth ☐ In-person office visit
Reason for your most recent nurse practitioner visit	☐ Routine check-up ☐ New concern ☐ Chronic condition ☐ Worsening condition
Approximate number of times you have been treated by the nurse practitioners in this practice	☐ Only once ☐ 2 or more, but less than 5 ☐ 5 or more, but less than 10 ☐ 10 or more
Did you see your usual nurse practitioner in your most recent visit?	☐ Yes ☐ No
Marital Status	☐ Single ☐ Married ☐ Divorced/Separated ☐ Widowed ☐ Unmarried Partner

Ethnicity	☐ Hispanic or Latino ☐ Not Hispanic or Latino
Race **Select one or more that apply**	☐ American Indian or Alaska Native ☐ Asian ☐ Black or African American ☐ Native Hawaiian or Other Pacific Islander ☐ White
Highest level of education	☐ Less than High School ☐ High School graduate or GED ☐ Some college ☐ College graduate (AA, AS, BA, BS) ☐ Graduate School ☐ Vocational or Tech school
Work Status	☐ Work full-time (37.5 hours per week or more) ☐ Work part-time (less than 37.5 hours per week) ☐ Unemployed ☐ Student ☐ Homemaker ☐ Unable to work
Annual Income	☐ $0 - $24,999 ☐ $25,000 - $49,999 ☐ $50,000 - $74,999 ☐ $75,000 - $99,999 ☐ $100,000 - $149,999 ☐ $150,000 or more

Appendix H

Research Recruitment Sign

Nursing PhD. Student-----Seeking Participants

Purpose: To understand the factors related to individuals participating in healthy behaviors among patients who receive primary care from nurse practitioners.

Duration: Approximately 25 minutes to complete the surveys

How to participate: Next to this stand is a research letter that provides a link to an online Qualtrics survey. Qualtrics involves a secure connection and data will be stored on two encrypted USB memory sticks locked in a file cabinet located in the locked office of the dissertation committee chairperson.

This study is also available on the Patient Portal where you may click on a link to the Qualtrics survey.

Participation involves answering demographic questions and the following questionnaires:

1. **Health Promoting Lifestyles Profile II** will ask you about your present way of life and personal habits.
2. **Person Engagement Index** will ask you about your capacity to be engaged in your health care.
3. **Patient Reactions Assessment** will ask you about the quality of the partnership between you and your nurse practitioner.

Participation is voluntary, confidential, and anonymous. You will NOT be asked to provide your name, date or birth or any other personal identifiers.

Your participation is important and will help understand how to achieve healthy behaviors in adults.

Irene DeCelie MSN, RN-BC
Seton Hall University, College of Nursing
deceliir@shu.edu

Appendix I

Health Promotion Lifestyle Profile II

LIFESTYLE PROFILE II

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

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

		NEVER	SOMETIMES	OFTEN	ROUTINELY
1.	Discuss my problems and concerns with people close to me.	N	S	O	R
2.	Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3.	Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4.	Follow a planned exercise program.	N	S	O	R
5.	Get enough sleep.	N	S	O	R
6.	Feel I am growing and changing in positive ways.	N	S	O	R
7.	Praise other people easily for their achievements.	N	S	O	R
8.	Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9.	Read or watch TV programs about improving health.	N	S	O	R
10.	Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11.	Take some time for relaxation each day.	N	S	O	R
12.	Believe that my life has purpose.	N	S	O	R
13.	Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14.	Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15.	Question health professionals in order to understand their instructions.	N	S	O	R
16.	Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17.	Accept those things in my life which I can not change.	N	S	O	R
18.	Look forward to the future.	N	S	O	R
19.	Spend time with close friends.	N	S	O	R
20.	Eat 2-4 servings of fruit each day.	N	S	O	R
21.	Get a second opinion when I question my health care provider's advice.	N	S	O	R
22.	Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
3.	Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24.	Feel content and at peace with myself.	N	S	O	R
25.	Find it easy to show concern, love and warmth to others.	N	S	O	R

	NEVER	SOMETIMES	OFTEN	ROUTINELY
26. Eat 3-5 servings of vegetables each day.	N	S	O	R
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

Appendix J

Permission Letter – HPLP II

University of Nebraska Medical Center

COLLEGE OF NURSING
Community-Based Health Department

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

Dear Colleague:

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

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

Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The Health-Promoting Lifestyle Profile: Development and psychometric characteristics. Nursing Research, 36(2), 76-81.

Walker, S. N., Volkan, K., Sechrist, K. R., & Pender, N. J. (1988). Health-promoting lifestyles of older adults: Comparisons with young and middle-aged adults, correlates and patterns. Advances in Nursing Science, 11(1), 76-90.

Walker, S. N., Kerr, M. J., Pender, N. J., & Sechrist, K. R. (1990). A Spanish language version of the Health-Promoting Lifestyle Profile. Nursing Research, 39(5), 268-273.

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

Sincerely,

Susan Noble Walker, EdD, RN, FAAN
Professor Emeritus

Appendix K

Permission Letter from GetWellNetwork

O'NEIL CENTER™ | Advancing the science of patient and family engagement
getwell:)network

March 18, 2021

Dear Irene DeCelie,

This letter grants you permission solely for your dissertation study being conducted at Seton Hall University to use the following GetWellNetwork proprietary items:

1. The Interactive Care Model image (properly noted as GetWellNetwork proprietary image and properly referenced from the *Journal of Nursing Administration* 2015 publication)
2. The use of the Person Engagement Index and scoring methodology (properly noted as GetWellNetwork proprietary instrument and scoring methodology and properly referenced from the *Journal of Nursing Measurement* 2018 publication).

Sincerely,

Carrie Hallock

Carrie Hallock

Vice President, Clinical Consulting

GetWellNetwork

Appendix L

Permission Letter/Email from Dr. John P. Galassi

From: Galassi, John P
Sent: Wednesday, February 13, 2019 2:49 PM
To: Irene Decelie
Subject: RE: Patient Reactions Assessment

Hello Irene,

Attached is a copy of the PRA and scoring instructions. Please feel free to use it.,

I hope you find it helpful.

John

From: Irene Decelie <irene.decelie@student.shu.edu>
Sent: Wednesday, February 13, 2019 10:03 AM
To: Galassi, John P <jgalassi@email.unc.edu>
Subject: Patient Reactions Assessment

Dear Mr. Galassi,

I am currently in a Nursing PhD. program at Seton Hall University in South Orange, New Jersey. My area of interest is in patient engagement and the patient-nurse relationship. I came across one of your articles, which listed your contact information at the University of North Carolina at Chapel Hill.

The article discussed the development and psychometric testing of your instrument the Patient Reactions Assessment. I believe this instrument will provide me with a valid and reliable means to measure the quality of the patient-nurse relationship.

With your permission, I would like to use the Patient Reactions Assessment in my dissertation at Seton Hall University. I appreciate your time and consideration in this matter.

You may contact me at my email deceliir@shu.edu
or cell 732-995-5152.

Sincerely,

Irene DeCelie