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Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students

Faye J. Grund

PREDICTORS OF HEALTH PROMOTING LIFESTYLES IN

BACCALAUREATE NURSING STUDENTS

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By

Faye Johnson Grund

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Approved July 1, 2013

_____
Kathleen L. Sekula, PhD, APRN
Professor of Nursing
(Committee Chair)

_____
Alison Colbert, PhD, APRN
Assistant Professor of Nursing
(Committee Member)

_____
Ratchneewan Ross, PhD, RN
Associate Professor of Nursing
Kent State University
(Committee Member)

_____
Mark Fridline, PhD
Assistant Professor
University of Akron
(Committee Member)

_____
Mary Ellen Glasgow, PhD, RN
Dean, School of Nursing
Professor of Nursing

_____
Name of Department Chair
Chair, Department Name
Professor of Nursing

ABSTRACT

PREDICTORS OF HEALTH PROMOTING LIFESTYLES IN

BACCALAUREATE NURSING STUDENTS

By

Faye Johnson Grund

August 2013

Dissertation supervised by Kathleen Sekula, PhD, APRN, FAAN

Background: Nurses comprise the largest segment of healthcare professionals. As

nursing students become health professionals, they will have a significant role in

modeling health promoting lifestyles and educating patients regarding healthy lifestyle

choices.

Purpose: The purpose of this study was to determine the predictors of health promoting

lifestyles in baccalaureate nursing students.

Methods: A descriptive, cross-sectional design was used to determine associations

between variables including gender, age, basic metabolic index (BMI), financial need,

race, ethnicity, relationship status, living situation, general health status, self-reported

depressive symptoms, social support, academic outcomes, self-efficacy, and heath

promoting lifestyles. A convenience sample of participants from baccalaureate colleges

in the mid-west completed a demographic questionnaire, the Beck Depression Inventory II, the Interpersonal Support Evaluation List-College Version, the General Self-Efficacy Scale, and the Health Promoting Lifestyle Profile, II to determine predictors of health promoting lifestyle.

Results: Significant associations were found between gender, financial need, BMI, health status, depressive symptoms, social support, self-efficacy and health promoting lifestyles. Path analysis, using the statistical package IBM SPSS AMOS, was used for model development. Goodness of fit indices confirmed that the predictive model for health promoting lifestyles was a good fit explaining 52% of the variance in health promoting lifestyles.

Discussion: The paucity of research regarding health-promoting lifestyles of future nursing professionals is of particular interest given the national policy initiatives concerning healthcare reform. The predictive model that met criteria for goodness of fit and significance of parameters found direct and indirect relationships between the parameters and health promoting lifestyles. Of particular interest is the finding that self-efficacy is a mediating variable between social support and health promoting lifestyles in the baccalaureate nursing student population. This finding contributes new knowledge, identifying this significant relationship that is not demonstrated on Pender's health promotion model. Knowledge regarding predictors of health promoting lifestyles for nursing students will facilitate future intervention studies that will target strategies of significance for baccalaureate nursing students.

DEDICATION

This research is dedicated to my family who has lent their overwhelming support throughout my education. Bruce, my husband has unselfishly provided encouragement and support through assuring that I had protected time to commit to studies, listening to countless study sessions with student peers, and sharing his editorial skills prior to paper submissions during my education. Most importantly, he has prayed for me as I progressed. My children, Joshua and Carrie; Meagan and Donnie; Ashleigh and Fredy; and Alexandra (Allie) have regularly encouraged me through their commitment to our family, patience, and unselfish enthusiasm for my success.

Finally, I dedicate this research to nursing students, future health professionals, those who I have taught in the past, those who participated in this study, and those who are yet to enroll in programs. The health of these students is an important focus for educators, as they engage them in learning to care for patients, families, and communities in the future. One student communicated with me following data collection, sharing the stress she had experienced while enrolled in nursing school. She expressed gratitude for my interest in promoting health in this population, and speculated on reasons she felt nursing students experienced higher levels of stress than students in other areas of study. It is for students like this, and others like her, that I dedicate this research, as a beginning program of research, to determine interventions that will effectively promote healthy lifestyles in these future professionals. They are the leaders of healthcare in the future.

ACKNOWLEDGEMENT

As I contemplate the coursework and the research process that culminates in a dissertation and doctoral degree, I am reminded of the mentors who assisted me through this process. Benjamin Franklin, a great philosopher, scientist, and writer, once said, "Tell me and I forget, teach me and I may remember, involve me and I learn." So it is that I acknowledge my dissertation chair and committee members for their mentoring over the course of my doctoral education and most specifically, this research. Kathy Sekula, PhD, APRN, FAAN, dissertation chair, provided not only guidance and expertise, but also unwavering support and encouragement over the course of time. Alison Colbert, PhD, APRN challenged me to stretch my thinking and strive for excellence. Ratchneewan Ross, PhD, RN encouraged me to explore analysis that was beyond my realm of knowledge at the outset. Mark Fridline, PhD, a statistician by profession and constant encourager, guided me in statistical analysis to assure accuracy and integrity of findings.

Additionally, I would like to acknowledge Nola Pender, PhD, RN, FAAN who, even in her retirement, responded to the incessant emails of a doctoral student in the pursuit of understanding the Health Promotion Model and her writings. Susan Walker, EdD, RN, FAAN also responded providing clarification on the HPLP II scoring. There expertise assured understanding as the research process progressed.

Mentors serve those who look to them for guidance. As such, Christ's model of service is most highly valued and acknowledged:

"For even the Son of Man came not to be served, but to serve others and to give his life as a ransom for many" (Mark 10:45).

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LIST OF ABBREVIATIONS

AACN: American Association of College of Nursing

ANOVA: Analysis of Variance

BDI-II: Beck Depression Inventory II

BMI: Body Mass Index

CDC: Center for Disease Control

HPL: Health Promoting Lifestyle

HPLP-II: Health Promoting Lifestyle Profile II

ISEL-CV: Interpersonal Support Evaluation List – College Version

PPACA: Patient Protection Affordable Care Act

SPSS: Statistical Package for Social Sciences

TEAS-IV/V: Test of Essential Academic Skills IV/V

Chapter 1

Background

In 2010, Congress approved the Patient Protection and Affordable Care Act (PPACA). One aspect of the legislation focuses on the importance of health promoting lifestyles as a way to improve the overall health of Americans and control escalating health care costs, a primary offender of the economic downturn (HealthReform.gov, 2011). Many of the chronic causes of death in the United States result from poor lifestyle choices. The World Health Organization estimates that 80% of premature heart disease, stroke and type 2 diabetes, and 40% of cancer are preventable through healthy lifestyle choices including well-balanced diet, regular physical activity, and the avoidance of tobacco products (Johnson & Breckon, 2007; World Health Organization, 2009). Yet many Americans do not assume responsibility for their own health and continue leading lifestyles that lead to the development of chronic illness (Reeves & Rafferty, 2005). Health care practitioners should direct their efforts to first determine populations where unhealthy lifestyle choices lead to poor health outcomes and then investigate interventions leading to the promotion of healthy lifestyles. The determination of evidence-based practices that promote healthy lifestyles is critical to the overall health of patients, families and communities and to effectively control health care costs in the United States (Navarro, Voetsch, Liburd, Giles, & Collins, 2007; Reeves & Rafferty, 2005; World Health Organization, 2009).

One population for consideration is nursing students, enrolled in baccalaureate nursing education programs. Nurses comprise the largest segment of healthcare professionals. As students move into positions as future healthcare professionals, they

will play a significant role in both modeling health promoting lifestyles and educating patients regarding healthy lifestyle choices. Like other college students, nursing students are at an influential age, making personal health choices for the first time in their life (Al-Kandari & Vidal, 2007; Altun, 2008; Can et al., 2008). Although the college campus should be a place where healthy lifestyle choices are promoted, students are making choices to engage in behaviors that do not lead to health promoting lifestyles and potentially lead to poor health outcomes later in the student's life (American College Health Association, 2011; Steptoe et al., 2002).

Research within the last ten years on health promoting lifestyles in nursing students has occurred mostly in countries outside of the United States. Determining the predictors of health promoting lifestyles in nursing students within the United States is an important first step. Studies based on theoretical models to determine the predictors of these lifestyles will guide health care providers in the development of intervention studies that will inform evidence based practice.

This study examines the relationships between potential predictors of health promoting lifestyles in nursing students, including personal factors, self-efficacy, situational influences, and interpersonal influences, according the Nola Pender's Health Promotion Model (Pender, Murdaugh, & Parsons, 2011). Descriptive studies have identified the health-promoting lifestyles of nursing students, particularly those in countries outside of the United States. A few studies found in the literature considered the correlation between academic outcomes and health promoting lifestyles, depression and health promoting lifestyles, and social support and health promoting lifestyles (Andrews & Wilding, 2004; Blake, Malik, Mo, & Pisano, 2011; Hysenbegasi, Hass, & Rowland,

2005; Kernan & Wheat, 2008; Keyes et al., 2012). Self-efficacy is identified in the literature as a significant variable in promoting health behavior change (Schwarzer & Fuchs, 1995; Strecher, DeVillis, Becker, & Rosenstock, 1986). However, no studies were found in the literature where Pender's Health Promotion Model was used as a framework to consider the predictive nature of personal factors, situational influences, interpersonal influences, and self-efficacy as related to the health promoting lifestyles of nursing students. This study will attempt to examine a portion of Pender's model to contribute to the knowledge regarding health-promoting lifestyles in nursing students. Once the predictors of health promoting lifestyles are understood within this population, intervention studies testing the model will be appropriate.

Significance of the Problem

College is a transitional time in the lives of nursing students. During this time, the students are experiencing developmental changes and learning to be self-directed in their personal care decisions. It is during this time that establishing healthy lifestyle behaviors is critical. However, research indicates that nursing students lead unhealthy lifestyles including the overuse of alcohol, heavy use of cigarettes, consuming unhealthy diets, physical inactivity, and poor sleep habits (Can et al., 2008; Chalmers, Seguire, & Brown, 2002; Clement, Jankowski, Boushchard, Perreault, & Lepage, 2002; Purcell, Moyle, & Evans, 2006; Steptoe et al., 2002). Can et al. (2008) compared nursing and non-nursing college students utilizing the Health Promoting Lifestyle Profile II. They determined the overall scores and scores on all six subscales for nursing and non-nursing students were below a mean score of 3 (1 = never; 2 = sometimes; 3 = often; and 4 = routinely). For nursing and non-nursing students the mean scores on physical activity

were below 2 and additionally the non-nursing students scored below 2 on health responsibility.   Understanding the predictors of health promoting lifestyles in nursing students will provide opportunity to develop interventions that will encourage students to develop lifelong health promoting lifestyles that will have a positive impact on their personal health.

Health promoting lifestyles are known to preserve health (Haddad, Kane, Rajacich, Cameron, & Al-Ma'aitah, 2004). Nursing students, future healthcare professionals, will have opportunity to model and teach these lifestyles throughout their careers. It is essential that these students be encouraged to embrace health-promoting lifestyles during the transitional college years. This study will increase knowledge regarding relationships between health promoting lifestyles and sociodemographic factors, depression levels, academic outcomes, social support, and self-efficacy so that future interventions may target behaviors determined to be strongly correlated with health promoting lifestyles.

Needs/Purpose of the Study

The purpose of this study, guided by Pender's Health Promotion Model (Pender et al., 2011) is to determine the predictors of health promoting lifestyles in baccalaureate nursing students. Entrance into college is a transitional time for nursing students and an important time to establish patterns of healthy lifestyle behaviors.

Additionally, the study will seek to generate hypotheses by examining the influences of personal factors, situational influences, interpersonal influences, and perceived self-efficacy on health promoting lifestyles in nursing students according to Pender's model.

Research Questions and Hypotheses

Variables that will be studied are listed below in Table 1.1.

Table 1.1

Study Variables

Type	Variable	Subcomponent/Subscales
Dependent	HPL overall	Health Responsibility Spiritual Growth Physical Exercise Nutrition Interpersonal Relations Stress Management
Independent	Personal factors	Age Gender Body Mass Index (BMI) General health status Depressive symptoms Race/Ethnicity Financial resources Total school debt Relationship status Living situation Tobacco Use Alcohol Use Street Drug Use
	Interpersonal influences (social support)	Social Support overall Tangible Self-Esteem Appraisal Belonging
	Situational influences (academic outcomes)	Cumulative GPA Nursing GPA
	Perceived Self-Efficacy	

The research questions of the study with associated hypotheses include:

1. What is the relationship between personal factors and health promoting lifestyles in baccalaureate nursing students?

   $H_0$1.1: Health promoting lifestyles are not significantly influenced by age, gender, and BMI in baccalaureate nursing students.

   $H_0$1.2: Health promoting lifestyles are not significantly influenced by health status and depressive symptoms baccalaureate nursing students.

   $H_0$1.3: Health promoting lifestyles are not significantly influenced by race/ethnicity, available financial resources, relationship status, and living situation in baccalaureate nursing students.

2. What is the relationship between social support and health promoting lifestyles in baccalaureate nursing students?

   $H_1$2.1: Health promoting lifestyles are positively correlated with social support in baccalaureate nursing students.

3. What is the relationship between academic outcomes and health promoting lifestyles in baccalaureate nursing students?

   $H_1$3.1: Health promoting lifestyles are positively correlated with academic outcomes in baccalaureate nursing students.

4. What is the relationship between perceived self-efficacy and health promoting lifestyles in baccalaureate nursing students?

   $H_1$4.1: Health promoting lifestyles are positively correlated with perceived self-efficacy in baccalaureate nursing students.

5. What are the predictors of health promoting lifestyles (as measured by the HPLP II) in

baccalaureate nursing students?

Operational Definitions

The operational definitions of significance to this study include those variables

that will be measured to test a portion of Pender's Health Promotion Model. The portion

of the model to be tested is depicted below in Figure 1.

Figure 1. Pender's Health Promotion Model with Variables in Study
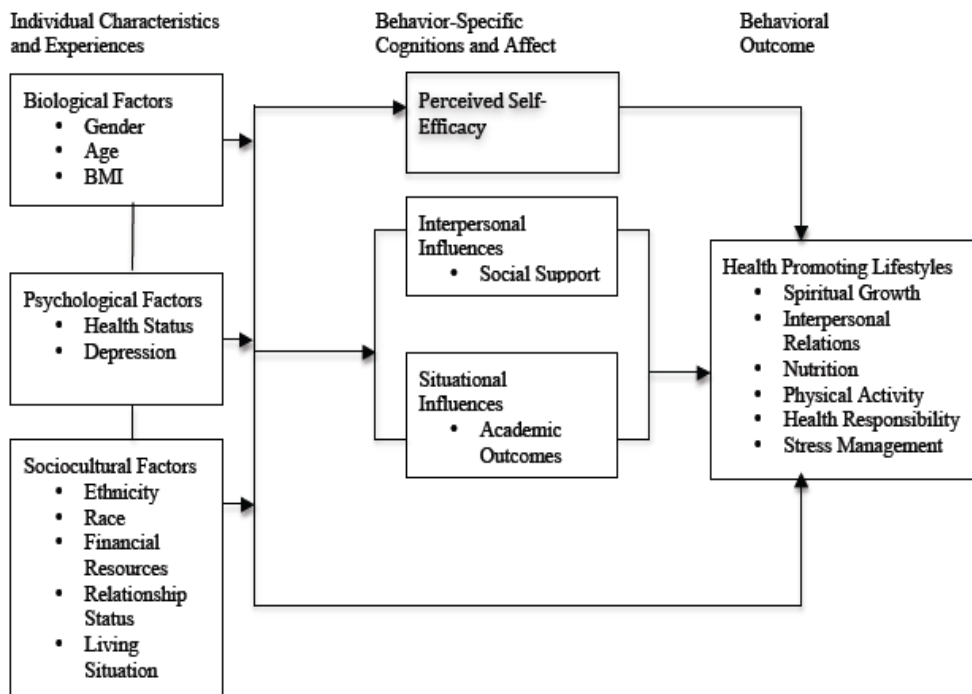
Figure 1. The variables that will be examined in the study are included in this
representation of a portion of Pender's Health Promotion Model.

Personal factors.

Personal factors as defined within the Health Promotion Model include a

combination of biological, psychological and sociocultural factors. Research

investigating predictive factors within given populations will lead to further explication of the model (Pender et al., 2011).

Biological factors.

Biological factors that will be considered in this study include age, gender, and BMI. BMI is a fairly reliable measurement of body fat and is calculated using the following formula: weight (lb) / [height (in)]^2 x 703 (Centers for Disease Control and Prevention, 2011). This information will be collected on the researcher developed demographic tool.

Psychological factors.

Psychological factors include self-esteem, self-motivation, and perceived health status (Pender et al., 2011). Within the context of this study, the psychological factors considered will include the participant's perceived general health status and depressive symptoms as measured by the Beck Depression Inventory II (BDI-II) (Beck, Steer, & Brown, 1996). A single item question on health status will be asked on the demographic questionnaire. Single item questions regarding health status are shown to provide valid and reliable results when compared to both long and short questionnaires (Bowling, 2005).

Sociocultural factors.

Sociocultural factors considered in this study include financial resources, total anticipated school debt, ethnicity/race, relationship status, living situation, tobacco use, alcohol use, and street drug use. This information will be gathered from the researcher developed demographic tool. Financial resources will be participant's perceived status of needs met versus needs not met, as well as income tax status as dependent or

independent. Students were asked to report anticipated school debt. Race and ethnicity are defined according to the Health Resources and Services Administration delineations (Health Resources and Service Administration, 2011). Relationship status is defined as in a relationship living together, not living together, and not in a relationship. Marital status is single, married/partnered, divorced, separated, and other. Living situation is defined as possible living situation of college students including campus residence hall, sorority or fraternity house, other college/university housing, other off campus housing, or parent's home. Tobacco, alcohol, and street drug use was reported as never used, used in past, but not in last 30 days, 1-5 days, 6-10 days, 11-20 days, and 21-30 days.

Interpersonal influences.

Interpersonal influences involve the attitudes, behaviors, and beliefs of others as perceived by the individual. Three interpersonal influences are defined within Pender's model as having significant outcomes influencing health-promoting lifestyles. These include: "norms (expectations of significant others), social support (instrumental and emotional encouragement), and modeling (vicarious learning through observing others engaged in a particular behavior)" (Pender et al., 2011, p. 48). The Interpersonal Support Evaluation List College Version (ISEL-CV) will be used to collect data related to both overall social support and four subscales including tangible (perceived availability of material aid), appraisal (availability of someone to talk with about problems), self-esteem (positive comparison when comparing self to others), and belonging (availability of people to do things with) (Cohen & Hoberman, 1983). For purposes of this study the overall, belonging scores, and tangible scores will be aligned with social support according to Pender's definitions, and the appraisal and belonging

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sub-scale will be aligned with norms according to Pender's definitions. The third aspect within Pender's definition of interpersonal influences, modeling, will not be examined within the context of this study.

Situational influences.

Situational influences, according to the model are perceptions and cognitions of any situation or context that either facilitate or impede health-promoting behaviors. Pender, Murdaugh, and Parsons (2011) claim that individuals will perform more competently in situations or environments where they feel safe, reassured, related, and compatible. The particular situational influences that will be examined in this study are students' academic outcomes. For nursing students, progression or possible dismissal from the program is dependent on grades on nursing coursework. Therefore, grades are a situational influence that may impact their willingness to participate in health promoting lifestyles particularly if they are struggling in school. Students who require more time to maintain satisfactory academic performance may not focus on health promoting lifestyles. Cumulative grade point average (GPA) and nursing grade point average will be gathered by data provided on the researcher developed demographic tool. The Assessment Technology Institute Test of Essential Academic Skills IV/V (TEAS-V) overall score will be used as a covariate to control for academic ability.

Perceived Self-Efficacy

In 1977, Albert Bandura introduced the concept of self-efficacy in relationship to cognitive behavior modification and developed the Social Cognitive Theory (Bandura, 1986; Bandura, 1977). Perceived self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types

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of performances" (Bandura, 1986, p. 391). Although Bandura's definition leans towards task specific or domain specific behaviors, this study will utilize the General Self-Efficacy tool to attain an overall perception of self-efficacy. General self-efficacy is defined in a broader sense as personal competence for the individual to deal effectively with stressful situations (Schwarzer & Jerusalem, 1995; Schwarzer & Fuchs, 1995). When focusing on multiple behaviors simultaneously such as the Health Promoting Lifestyle Profile, general self-efficacy is recommended (Luszczynska, Scholz, & Schwarzer, 2005; Pender, 2012). Schwarzer and Jerusalem (1995) concluded that individuals are capable of performing tasks within various domains of human functioning and that the individual's perceived general self-efficacy facilitates goal setting, effort investment, persistence in the midst of barriers, and potential recovery in the midst of setbacks.

Health Promoting Lifestyles.

Health promoting lifestyles are defined as discretionary behaviors that may become a part of an individual's daily activities and have the potential to significantly impact the individual's health outcomes (Pender et al., 2011). These behaviors when incorporated into an individual's lifestyle result in "improved health, enhanced functional ability, and better quality of life at all stages of development" (Pender et al., 2011, p. 50). The Health Promoting Lifestyle Profile II (HPLP-II) will be used to measure overall health promoting lifestyle and the six subscales including spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management (Walker, Sechrist, & Pender, 1987). These subscales may be defined as follows:

- Spiritual growth is developed through the individual's inner resources of transcending, connecting, and developing.

- Interpersonal relations are the individual's communication ability to achieve a sense of intimacy in meaningful relationships.

- Nutrition is the individual's ability to select and consume a nutritious diet essential for health and well-being.

- Physical activity is regular participation in light, moderate, or vigorous activity.

- Health responsibility is personal accountability for one's own well-being.

- Stress management is the individual's ability to effectively reduce or control tensions utilizing psychological and physical resources (Walker et al., 1987; Walker & Hill-Polerecky, 1996).

Assumptions

The assumptions involved in conducting this research study include:

- Institutional Review Board (IRB) approval will be granted by the three Universities in the MidWest.

- The researcher will have access to a sample size that will provide appropriate power.

- Participants will sign the informed consent and complete the research tools according to the methods described in the methodology section.

- Data will be collected according to the methodology outlined.

- Data will be entered accurately into SPSS (version 19, SPSS Inc., Chicago, IL 2011).

- The participant responses will represent a normal distribution of baccalaureate nursing students who meet inclusion criteria as defined in the methodology.

- Visual analysis of data will provide a determination of outliers and the researcher will determine appropriate management of outliers and missing data by case.

- Linearity, homoescedasticity, and multicollinearity will yield appropriate results so that inferential parametric analysis may be conducted.

- Study results will contribute to the knowledge regarding predictors of health promoting lifestyles in baccalaureate nursing students.

Theoretical Framework

The Health Promotion Model, originally published in 1982, was developed by Nola J. Pender. Pender became interested in health promotion early in her career determining that individuals should experience exuberant well-being and make every effort to prevent disease rather than cope with disease once it happens (Pender et al., 2011). Pender's definition of health, early in her career was exuberant well-being, rather than a definition of health that was adaptive, functional, or simply the absence of disease. Pender intended the model to guide the nursing care of society as a whole through interactions at the individual level. Biophysical processes that motivate individuals to participate in health promoting behaviors leading to overall well-being are the basis for the model (Pender et al., 2011). Pender's model provides important guides for nursing professionals as they focus on health promotion strategies for patients and for research aimed at prediction of health promoting lifestyles.

Pender's background in education, experimental psychology, human development, and nursing led to the development of a theory founded in holistic nursing,

social psychology and learning theory (Sakraida, 2010). Albert Bandura's social learning theory/social cognitive theory is a central focus of the Health Promotion Model (Sakraida, 2010). This theory emphasizes the importance of cognitive processes in changing individual's behaviors, particularly self-efficacy (Sakraida, 2010). Pender was also familiar with Feather's expectancy value model of human motivation, which describes behavior as rational and economical in nature (Sakraida, 2010). Additionally, Pender's knowledge of Becker's Health Belief Model guided the development of the theory. However, the Health Belief Model is limited to explaining disease prevention behaviors with emphasis on fear or threat as the source of motivation for health behavior (Sakraida, 2010). The striking difference in the Health Promotion Model is a positive self directed motivation for behavior and actions that direct the promotion of health, not just the prevention of disease (Sakraida, 2010).

Historically, Pender defined health more broadly than her predecessors. Pender's definition of health is: "the actualization of inherent and acquired human potential through goal-directed behaviors, competent self-care, and satisfying relationships with others, while adjustments are made as needed to maintain structural integrity and harmony with relevant environments" (Pender, Murdaugh, & Parsons, 2006). More recently, the definition of health broadened and is defined as "the realization of human potential through goal-directed behavior, competent self-care, and satisfying relationships with others, while adapting to maintain structural integrity and harmony with the social and physical environments" (Pender et al., 2011). Within the theory, major concepts are defined as follows:

- Individual characteristics and experiences that affect subsequent health actions:

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- o Prior related behavior is the frequency of occurrence of the same or similar behaviors that may have a direct or indirect effect on the likelihood of an individual participating in a health promoting behavior.
  - o Personal factors are identified as biological, psychological, and sociocultural and are predictive of given behaviors and shaped by the nature of a target behavior under consideration.
- Behavioral-specific cognitions and affects considered to have major motivational significance and that are modifiable based on nursing interventions:
  - o Perceived benefits of action are the projected positive outcomes that result from health behavior.
  - o Perceived barriers to action are actions that are anticipated, imagined, or real blocks and personal costs of undertaking given behaviors.
  - o Perceived self-efficacy is the individual's judgment regarding their ability to organize and execute a health promoting behavior.
  - o Activity- related affect describes subjective positive or negative feelings that occur before, during, and following behavior based on the stimulus properties of the behavior itself.
  - o Interpersonal influences are primarily families, peers, and healthcare providers and are the cognitions regarding behaviors, beliefs, or attitudes of these individuals.
  - o Situational influences include the personal perceptions and cognitions of any situation that will either influence or impede behavior.
- Immediate antecedents of behavior or behavior outcomes:

o Commitment to a plan of action is the intention or identification of a planned strategy that will lead to implementation of health behavior.

o Immediate competing demands are behaviors outside of the health behavior over which the individual has little control since they are environmental in nature.

o Immediate competing preferences are alternative behaviors that the individual does exert considerably high control over.

o Health promoting behavior is the end behavior or outcome that is desired to achieve positive health outcomes including well-being, personal fulfillment, and productive living. (Pender, 2010)

Pender's Health Promotion Model has a defined structure informing researchers regarding the conceptual relationships within the theory. The model has undergone three revisions leading to increased explanatory power and improved potential to structure health promoting behaviors (McCullagh, 2009). A diagram of the model (Figure 2) clearly illustrates how the concepts build towards health promoting behavioral outcomes.

Theories provide both assumptions to reflect the viewpoints and values of the theorist. Assumptions are provided regarding the Health Promotion Model including:

• Persons seek to create conditions of living through which they can express their unique human health potential.

• Persons have the capacity for reflective self-awareness, including assessment of their own competencies.

- Persons value growth in directions viewed as positive and attempt to achieve a personally acceptable balance between change and stability.

- Individuals seek to actively regulate their own behavior.

- Individuals in all their biopsychosocial complexity interact with the environment, progressively transforming the environment and being transformed over time.

- Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their lifespan.

- Self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change. (Pender, 2010)

Figure 2. Pender's Health Promotion Model

Revised Health Promotion Model
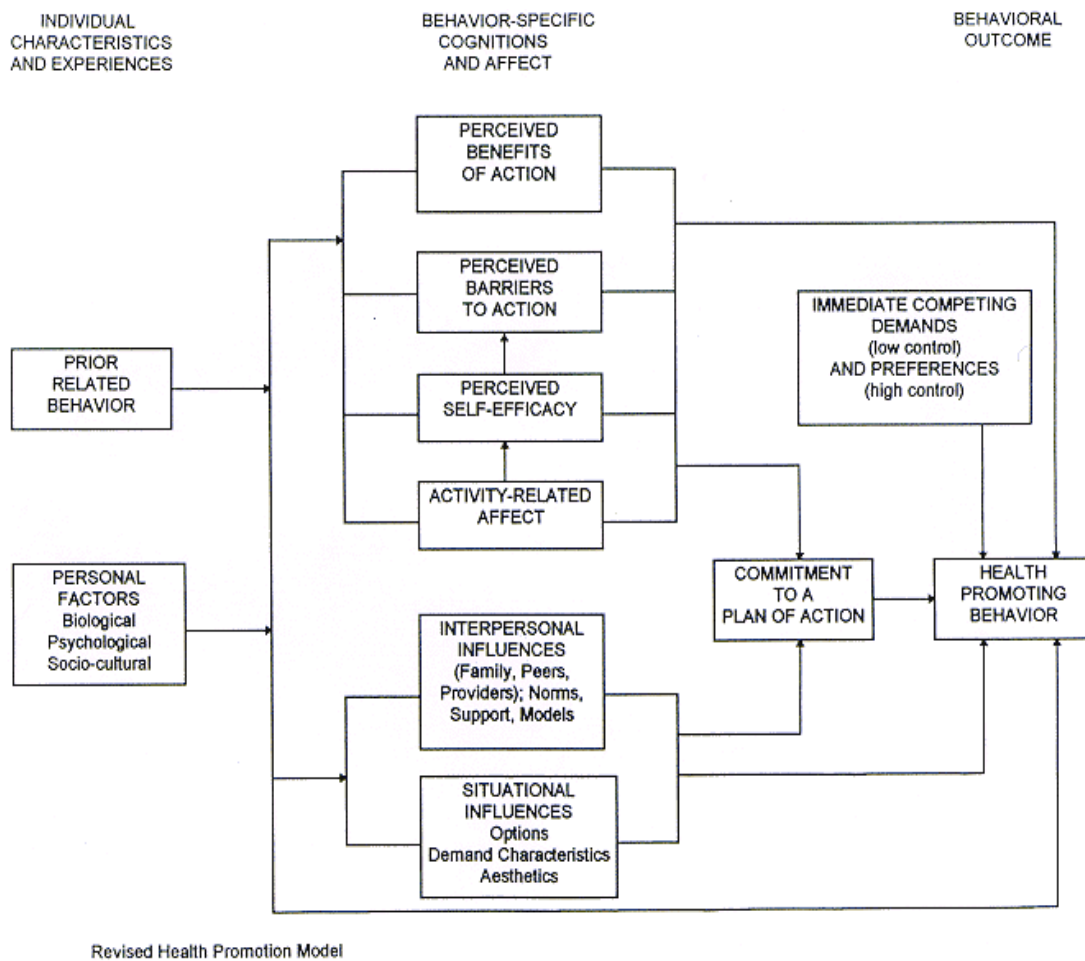
Figure 2. Revised Health Promotion Model. From *Health promotion in nursing practice,*
[6th ed., p. 45]. Copyright 2011 Pearson Education, Inc., Upper Saddle River, NJ

The propositions, as defined by Pender, provide a basis for research and are as follows:

- Prior behavior and inherited and acquired characteristics influence beliefs, affect,

  and enactment of health-promoting behavior.

- Persons commit to engaging in behaviors from which they anticipate deriving

  personally valued benefits.

- Perceived barriers can constrain commitment to action, a mediator of behavior as well as actual behavior.

- Perceived competence or self-efficacy to execute a given behavior increases the likelihood of commitment to action and actual performance of the behavior.

- Greater perceived self-efficacy results in fewer perceived barriers to a specific health behavior.

- Positive affect toward a behavior results in greater perceived self-efficacy, which can in turn, result in increased positive affect.

- When positive emotions or affect are associated with a behavior, the probability of commitment and action is increased.

- Persons are more likely to commit to and engage in health-promoting behaviors when significant others model the behavior, expect the behavior to occur, and provide assistance and support to enable the behavior.

- Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behavior.

- Situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior.

- The greater the commitment to a specific plan of action, the more likely health-promoting behaviors are to be maintained over time.

- Commitment to a plan of action is less likely to result in the desired behavior when competing demands over which persons have little control require immediate attention.

- Commitment to a plan of action is less likely to result in the desired behavior when other actions are more attractive and thus preferred over the target behavior.

- Persons can modify cognitions, affect, and interpersonal and physical environment to create incentives for health actions. (Pender, 2010)

The Health Promotion Model provides a guide for nurses and other health professionals to encourage patients to achieve improved health, enhanced functional ability, and a better quality of life (McCullagh, 2009). From a research perspective, the Health Promotion Model continues to be tested for empirical evidence related to its usefulness. The Health Promoting Lifestyle Profile, which was derived from the model, serves as an operational definition for health promoting behaviors (Sakraida, 2010). The model emphasizes the importance of self-assessment of factors believed to impact health promoting behaviors (Sakraida, 2010). Health promoting lifestyles have potential to improve individual's health outcomes directly impacting the cost of health care in the United States.

The model is important for the investigation of strategies to improve the health of the populace, but also for the benefits it may provide from a health care cost perspective. "The benefits of living a healthier lifestyle exceed prevention of disease, and include greater vigor and a subjective feeling of wellness. While these benefits can be enjoyed by the individual, society as a whole also profits from health promotion when people create personal and family lifestyles that are consistent with economic prosperity and interpersonal harmony" (McCullagh, 2009). The American Association of Colleges of Nursing prioritized population health in the document that guides the education of nursing students, *Essentials of Baccalaureate Education for Professional Nursing*

Education (American Association of Colleges of Nursing, 2008). "Health promotion and disease prevention at the individual and population level are necessary to improve population health and are important components of baccalaureate generalist nursing practice" (American Association of Colleges of Nursing, 2008). The emphasis on health promotion by this national body highlights the relevance of the Health Promotion Model's usefulness not only for the education of nursing students, but also for their personal well-being.

Pender's model explicates three overall concepts including individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes (Pender et al., 2006). Particular components of the model will be examined in this study including how personal factors, interpersonal influences, situational influences, and self-efficacy predict health-promoting lifestyles in junior and senior level baccalaureate nursing students. Personal factors include biological, psychological, and sociocultural factors. The study examines whether gender, age, BMI, health status, depression level, financial resources, relationship status, living situation, race, and ethnicity in baccalaureate nursing students predict health-promoting lifestyles. Additionally, student's perceptions of social supports as an interpersonal factor will be examined as a predictor of health-promoting lifestyles. One situational factor, academic outcomes, will be examined as a predictor of health promoting lifestyles in baccalaureate nursing students. Finally, perceived self-efficacy will be examined as a predictor of health promoting lifestyles in baccalaureate nursing students.

Pender's Health Promotion Model, developed in 1982 and revised in 1996, will be the guiding theoretical model for the study (Pender, 2010). The Health Promotion Model

posits the multidimensional nature of individuals as they interact with the environment in the pursuit of health. The model accounts for characteristics, experiences, and behaviors that may lead to health promoting behaviors (Pender, Murdaugh, & Parsons, 2006). The model has been used to explain health-promoting behaviors in various populations including adolescents, adults, older adults, and college students (Frank-Stromborg, Pender, Walker, & Sechrist, 1990; Garcia, Pender, Antonakos, & Ronis, 1998; Hutchinson, 1996; Maglione, 2007; Martinelli, 1999; Ronis, Hong, & Lusk, 2006; Shin, Jang, & Pender, 2001; Shin, Yun, Pender, & Jang, 2005; Wu & Pender, 2002). For this study, the relationships between biological, psychological, and socio-cultural personal factors, interpersonal influences, situational influences, self-efficacy and nursing students' health promoting lifestyles will be explored.

Chapter 2: Review of the Literature

Predictors of health promoting lifestyles in nursing students is of particular concern to health care providers, future employers, and educators. Health care providers recognize that the student's personal health outcomes are dependent upon the health promoting lifestyles they choose. Employers are impacted by both absenteeism and presenteeism rates of their healthcare employees and how these rates potentially impact patient outcomes. Educators are concerned not only about the student's personal health, but also how their health impacts academic outcomes, thereby their ability to perform in the workplace. Finally, as future nursing professionals, these individuals will have responsibility to both mentor and educate patients regarding health-promoting lifestyles throughout their careers. It is important that during their formative college years, nursing students develop health promoting lifestyle behaviors that will not only promote their own health, but also will allow them to best model and teach these behaviors to patients. The literature surrounding current knowledge will be explored.

Initially, an exploration of the historical relevance of health promotion will be provided to understand the significance of the research questions. How employers are impacted by the health of nurses related to both absenteeism and presenteeism will be considered to provide a context for the relevance of the study to nursing students' future employment as professional nurses. Next, a review of the literature regarding overall nursing student health will be explored. The impact of the personal factors of gender, age, body mass index, general health status, depression, income, relationship status, living situation, race, and ethnicity as predictors of college and nursing student's health promoting lifestyles will be considered. Literature regarding how nursing student

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academic outcomes are predictive of health promoting lifestyles will be reviewed.

Studies in the literature related to the impact of social support on health promoting

lifestyles of nursing students will be reviewed. Findings related to the role of self-efficacy

in health promoting lifestyles will be considered. Results from research regarding factors

related to health promoting lifestyles of nursing students will be discussed including

nutrition, stress, spirituality, health responsibility, interpersonal relations, and physical

activity. Finally, the gaps in the literature will be identified that led to the research

questions for this study.

Historical Relevance of Health Promotion

The historical beginnings of health promotion occurred with the earliest

civilizations. The writings of Babylonians, Egyptians, and Old Testament Israelites

indicate that health promoting activities such as concern for shelter, food, water, and

safety were paramount in these cultures (Johnson & Breckon, 2007). As time progressed,

knowledge was gained about disease transmission and treatments were discovered to

control and prevent illness. In early civilization, health and religion were often

synonymous (Johnson & Breckon, 2007). Organized religious groups sponsored the

earliest health care facilities and the practitioners of health were religious leaders. Some

civilizations, even today, continue to believe that God causes disease to fall on sinful

people and heal those who are righteous. Medical missionaries have reached out to many

civilizations with a goal of improving the health of others and these missionaries have

made significant contributions to health, health education, and health promotion in many

regions of the world (Johnson & Breckon, 2007).

Historians categorize four significant influences that reflect the movement towards a greater interest in health promotion programming in the United States. These include the shift from infectious diseases to chronic disease as the leading cause of death, the development of public and private sector organizations to address problems associated with chronic disease, recognition of personal behavioral risk factors that impact chronic illness, and an interest in interventions to impact risk taking behaviors and thus promote health (McLeroy & Crump, 1994). Between 1900 and 1990 advances made in science and technology led to a shift in the leading cause of death from infectious disease to chronic disease. Immunizations were developed that facilitated this change (Johnson & Breckon, 2007). Through increased government regulations and eventually the Industrial Revolution health promotion and wellness programs were developed. In the United States, large industries employing a large number of individuals brought together "congested, unsafe worksites in congested, unsafe cities" (Johnson & Breckon, 2007, p. 2). Beginning in the early 1900's, these conditions gave rise to labor laws and unions to protect workers with a primary focus on health issues. Union negotiations resulted in the formation of health insurance programs covering both treatment of illness and the development of prevention programs. These union member benefits resulted in higher costs to employers and as a result union negotiations with employers began to focus on cost reduction and cost shifting strategies (Johnson & Breckon, 2007).

Government and private agencies developed that had a primary focus on health prevention and promotion activities. The National Institute of Health (NIH) began in 1887 and over the next 50 years, 12 national institutes each with a specific health focus

were established (McLeroy & Crump, 1994). The Center for Disease Control and Prevention was formed in the 1940's.

Knowledge increased regarding the effects of exercise, diet, and substance use on chronic disease and health promotion programs began to increase in number. Programming was developed that focused on the harmful effects of identified behaviors and substance abuse. Over time, the effectiveness of a cognitive approach to health education changed to consideration of affective models where the focus turned to changing attitudes and behaviors. Researchers investigated peer counseling and peer support models, decision-making models, alternative models, and behavior models (Johnson & Breckon, 2007).

With the evolution of models to promote health and well-being and recognition of increased costs to provide these resources, legislators took a more active role in leading the direction for health promotion and prevention strategies. In 1973, the President's Committee on Health Education was formed. A primary agenda for the committee was legitimizing a nationwide focus on health education and provision of seed monies for the development and implementation of model health education programs. In 1975, the Committee was responsible for the creation of the National Center for Health Education, which was instrumental in increasing worksite programming, national programming, professional credentialing, and comprehensive school health education programs. Two significant reports followed from the Surgeon General's office in 1979 and 1980, *Healthy People* and *Promoting Health, Preventing Disease: Objectives for the Nation*. With the initiation of *Healthy People,* the combined efforts of government officials, businesses, professional groups, researchers, and academic institutions coming together to set the

vision, mission, goals and objectives for health outcomes occurs every ten years (Pender et al., 2011).

In 1979 the Health Information and Health Promotion Act created the Office of Disease Prevention and Health Promotion (ODPHP) (McLeroy & Crump, 1994). Additionally, voluntary agencies began to have a significant role in disease prevention and health promotion efforts. The American Heart Association, American Cancer Society, and the American Lung Association have played a significant role in ongoing research and knowledge dissemination to the public (McLeroy & Crump, 1994). The rise of philanthropic organizations focusing on health related research also made significant contributions including the Henry J. Kaiser Family, W.K. Kellogg, Robert Wood Johnson, Ford, and Rockfeller Foundations (McLeroy & Crump, 1994).

Additionally, in 1980 the Department of Education was added to the Department of Health and Human Services with the objective of supporting health education, health promotion, and wellness programming. In 1981, the Department of Health and Human Services adopted the *Objectives for the Nation in Disease Prevention and Health Promotion* and revised the goals in 2001 (Department of Health and Human Services, 1999).

One of the original definitions of health promotion was published in 1986 in the *American Journal of Health Promotion,* "The science and art of helping people change their lifestyle to move toward a state of optimal health" (O'Donnell, 2012). The World Health Organization's first international conference on health promotion occurred in Ottawa in 1986 and defined health promotion as, "the process of enabling people to increase control over, and to improve, their health" (World Health Organization, 2009).

The Department of Education assumed a primary role in standardizing health educational programs at both undergraduate and graduate levels, and developing certification standards and procedures. In 1991, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* and *Healthy Communities 2000: Model Standards* were published to establish directives for the national agenda. With the publication of *Healthy People 2010*, a shift was made to prioritize public policy directives towards health education and health promotion programming at the community level. Local governments were tasked with the development and coordination of programs that would meet the health objectives established at the national level. These documents recognized that communities could not meet the goals without support of both public and private sector agencies. Two major goals were established in *Healthy People 2010* including *to increase the quality and years of healthy life and elimination of health disparities* (U.S. Department of Health and Human Services, 2005).

As the United States Department of Health and Human Services worked to develop revised goals and objectives for *Healthy People 2020,* they identified that the country had either progressed toward or met 71% of *Healthy People 2010* targets (Department of Health and Human Services, 2010). Broad input was sought in the development of the document that will provide guidelines for health professionals in the upcoming years. The participants in the development of the goals determined to move from setting aspirational goals to realistic goals. The goals established for 2020 include *to achieve health equity, eliminate disparities, and improve health for all groups; eliminate preventable disease, disability, injury, and premature death; create social and physical environments that promote good health for all; and promote healthy development and*

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healthy behaviors across every stage of life (Department of Health and Human Services, 2010). In addition to the goals established in *Healthy People 2020,* a challenge was presented for technology application developers to design easy-to-use applications that will allow health professionals to work with data in the pursuit of enhanced health outcomes (Department of Health and Human Services, 2010).

Even with the formulation of governmental regulations to protect community and individual health, the development of hospital prevention programs, the initiation of state comprehensive school-based health education programs, and provision of employee wellness programs by corporations, health care costs in the United States continue to soar. In 2010, Congress passed the Patient Protection and Affordable Care Act (PPACA). The desired impact of the legislation is to control the cost of health care and eliminate health disparities in the country. One major focus of the legislation is health promotion programs that will improve the overall health of Americans while decreasing the cost of care.

New initiatives continue to arise as the United States places greater focus on health, health education, and health promotion initiatives. Other countries are also refocusing healthcare initiatives towards prevention and promotion efforts. The World Health Organization has revised their agenda towards a greater focus on the individual's ability to control their own health outcomes. In 2005, the World Health Organization's Bangkok Charter for Health Promotion in a Globalized World defined health promotion as "the process of enabling people to increase control over their health and its determinants, and thereby improve their health" (World Health Organization, 2005).

Even with the focus of programming towards health promotion and prevention, health professionals and educators continue to struggle with influencing individuals to choose health-promoting lifestyles. Intervention studies provide evidence that changes in behavior does lead to reduction in risk of disease. One prime example is with intervention studies focused on smoking cessation programs and educational programs targeting youth and adults to reduce the use of tobacco. Smoking rates among adults declined from 40 to 29 percent between 1965 and 1987. Although smoking is not the only risk factor for age-adjusted stroke and heart disease, between 1960 and 1987 age-adjusted stroke mortality rates declined by 62 percent and age-adjusted heart disease mortality declined by 41 percent (Harris, 1994). Other longitudinal studies that have considered the impact of interventions to reduce obesity, physical inactivity, stress, and cholesterol levels are less conclusive regarding reduced morbidity and mortality (McLeroy & Crump, 1994).

Worksite health promotion programs have developed in increasing numbers, as employers attempt to improve the health of employees, productivity, and decrease the cost of health care benefits. Many of these health promotion programs include exercise, nutrition, smoking cessation, and stress management education. Chapman (2005) conducted a meta-analysis of 56 studies and found that worksite health promotion produced significant health related findings. There was an average decrease of 26.8% in sick leave absenteeism, a decrease of 26.1% in health costs, a decrease of 32% in workers' compensation costs and disability claims, and a cost-benefit ratio of 5.81.

Goetzel and Ozminkowski (2008) reviewed 119 studies and found that successful work place health promotion programs leading to decreased health care costs for the employer provide assessment of employee's needs with programming tailored to meet

individuals needs, high participation rates of employees, promotion of self-care, and meeting individual needs by various types of programming.

Although there is significant progress towards both prevention and control of disease, individual behavior and lifestyle choices remain prominent reasons for the development of chronic disease and poor health outcomes. Health care professionals recognize that major changes must be made to both influence lifestyles and the environment if a positive change in the nation's health profile is to occur (Pender et al., 2011). Thus, the importance of investigating the predictors of health promoting lifestyles in various populations is a paramount concern for health professionals.

An interest in the baccalaureate nursing student population is founded in several factors. These future professionals will become a part of the largest segment of health care professionals and there are projected shortages in the near future; therefore, it is critical that they assume responsibility for their own health so that they may contribute to the health care workforce. They play a primary role in the health education of patients and are mentors regarding healthy lifestyle choices for patients and the community. Finally, evidence points to safety concerns for patients when nurses, with compromised health, care for patients (Fogarty & McKeon, 2006; Gartner, Nieuwenhuijsen, van Dijk, & Sluiter, 2010; O'Brien-Pallas & Baumann, 2000).

The Impact of Nurse's Health on Practice

Nursing professionals comprise the largest segment of heath care providers. According to the Bureau of Labor Statistics in 2008, there were 2.6 million registered nursing jobs: 60% of these jobs were in hospitals (United States Department of Labor, 2012a). Projections are that by 2020, the Registered Nursing workforce will increase by

26% (United States Department of Labor, 2012b). These projections raise concern that nurses will potentially be working in staffing shortage situations in the near future. Particularly when the American Association of Colleges of Nursing (AACN) reports that 67,563 qualified applicants were turned away from baccalaureate and graduate programs due to insufficient numbers of nursing faculty, clinical practice sites, classroom space, clinical preceptors, and budget constraints (American Association of Colleges of Nursing, 2011). With the projected shortage, 75% of nurses report that the shortage will present major problems regarding quality of patient care and the quality of their work life (Buerhaus, 2007). In the survey, nurses also reported the projected shortage would be a catalyst for increased stress (98%), lowered patient care quality (93%), and would result in nurses leaving the profession (93%). The projected shortage, concern for workplace stress, and lowered patient care quality as a result of the shortage heighten the awareness of the importance for employers to promote healthy lifestyles. However, studies reveal that nurses often do not have good health, many do not lead health-promoting lifestyles, and poor physical and mental health potentially leads to quality and safety issues for patients.

From the foundation of the nursing profession, Florence Nightingale identified the responsibility of nurses to attend to their own personal health and to promote health through their position as role models for patients, families, and communities. In one of her letters to nurses she stated, "And how are we to 'teach', every one of us? How are we to teach the poor patients, and ourselves, and each other? Not by preaching, but by example, by being it ourselves" (Dossey, 2005, p. 48). Centuries later, the American Association of Colleges of Nursing has identified self-care as an antecedent to the

practice of professional nursing (American Association of Colleges of Nursing, 2008). The American Holistic Nurses Association identifies in their Standards of Practice the need for nurses to attend to self-care, self-responsibility, spirituality, and reflection (American Holistic Nurses Association, 2007). Pender, Murdaugh, and Parsons (2011) identified that leading a healthy lifestyle is a positive health behavior. Yet, studies identify that these behaviors are not consistently practiced in nurse's lives. Additionally, nurses, whose role encompasses promoting and improving the health of individuals, families, and communities, are not positively impacting the health outcomes of the population (Hensel, 2011).

In 2004, Lambert, Lambert, and Ito (2004) investigated 341 Japanese nurses from hospitals across the country. Their findings revealed a positive correlation between physical and mental health in this sample of nurses. Negative correlations were found between workplace stressors, workload and conflict with other nurses, number of people in the individual's household, and self-reported physical health. Also, negative correlations were found between workplace stressors, workload, conflict with physicians, conflict with nurses, lack of support, inadequate preparation, uncertainty about treatment, likelihood to leave the current nursing position, and self-reported mental health.

Between 16-18% of nurses use tobacco products, leading to their own poor physical health outcomes (Halcomb, 2005). This compares to data reflecting a 17.3% use of tobacco in the female population in the United States (Morbidity and Mortality Weekly Report, 2011). Use of tobacco products continues to have devastating effects on both the health and finances of the United States. It is estimated that by the year 2020, tobacco use will be the leading cause of death in the United States, currently costing the

country nearly $100 billion in mortality-related losses annually (Halcomb, 2005; Oncology Nursing Society, 2008). Nursing professionals have a responsibility to support smoking cessation programs among their peers and model the behavior to patients to promote healthy lifestyles.

Another major health concern in the United States is the increasing rate of obesity. Data from the National Health and Nutrition Examination Survey for 2009-2010 revealed that more than 33% of adults and almost 17% of youth were obese (Ogden, Carroll, Kit, & Flegal, 2012). Miller, Alpert, and Cross (2008) conducted a mailed survey of 4980 randomly selected registered nurses in one state, received a 15.5% (n = 760) response rate and found that almost 54% of those surveyed were overweight or obese. Additionally, 53% of the nurses reported they lacked motivation to make lifestyle changes. Seventy-six percent of these nurses responded that they did not discuss weight management with overweight and obese patients in their care.

Zapka, Lemon, Magner, and Hale (2009) conducted a study on 194 hospital nurses from six hospitals in central Massachusetts. This study found that with respect to measured body mass index (BMI) 28% were obese and 37% classified as overweight. Of the participants, 81% reported that their work environment was stressful and their job was stressful. The average number of fruits and vegetables consumed daily was lower than government guidelines and the average percentage of calories from fat was higher than government guidelines.

Hensel (2011) explored the relationships among nurse's self-concept, health status, and health promoting lifestyles using a random sample of nurses from three hospitals in the Midwest. Three findings of significance were reported from the study.

First, the researchers determined that nurses who practice healthy lifestyles had a stronger sense of professional adequacy. Nurses who reported overall health promoting lifestyles also reported engaging in more caring relationships with patients, using nursing knowledge, sharing information with patients and peers, and directing the heath care team. Secondly, the researchers concluded that nurses relied on spiritual practices and rewarding interpersonal relationships to promote health rather than diet, exercise, and stress management techniques. Finally, there was a positive correlation between nurses who reported spiritual practices and rewarding interpersonal relationships and those reporting positive professional self-concept and good or excellent health status.

In a study on acute hospital staff needs of the National Health Services workforce in the United Kingdom, Jinks and Daniels (2003) surveyed 2,300 employees, 48% who were nurses, and found that 88% of the workforce reported an interest in improving their current state of health. Areas identified where the workers desired to improve their health included stress reduction, exercise, and diet. Health behaviors reported among participants included smoking behavior 17.5% (n = 179), 23% (n = 232) never exercising, 57% (n = 576) desire to lose weight, 86% (n = 875) not desiring to change their alcoholic drinking intake, and less than 1% (n = 4) a problem with drug or substance use (Jinks & Daniels, 2003). An additional survey question asked the participants about general attitudes regarding changing their own health habits. Of interest 92% (n = 940) of the respondents stated it would be difficult to change their health habits, 53% (n = 537) stated they would prefer to change their behaviors on their own, and only 7% (n = 74) reported that they would seek professional help to change their health habits.

Nursing is also recognized as a profession where there is a high rate of workplace

injuries and illnesses leading to compromised health for the nurses. In a systematic review of the literature, Gershon, Stone, Zeltser, Faucett, Macdavitt, and Chou (2007) found three significant health outcomes impacting the health of acute care nurses related to the work environment including self-reported musculoskeletal disorders, blood/body fluid exposures, and burnout.

Positive mental health is equally important to overall health outcomes for nurses. Healy and McKay (2000) investigated 129 Australian registered nurses and determined that work stress was the strongest predictor of affective disturbances in nurses. Welsh (2009) conducted a study using a cross sectional, non-experimental design with 134 medical surgical female nurses, working a minimum of 20 hours per week. Mild to moderate level depressive symptoms were self-reported by 35% of the nurses, with greater occupational stress ($p < 0.01$), higher levels of somatic symptoms ($p < 0.01$), more stressful major life events ($p < 0.01$), and less income ($p < 0.05$) significantly associated with greater depressive symptom scores. Wieclaw, Agerbo, Mortensen, Burr, Tuchsen, and Bonde (2008) conducted a study on the Danish workforce and concluded that high emotional demands and hiding one's emotions are risk factors for mental health problems in women employed in human service occupations.

Four hospitals in Taiwan were the sites selected to examine work stress and health-promoting lifestyles among practicing nurses (W. Lee, Tsai, Tsai, & Lee, 2011). A stratified, cluster random sampling process was used to select the 360 study participants. Nurses who report difficulties managing home/work balance reported higher levels of work stress. The health promoting lifestyle survey was scored on a Likert scale with 0 = never and 3 = always and provided overall scores and six subscales

including nutrition, health responsibility, self-actualization, supports, exercise, and stress management. The overall mean score for the sample was 2.46 with the six subscales scored from highest to lowest mean scores as follows: health responsibility, nutrition, support, exercise, stress management and self-actualization. Work stress was negatively correlated with health promoting lifestyles.

McElligott, Siemers, Thomas, and Kohn (2009) examined the health promoting lifestyles in 149 acute care nurses. The Health Promoting Lifestyle Profile II (HPLP II) was the instrument used. The researchers found no significant differences between the demographic factors of age, race, unit, years in nursing, and level of education and the overall and subscale scores of the HPLP II. The overall mean health promoting lifestyle score was reported as 2.6 with a range from 1.8 – 3.5 out of a possible high of 4.0. The subscale scores were as follows: stress management (2.2), physical activity (2.38), health responsibility (2.44), nutrition (2.6), spirituality (2.87), and interpersonal relationships (3.01). The researchers concluded that these scores indicate a need to address the health promoting lifestyles of nurses, particularly the lowest reported subscales of stress management and physical activity. Their recommendation was that interventions be designed that consider the higher scores of spirituality and interpersonal relationships as a basis for the intervention to improve stress management and physical activity.

A study of interest that presents a different perspective on the responsibility of nurses to be role models of health promoting lifestyles was conducted by Rush, Kee, and Rice (2005). They conducted a qualitative study to determine how nurses describe themselves as role models of health promoting lifestyles. Fifteen nurses in eastern Canada including nursing faculty and practicing community health nurses participated in

the study. Three themes emerged from the study including giving meaning to the term role model, defining self according to society's expectations, and personal and professional definitions of role modeling. The nurses perceived the meaning of the term role model differently from the traditional view. The researcher concluded that the nurses saw themselves as health promoters rather than as role models of health promotion. Additionally, the nurses saw their role with patients as facilitating patient decision-making related to health promotion rather than role modeling behaviors. The nurses expressed that their responsibility was to assist patients to see health promoting lifestyles as an ideal to strive for rather than one to be fully realized. The nurses expressed that societal expectation of their role as health educators included nurses as both knowledgeable about health promotion and practicing healthy lifestyle behaviors. Some expressed discomfort with the societal expectations while others did not perceive societal expectations as an imperative. The third theme determined from the research was personal and professional definitions of role modeling, defined as distinct domains. Personal domains included valuing health, accepting imperfections, and self-reflecting. Professional domains included gaining trust, caring, and partnering with patients. The researchers concluded that although society emphasizes the need for health promoting lifestyles, health promotion does not necessarily mean perfect behavior. When nurses are willing to share their own shortcomings and successes with patients, they may be perceived by patients as being more caring and understanding of the patient's circumstances. The findings from this study express a different perspective from much of the literature to date regarding how nurses perceive their professional responsibilities in supporting health-promoting lifestyles for patient populations. This different perspective

of nurse's perceptions deserves further attention since nurses have a primary role in educating the public regarding health-promoting lifestyles.

A link has been established between a healthy nursing workforce and improved patient health outcomes (O'Brien-Pallas & Baumann, 2000). Fogarty and McKeon (2006) collected data from 176 nurses working in the rural areas of Australia. They determined that when nurses work in supportive climates, they feel less stress and they are more likely to follow protocols; therefore, they are less likely to make medication errors. Studies have revealed a positive correlation between nurse's positive mental health and patient safety and satisfaction (Berndt et al., 1998; Fogarty & McKeon, 2006; Gartner et al., 2010; Pilette, 2005; Seki & Yamazaki, 2006; Smith et al., 2001; Suzuki et al., 2004; Suzuki, Ohida, Kaneita, Yokoyama, & Uchiyama, 2005; Wieclaw et al., 2008).

Pilette (2005) defined presenteeism as employees presenting for work but due to mental or medical conditions the employees function at less than100%. Nurses are working in high stress hospital environments managing work along with personal and family issues. This leads to the triad resulting in presenteeism: stress, poor employee health, and work-life imbalance (Pilette, 2005). The major cause of presenteeism in the work environment is mental health issues (primarily depression and stress-related problems), followed by musculoskeletal problems and respiratory conditions (Marlow, 2002). Depression impacts the nurse's mental and physical energy, slows reaction time, impedes concentration, negatively impacts interpersonal and intrapersonal relationships, and increases the number of patient care errors made by nurses (Marlow, 2002).

When nurses experience depression the impact on patients is significant including patient safety and satisfaction (Gartner et al., 2010; Pilette, 2005; Wieclaw et al., 2008).

Gartner, Niewenhuijsen, van Dijk and Sluiter (2010) conducted a systematic review of the literature to consider the impact of common mental disorders on the work functioning of nurses and allied health professionals. Sixteen studies met the criteria for the review and strong evidence was found regarding the relationship between common mental disorders and general errors, medication errors, near misses, patient safety, and patient satisfaction.

Smith et al. (2001) investigated 26 intensive care nurses' psychophysiological variables and performance on endotracheal suctioning. The researchers found that high state anxiety significantly predicted poor endotracheal suctioning performance ($p \leq 0.04$). Nurses who reported high state and trait anxiety, worry, and who had increased heart rates (mean 94 beats/minute) performed poorly on endotracheal suctioning techniques. The researchers concluded that these poor performing nurses may be at risk for attrition, burnout, medical errors, and poor performance in other procedural responsibilities.

Excessive daytime sleepiness is considered to be one of the main symptoms reported in individuals diagnosed with sleep disorders (Suzuki et al., 2005). These researchers conducted a cross sectional design study in Tokyo and other Japanese cities. Response rate to the survey was 94% and 4,279 female nurses were included in the study results. Significant relationships were found between self-reported excessive daytime sleepiness and self-reported occupational accidents including drug administration errors ($p < 0.0001$), incorrect operation of medical equipment ($p < 0.0007$), and needle stick injuries ($p < 0.0006$).

Findings regarding the current health status of practicing nurses, their health promoting lifestyles, as well as how nurse's health status impacts patient quality and

safety issues leads to a concern about how to best impact the personal health of nurses thereby promoting safe and quality patient care. Determining if nurses enter practice with already established lifestyle patterns would provide further knowledge regarding effective intervention studies to promote healthy lifestyles. Therefore, a consideration of the literature available on nursing student health and health promoting lifestyles will be explored.

Nursing Student Health

Adderley-Kelly and Green (2000) conducted a study on 214 undergraduate female African American junior level-nursing students to compare their health behaviors with the general college student population. The results of the study indicated that African American nursing students had similar rates of cigarette smoking (88% never smoked) and use of seat belts (82% excellent performance) as other college students, but significantly lower rates of alcohol and drug use (7% unsafe level of use). Similar low scores for healthy eating habits (22% excellent) and exercise (49% excellent or good) were reported between African American female nursing students and the general college population. The majority of students (87%) in this study reported excellent or good scores for stress control.

A longitudinal research design was used to compare the health of 52 nursing students as compared to 93 education students who were used as a control group. Nine health behaviors were measured over the three year study, including hours of sleep, daily breakfast consumption, physical activity, tobacco abstinence, moderate alcohol consumption, use of seat belt, breast self-examinations, clinical breast examinations, and pap tests (Clement et al., 2002). There were no significant changes in nursing student

health behaviors over the three-year study period, even after completing health related coursework. Inadequate sleep was the only behavior where nursing student behavior did not reflect similar reported behavior in the general population. Inadequate sleep was reported in a higher percentage of nursing students than the general population with 29% of the nursing students reporting not getting a minimum of seven hours of sleep per night.

Jimenez, Navia-Osorio, and Diaz (2010) conducted a cross-sectional study on 357 Spanish nursing students from all three years in the program. The study examined three types of stress including clinical, academic, and external and two categories of health symptoms, physiological and psychological. Results indicated that the most common stressors reported by nursing students were clinical stressors, with no significant differences between academic and external stressors. Students reported perceived psychological symptoms more than physiological symptoms associated with stress. The only significant difference found between types of stressors and year enrolled in school was with academic stress. Students further along in the program presented significantly higher academic stress.

Moyle, Park, Olorenshaw, Grimbeek, Griffiths, and Murfield (2010) investigated 'feelings', beliefs', and 'intentions' towards health behavior in 369 nursing students enrolled in a bachelor's degree program in Australia. The students reported more positive feelings towards health behavior the farther along the students were in the program ($p < 0.05$). The more positively the students reported psychological health, the more positive were their feelings towards health behavior ($p < 0.05$). When age was considered, the older students reported more positive health beliefs ($p < 0.01$) and also intentions to act ($p < 0.05$). Finally, males reported more positive health beliefs than

females ($p < 0.05$).

      Mooney, Timmins, Byrne, Corroon (2011) conducted a study examining nursing student's attitudes towards health promoting behaviors and whether knowledge about health promotion impacts the student's health behaviors. Two universities in the United Kingdom were used for data collection, with 142 students from one university and 100 students from the second university. Nursing colleges in the United Kingdom are required to teach health promotion and both schools met the national requirements for the preparation of nursing students. Health behaviors reported by the students included: 36.6% reported smoking with students in the upper level coursework reporting higher percentage of smokers, 11.4% reported unprotected sex as a result of drinking alcohol, and 29% reported they were not physically active. Significant findings regarding nursing student's attitudes towards health promotion were found for the following questions: health promotion is about changing public policy ($p = 0.001$), health promotion aims to reduce health inequalities ($p = 0.001$), health promotion is a fundamental part of nursing ($p = 0.001$), health promotion is less important than other aspects of the nurse's role ($p = 0.014$), nurses are required to engage in health promotion as a result of government policy ($p = 0.001$), nurses are best placed to respond to the client's health promotion needs ($p = 0.003$), nurses usually have too much else to do to be able to offer health promotion ($p = 0.002$), and a strong evidence base does not support nurse's health promotion practice ($p = 0.002$). The authors concluded that the students in this study clearly demonstrated personal health related behaviors that need improvement. The study results also supported teaching health promotion content across the curriculum with a focus in the upper level coursework where students have a greater knowledge base to

understand the importance of health promoting lifestyles.

Mitchell et al. (2009) investigated biopsychosocial factors associated with low back pain in 175 female nursing students from two universities in western Australia. Objective and subjective measurements were used in the analysis of psychological, physical, and social/lifestyle characteristics of study participants. Significant lower back pain was reported by 31% of the participants over the past twelve months. Statistically significant findings were found between individuals who reported mild pain and significant pain and overall psychological symptoms of depression, anxiety and depression ($p = 0.007$). The findings from this study, 31% experiencing significant lower back pain, are relevant due to the nature of work that the students will be performing over the course of their lifetime that involves lifting patients.

Baccalaureate nursing students, as part of the university community, are part of the national study conducted on many campuses across the United States twice each year. The National College Health Assessment II (NCHA II) is offered by the American College Health Association (ACHA) to assist in the collection of data on student's habits, behaviors, and perceptions on health topics of interest in this population (American College Health Association, 2011). For the Spring 2011 administration, 105,781 students responded to the survey. Relevant health findings included 92.7% of the students reported good, very good, or excellent health. Over 10% of the students reported being diagnosed or treated for health conditions in the prior twelve months including: 19.5% reported allergies, 17.6% reported sinus infections, 11.9% reported back pain, and 10.9% reported strep throat. The most frequently reported ongoing medical conditions included attention deficit and hyperactivity disorder (6.5%), psychiatric condition (4.7%), chronic

illness (4.0%), and learning disability (3.8%) (American College Health Association, 2011). Findings on substance use included 21.3% of the sample reporting never using alcohol, 66.7% reported never using cigarettes, and 63.4% reported never using marijuana. College students reported nutritional health promoting lifestyle behaviors as follows: daily fruit and vegetable consumption, 5.4% had 0 servings per day, 58.3% had 1-2 servings per day, 30.1% had 3-4 servings per day, and only 6.2% consumed the recommended 5 or more servings per day (American College Health Association, 2011). Forty-eight percent of the students reported meeting the American College of Sports Medicine and American Heart Association guidelines for moderate-intensity cardio or aerobic exercise or vigorous-intensity cardio or aerobic exercise (American College Health Association, 2011). Based on the World Health Association's guidelines regarding height and weight as general indicators of physical health, the students reported their personal height and weight, which were then calculated into the body mass index calculation. Of these self-reported findings, 62.7 reported a healthy weight, 21.4% reported being overweight, and 11% were classified as obese (American College Health Association, 2011). Almost 7% of the student population reported a combination of depression and anxiety, with 10.7% reporting depression and 11.6% reporting anxiety independently. Fifty-three percent of the students reported overall level of stress in the last twelve months as more than average or tremendous. Finally, 39.6% of the students reported getting enough sleep to feel rested in the morning between 0-2 days out of the week (American College Health Association, 2011). These findings would suggest that based on self-reported data, major health challenges for college students include healthy eating, weight management, limited physical exercise, psychological symptoms, and

sleep deprivation.

Personal Factors Predictive of Health Promoting Lifestyles

Pender's model identifies three major categories of personal factors that may be predictive of health promoting lifestyles. These categories include biological, psychological, and sociocultural (Pender et al., 2011). Findings in the literature relevant to the identified research questions are presented for each of these factors.

Biological factors including gender, age, and BMI.

Since the nursing student population continues to be mostly female, the consideration of how gender impacts health promoting lifestyles is often either not presented in the literature, or utilizes non-parametric statistical analysis due to the significant difference in the numbers of male and female participants. However, one study conducted on Swedish college students specifically examined gender differences in health habits and motivation for health lifestyles (vonBothmer & Fridlund, 2005). The study utilized a probability systematic stratified sample from each department at the university that resulted in 332 participants (49% women, 51% men). The researchers found the most frequently reported health symptoms were stress (60%), tiredness (57%), headache (52%), and pain in the back and neck (51%). Additionally, significant differences between men and women were found with women reporting more symptoms than men ($p < 0.01$). However, no significant differences were reported between younger and older students. Other symptoms of interest reported by the students were depression (11%) and anxiety (26%). There was no significant difference in self-reported health between men and women with 23% overall reporting poor health (7-13 symptoms). Other significant findings in the study included women reporting lower levels of health

promoting activities ($p < 0.001$), women reporting higher motivation for a healthy lifestyle ($p < 0.001$), men reporting significantly more alcohol use than women ($p < 0.001$), men reporting less healthy nutritional habits ($p < 0.001$), men (30%) were more overweight and obese than women (13%), men who experienced low satisfaction with their social support exercised less than other men ($p < 0.05$), women who were satisfied with their social support exercised more than those who were not ($p < 0.01$), women reported fewer health habits ($p < 0.001$), men reported lower levels of stress ($p < 0.01$), and men reported lower satisfaction with their sex lives ($p < 0.001$). The researchers concluded that motivation for a healthy lifestyle was not correlated with practicing healthy behaviors. This is a significant finding for future implementation studies to promote health among college students.

Studies reported in the literature where health-promoting lifestyles in nursing students as measured by the HPLP-II are correlated with gender, age, and BMI will be discussed. Al-Kandari and Vidal (2007) determined significant differences in Kuwaiti, Oman, and Saudi Arabia students related to gender. Findings included males reporting overall health promoting lifestyles higher than females ($p < 0.05$), males reporting physical activity levels higher than females ($p < 0.001$), males reporting higher mean scores on interpersonal relationships than females ($p < 0.01$), and males reporting higher levels of stress management than females ($p < 0.05$) utilizing the *t*-value for statistical analysis. Additionally, the researchers considered the relationships between age and the HPLP-II categories. Older students scored significantly higher for spiritual growth ($p = 0.001$), and stress management ($p = 0.039$).

Can et al. (2008) demonstrated that older age was positively correlated with

health responsibility ($p < 0.05$) and negatively correlated with physical activity ($p < 0.05$) and stress management ($p < 0.001$) among nursing students. Additionally, the researchers reported statistically significant findings with females reporting higher means for health promoting lifestyle behaviors ($p = 0.05$), health responsibility ($p = 0.01$), nutrition ($p = 0.00$), interpersonal relations ($p = 0.003$), and stress management ($p = 0.05$) than males. No significant relationships were determined between health promoting lifestyles and BMI.

Stark, Manning-Walsh, and Vliem (2005) did not report on gender differences since 97% of the study participants were female. However, they did find significant differences related to age, including older students reporting higher statistically significant means for overall health promoting lifestyles ($p = 0.015$) and health responsibility ($p < 0.001$) than younger students.

Chen et al. (2001) conducted a study on 166 overweight nursing students in Taiwan. From the 166 students, a random sample of 58 was selected with 49 participating over the two-year study. The study consisted of health promotion counseling including eight hours of whole group counseling and 12 hours of small group counseling during the first year of the study. Eighty two percent of the participants reported being in better overall health than most other people and eighteen percent reported being unhealthy. Over the two-year study, participants lost an average of 2.5 kg, a significant finding ($p = 0.001$). Additionally, significant findings were found in overall health promoting lifestyle ($p = 0.001$), nutrition ($p = 0.006$), exercise ($p = 0.001$), health responsibility ($p = 0.001$), and stress management ($p = 0.02$). The effectiveness of the counseling program supports the inclusion of health promoting counseling in nursing programs for

overweight students.

Psychological factors including health status, depression, anxiety, and stress.

According to Pender's Health Promotion Model, there is an association between good health status and health promoting lifestyles (Pender et al., 2011). Can et al. (2008) found significant relationships between self-perceived health status and overall health promoting lifestyle scores ($p < 0.001$), physical activity ($p < 0.01$), nutrition ($p < 0.001$), spiritual growth ($p < 0.0001$), interpersonal relations ($p < 0.001$), and stress management ($p < 0.001$).

In the general college population, Weitzman (2004) determined that students are subject to significant psychological distress and depression, with 4.8% of students in the United States reporting poor mental health or depression. The study was conducted using a random sample size of 27,409 students from 119 colleges. The researcher determined that students who reported poor mental health and depression were more likely to be female. This highlights the importance of considering mental health issues including depression, anxiety and stress among college nursing students, as the female nursing student population still comprises 89.2% of the baccalaureate student enrollment (American Association of Colleges of Nursing, 2012).

Dzurec, Allchin and Engler (2007) conducted a mixed methods study on 84 nursing students enrolled in a Midwestern United States university. They reported that 34% (n = 29) of first year nursing students scored in the 'at risk' for depression range. In this mixed method study, Dzurec et al. (2007) asked first year nursing students the question "If you or another student you know has been feeling down or depressed, can you describe a reason?" From this mixed methods study, using hermeneutic analysis

seven themes emerged, including overload, loneliness or isolation, concern about future outcomes, unfamiliarity and transition to college, inadequacy, and uncomplicated answers including stressors and low grades.

Haack (1988) utilized the Center for Epidemiological Studies Depression tool (CESD) to investigate burnout, depressive symptomatology, and substance use among 89 student nurses enrolled in a Midwestern nursing college. A cross-sectional examination of data regarding burnout determined that a significant increase in burnout occurred from the sophomore to the senior level of students ($p < 0.01$). Although there was no significance reported for depressive symptoms by level in the program, 55% of students in the sophomore, junior and senior year scored high levels of depressive symptomatology.

Kernan and Wheat (2008) investigated 198 students enrolled in master's level and combined BA/MA nursing programs at the Columbia University college of nursing. The students reported four of the top ten most frequent concerns that were related to mental health issues including stress (80.8%), sleep difficulties (58.8%), relationship difficulty (42.1%), and depression/anxiety/seasonal affective disorder (33.5%). Additionally, the students ranked six of the top ten most threatening concerns to academic attainment as attention deficit disorder (72.7&), assault (50.0%), relationship difficulty (35.4%), depression/ anxiety/seasonal affective disorder (30.9%), sleep difficulties (28.9%), and stress (28.5%).

Williams, Hagerty, Murphy-Weinberg, and Wan (1995) considered baccalaureate, masters and doctoral United States nursing students and found that 25.4% of the students experienced five or more diagnostic symptoms for depression according to the Diagnostic

and Statistical Manual IV (American Psychiatric Association, 1994). The symptoms for depression were not significantly different between the three groups of students with the five highest scored symptoms including: little things get on your nerves, felt alone and sad, tired and exhausted, unhappy, and difficulty sitting still (Williams et al., 1995).

Halter (2004) conducted a study to investigate how stigma associated with mental health treatment impacts nursing students' willingness to seek mental health treatment for depression. The study was conducted at a university in the Midwestern part of the United States and 140 students participated by completing surveys. Self-reported depression was found in 35% of the participants, with 65% reporting knowing a friend who had experienced depression and 55% reporting having a family member who had experienced depression. Findings included that women were more likely to endorse help seeking than men ($p = 0.027$) and that older students were more likely to endorse help-seeking ($p < 0.01$).

Studies on international nursing students further confirm the prevalence of depressive symptomatology in students enrolled in nursing programs. Ahmadi, Toobaee, and Alishahi (2004) studied Iranian nursing students and found that 45.3% scored between marginal and severe depression with no significant differences between years in school. Ross et al. (2005) studied undergraduate nursing students in Thailand and found that 50% of the students showed some level of depression, with 19.6% indicating severe levels of depression. Urasaki et al. (2009) found that 40.8% of Japanese nursing students reported a significant relationship between unhealthy lifestyles and depression.

Christensson, Runeson, Dickman, and Vaez (2010) studied 1,479 Swedish nursing students and found symptoms of depression ranged from 10.1% through 11.3%

of the students in years one through three and declined in year four and the first year following graduation to 7.7%. Significant findings included younger students identified a higher prevalence of depression than older students ($p < 0.05$), birth outside of Europe reported higher prevalence for depression than those born within Europe ($p < 0.01$), and students living with their parents reported higher prevalence of depression than other students ($p < 0.05$). Students who reported prior work experience, less need for financial support, and ability to seek employment during the academic term identified lower prevalence of reported depression.

Weitzman (2004) concluded that a higher percentage of nursing students report depression than is found in either college students across disciplines or the general population. However, Alexandrino-Silva et al. (Alexandrino-Silva et al., 2009) compared medical, nursing and pharmacy students in Brazil and found that neither of these student groups scored above the cutoff score designated for depression or significantly different from one another in rates of reported depression.

In a study comparing nursing (n = 200) and non-nursing (n = 200) Thai college students, Ratanasiripong and Wang (2011) found that nursing students scored significantly higher on self-esteem and life satisfaction and lower on depressive symptoms and social difficulties than the non-nursing students ($p < 0.001$). Additionally, for the nursing students, depression was negatively correlated with self-esteem and life satisfaction. Depression was positively correlated with social difficulties.

One symptom of concern in individuals with depressive symptomatology is suicidal ideation. Suicidal ideation is a significant concern in nursing students and early identification of the symptoms is essential to provide appropriate intervention and

prevent deaths by suicide (Alexandrino-Silva et al., 2009). Ahmadi, Toobaee, and Alishahi (2003) reported on suicidal ideation as determined from the Beck Depression Inventory. They found that 13.5% of nursing students rated themselves as having suicidal tendencies. Additionally they reported 18% of the students rated themselves as pessimistic. Alexandrino-Silva et al. (2009) used the Beck Depression Inventory, the Beck Scale for Suicidal Ideation, and the Beck Hopeless Scale and compared students enrolled in healthcare training programs including medicine, pharmacy and nursing. They found a significant correlation between suicide risk scores and presence of depressive symptoms and hopelessness. Reports of suicidal ideation were found in 12.3% of nursing students, and hopelessness in 91.4% of nursing students. These scores were not significantly different from scores reported by medical and pharmacy students. The researchers recommended longitudinal studies should be conducted to determine the significance across time. The literature validating depression and suicidal ideation in nursing students leads to significant concerns for educators.

Anxiety in nursing students also causes concern for educators and mental health professionals. Abdel-Khalek and Tomas-Sabado (2005) examined anxiety and death anxiety in Egyptian (n = 132) and Spanish (n = 126) female nursing students. They found anxiety and death anxiety scores to be significantly higher (p =0.001) in Egyptian students than in Spanish students. The authors explained that the differences were likely related to cultural factors since the Egyptian culture is typically preoccupied with mourning, bereavement, and the edification of death. Their findings did support their hypothesis of a difference between generalized anxiety and death anxiety.

Higginson (2006) utilized a grounded theory, qualitative design to explore factors

nursing students' perceive to provoke fear, worry, and anxiety. Five students from a university in the United Kingdom were interviewed two times to yield results. The interviews yielded several categories related to fears and worries including worries about death, worries about bodily fluids/clinical procedures, worries about examinations, financial worries, concerns over role conflict, and socialization conflict.

Kanji, White, and Ernst (2006) conducted an intervention study, using autogenic training to reduce anxiety in nursing students. This longitudinal study was undertaken at a university in the United Kingdom with 93 nursing student participants. Measurement strategies included the use of tools to measure student perceptions of anxiety and burnout, and physiological measurements including blood pressure and pulse rate. The researcher found that following the autogenic training sessions, there was a significantly greater reduction in state and trait anxiety ($p < 0.001$) among those randomly placed into the intervention group than those in the control group immediately following the training session. Additionally, there were significant reductions in systolic ($p < 0.01$) and diastolic ($p < 0.05$) blood pressure, and pulse rate ($p < 0.002$) between the intervention group and the control group with lower rates in the intervention group.

Sharif and Armitage (2004) conducted an intervention study to determine the effectiveness of a twelve-week psychological and educational counseling program in reducing anxiety in Iranian nursing students. One semester following the twelve-week program there was a statistically significant reduction in anxiety ($p = 0.003$) in the experimental group, but no significant reduction of anxiety in the control group. Additionally, the experimental group showed a statistically significant improvement in self-esteem ($p < 0.001$), but no improvement was shown in the control group. Academic

cumulative grade point average was also obtained pre and post-test and follow-up one semester following the intervention. There were significant differences for improved grade point average for students who participated in the intervention group versus those in the control group at each time interval.

Nursing students experience anxiety and intimidation in early clinical experiences during the nursing program (Sprengel & Job, 2004). A clinical peer-to-peer mentoring program was developed to determine if peer mentoring would be effective in reducing the anxiety of freshmen nursing students enrolled in a Midwestern United States nursing program. Thirty freshmen-nursing students were paired with sophomore students for one clinical day. Both qualitative and quantitative results were analyzed. Themes that emerged included the realization that patients were real people as compared to simulators in the laboratory experiences, heightened awareness regarding the seriousness of the nurse's role, increased enthusiasm over becoming a nurse, and feelings of less anxiety regarding entering clinical experiences in the next academic year. A 5-point Likert scale tool was used to measure student anxiety (mean scores > 3.0 considered significant for anxiety) regarding future clinical experiences. Eight of the 16 items were scored with means > 3.0 including fear of making mistakes, procedures, equipment, talking to physicians, being observed by instructors, evaluation by faculty, patient teaching, and initial clinical experience. Following the experience, the students completed a Clinical Experience Evaluation form with 10 questions scored on a 5-point Likert scale with higher scores indicating strong agreement. The average score for freshmen and sophomores was 4.49 and 4.60. Although no tool specifically measured student's anxiety and fear levels following the single day mentoring experience, one theme that emerged

from the qualitative analysis was freshmen students' perception of lower levels of anxiety following the experience.

Sources of stress in nursing students are similar to stresses experienced by other college students including examinations, timing of examinations, family responsibilities, and financial constraints leading to work during the academic year (Gibbons, 2010). In addition to these stresses, nursing students experience stressors unique to their profession including those associated with extended hours of study, clinical placement, working with dying patients, conflicts with staff, insecurity about clinical competence and evaluation, and interpersonal problems with patients.

Identifying experiences that lead to either stress or eustress in nursing students was the research intent of Gibbons, Dempster, and Moutray (2008). A qualitative study conducted with 16 nursing students in the United Kingdom led to the identification of four themes including clinical experience, support, learning and teaching experience and course structure. Each was a potential sources of stress or eustress depending on the student. Mature students reported more eustress particularly with clinical placement issues and support. Particularly, the researchers concluded that support systems as coping resources were viewed as critical to success in school.

Gibbons (2010) investigated the correlations between eustress and distress and burnout in 171 nursing students enrolled in their final year of education. Additionally, the study examined the moderating effect of perceptions of stress and burnout with self-efficacy, control support and coping style. The findings revealed that as learning and teaching demands, placement demands, and course organization demands (considered distress) increased, emotional exhaustion and depersonalization increased while personal

achievement decreased. When learning and teaching demands, placement demands, and course organization demands decreased (uplifts), emotional exhaustion and depersonalization decreased and personal achievement increased. These findings assist educators in developing strategies to decrease stress and thereby improve personal achievement outcomes.

Hensel and Stoelting-Gettelfinger (2011) investigated the relationship between stress and self-concept in 52 sophomore level baccalaureate-nursing students. A wellness course provided over the course of one semester was the intervention utilized to determine if students stress level decreased and self-concept increased from the beginning to the end of the course. Although the researchers determined a significant positive increase in student self-concept ($p = 0.02$) over the course of the semester there was no significant change in stress level, which was viewed as high at the beginning and end of the semester. Additionally, there was no significant relationship determined between self-concept and stress level.

Hsieh (2011) conducted a mixed method intervention study to investigate the effect of a peer support program and physical activity intervention for 77 moderately to severely stressed nursing students in Taiwan. The intervention group took part in group physical activity three times per week over the course of 16 weeks and group discussion sessions following week 8 and week sixteen. A significant difference in pre- and post-test stress results was determined for students in the experimental group ($p < 0.05$) as compared to those in the control group. Discussion groups identified major stressors as clinical placement and academic workload. Additionally social support with friends was identified as a positive coping mechanism to deal with the stress. The researchers

concluded that health promotion programs involving physical activity and peer support would be beneficial to help reduce stress identified by nursing students.

Chan, Creedy, Chua, and Lim (2011) studied factors associated with emotional intelligence, social support, and stress level in 112 baccalaureate-nursing students in Singapore. Students were clustered into two groups based on demographic variables using cluster analysis. Group 1 were junior level students, younger in age and group 2 students were senior level students, older in age. Significant differences were found between the two groups regarding social support, with senior level students reporting higher social subjective ($p = 0.024$) and social objective ($p = 0.037$) support than junior level students. Regarding stress, seniors reported significantly more stress than juniors related to clinical ($p = 0.002$), confidence ($p = 0.007$), and finances ($p = 0.001$). Only one of the factors related to emotional intelligence was significantly different between juniors and seniors, attention to feelings ($p = 0.028$). Seniors reported a higher ability to attend to feelings than did juniors.

A research study investigating the relationships between spiritual health, clinical practice stress, depressive tendency and health-promoting behaviors was conducted among 1,276 senior Taiwanese nursing students in a variety of program types within the country (Hsiao, Chien, Wu, Chiang, & Huang, 2010). The majority of the participants self-reported good or fair academic grades (82.6%) and good or fair clinical grades (85.9%). Using Pearson's correlation between spiritual health and the other three variables, spiritual health correlated positively with health promoting behaviors ($p < 0.001$) and negatively with clinical practice stress ($p < 0.001$) and depressive tendency ($p < 0.001$). Using hierarchical regression after controlling for all demographic variables,

spiritual health remained a statistically significant predictor of depressive tendency, clinical practice stress, and health-promoting behaviors.

Jimenez, Navia-Osorio, and Diaz (2010) conducted a cross-sectional study on 357 Spanish nursing students from all three years of the program examining stress and health between experienced (year 2 and 3) and novice (year 1) students. Students from all three years of the program reported statistically significant findings on degree of stress with the three most stressful clinical aspects reported as seeing pain and suffering of patients and families, being unable to provide answers to doctors, teachers, and patients, and not knowing how to help patients with biopsychosocial problems. Students reported clinical stressors were more challenging than academic and external stressors. Interestingly, the students reported that psychological responses to stress were more common than physiological responses to stress. Experienced students reported statistically significant higher levels of academic stress than novice students.

A study considering the relationship between gastrointestinal symptoms and stress was conducted in a sample of 715 Korean nursing students (E. Lee, Mun, Lee, & Cho, 2011). In a cross-sectional descriptive design, the researchers determined that 31.1 % of the students reported three or more gastrointestinal symptoms over the past three months, with no significant gender difference determined. Those students who reported poor subjective health status were significantly more likely to report gastrointestinal symptoms ($p < 0.001$). Additionally, students who reported poor health status were significantly more likely to report higher levels of perceived stress ($p < 0.001$).

A recent grounded theory study, examined Iranian nursing student's time management, stress reduction, and satisfaction (Mirzaei, Oskouie, & Rafii, 2012).

Twenty-one students participated in the study that consisted of semi-structured scheduled interviews. Students expressed that accepting their major was a step towards development of time-management processes. Three priorities for the students emerged, including continuing their nursing education, becoming competent nurses, and making their parents proud. A factor leading to increased stress was limited time to attend to their studies. The researchers concluded that students prioritized academic responsibilities over other responsibilities, resulting in internal struggles and feelings of loss.

Rella, Winwood, and Lushington (2008) investigated 431 Australian nursing student's maladaptive fatigue and recovery across the program of study. Results indicated a significant difference between first and third year student's scores on chronic fatigue, with third year students reporting significantly higher levels of chronic fatigue than first year students ($p < 0.05$). Additionally, the first year students had a significantly higher intershift recovery score than did the second or third year students ($p < 0.001$). Finally, utilizing hierarchical regression, emotional health became the major predictor of chronic fatigue, intershift recovery, sleep health, importance of paid work, and course support.

Watson et al. (2008) examined stress, life events, and psychological distress in 192 Scottish and United Kingdom nurses and nursing students in a longitudinal study over the course of four years. Surveys were administered once each year throughout the study. Stress frequency was significantly greater in staff than students ($p <0.001$). Stress level was significantly higher in students than staff ($p < 0.001$). Stressful life events contributed significantly to the variance for the scores reported on the general health

questionnaire for both students and nurses in all four phases of the study. The researchers concluded that health care organizations should attend to stress reduction interventions among practicing nurses since many new graduates come with high stress levels to the organization.

Sociocultural factors including ethnicity, relationship status, living situation, and financial resources.

Sociocultural factors have also been examined as they relate to the outcomes of the HPLP. The HPLP was used to compare the prevalence of health promoting lifestyle behaviors in college students in the United States (594) and Japan (1629) (Hawks, Nadanat, Merrill, Goudy, & Miyagawa, 2002). Study findings included that men in the United States were significantly less likely than men in Japan to diet to lose weight ($p < 0.0003$), but more likely to exercise daily ($p < 0.0001$). United States women were significantly more likely to diet to lose weight ($p < 0.0001$) than women in Japan and also to exercise on a daily basis ($p < 0.0001$). Results on the HPLP found significant differences between men in Japan and the United States for health responsibility ($p < 0.0001$) and spiritual growth ($p < 0.0001$) with men in Japan scoring significantly higher on health responsibility and men in the United States scoring significantly higher on spiritual growth. Women in Japan scored significantly higher on health responsibility ($p < 0.001$) than women in the United States and women in the United States scored significantly higher on spiritual growth ($p < 0.0001$). Additionally there was no significant difference between men in the United States and Japan on the overall health promoting lifestyle; however, women in the United States scored significantly higher on the overall health promoting lifestyle than women in Japan ($p < 0.0001$). A gender

comparison was done on the scores within each country with results indicating that in both countries overall HPLP scores were significantly lower for men than for women and significantly higher for those who reported exercising at least 4-5 times per week.

Al-Kandari and Vidal (2007) found no significant correlation between health promoting lifestyles in nursing students and income. However, there was a significant correlation between the student's nationality and interpersonal relations ($p = 0.001$) with Kuwaiti students reporting a higher mean for interpersonal relations than did the students from the Gulf Cooperating Council Countries, Arab, and non-Arab students. Additionally, female students in Kuwait reported higher mean scores for nutrition than did the students from the other countries ($p = 0.025$). The researchers contributed the interpersonal relations findings to a Kuwaiti practice called "diwaniyah" where men gather in the evenings each day for both casual and formal discussions. Kuwaiti women also prioritize family relationships. Additionally, they found a significant relationship between marital status and health responsibility ($p = 0.037$), physical activity ($p = 0.045$), nutrition ($p = 0.04$), and stress management ($p = 0.006$). Married students scored higher than unmarried students for these areas.

Can et al. (2008) found significant relationships between income and health promoting lifestyle in Turkish nursing students' physical activity, nutrition, and interpersonal relationships ($p < 0.05$), with those reporting good incomes having significantly higher means in these categories of the HPLP-II. There were no significant findings related to place of residence and health promoting lifestyles.

Interpersonal Influences Specifically Social Support Significant to Nursing Students

The extent to which social relationships are strong and supportive, along with the degree to which individuals are integrated into their communities is related directly to the health of the individuals within the community (Berkman, 1995). Within this framework, it is important to consider the role of social support in relationship to health and health promoting lifestyles in the population of interest for this study, nursing students.

Hagerty, Williams, Coyne, and Early (1996) examined social belongingness, depression, anxiety, suicidality, history of psychiatric treatment, loneliness, involvement in community activities, and conflict in 379 community college students. Related to demographic findings, there were no significant findings based on age, gender, ethnicity, education, and marital status. However, there was a significant difference in social belongingness and income level with women in higher income groups scoring higher on social belongingness. Women who were involved in community activities scored significantly higher on sense of belonging with no significant findings related to community activities for the men. Significant negative relationships were found between loneliness, depression, and anxiety and social belongingness for both men and women ($p \leq 0.05$).

Jackson, Tucker, and Herman (2007) explored the roles of health value, family/friend social support, and health self-efficacy in health promoting lifestyles in 162 college students in the southeastern part of the United States. Social desirability was significantly correlated with health-promoting lifestyles ($p < 0.01$), perceived family/friend social support ($p < 0.05$), and health self-efficacy ($p < 0.05$). Controlling for social desirability, the researchers determined that health self-efficacy, social support,

and health value contributed 51% of the variance in level of engagement in health promoting lifestyle. Also of importance in this study was that as age increased, level of perceived family/friend support decreased ($p < 0.01$).

Levett-Jones, Lathlean, Higgins, and McMillan (2009) conducted a qualitative study with eighteen third year nursing students from two Australian universities and a university in the United Kingdom to explore the relationships between clinical placement, staff-student relationships, learning and student's sense of belongingness. Interviews were held and data was categorized into 5 categories with themes identified in each category. The categories identified as impacting a sense of belongingness and learning included receptiveness of nursing staff, inclusion or exclusion, legitimization of the student role, recognition and appreciation, and challenge and support. The themes emerging within each category further clarified the identified feelings associated with a sense of belongingness. Regarding receptivity of nursing staff, two themes emerged including made to feel welcome and lack of acknowledgement. For the category of inclusion/exclusion, the themes included being involved and included, exclusion from patient care, informal socialization, and social exclusion. Students reported themes of acknowledgement of the student role as valid and valued or being a nuisance as themes for the category of legitimization of the student role. Under the category of recognition and appreciation, students identified themes of being trusted and valued or being in the way of staff. Finally, the category of challenge and support led to themes of pushing the boundaries, expecting too much, being held back, and undermining confidence. The researchers concluded that staff-student relationships were critical to student's developing a sense of belongingness and learning. Additionally, the researchers

determined that student's experiences were similar across different nations and programs of study.

Luo and Wang (2009) examined the relationships between psychological health, stress, and social support in 284 Chinese female nursing students randomly selected from three colleges. The researchers found positive correlations between high scores on the mental symptom checklist for mental symptoms and stressful events, negative coping and low levels of social support ($p < 0.01$). Positive coping and high levels of social support were negatively correlated with low scores on the mental symptom checklist ($p < 0.01$). The researchers discussed the importance of emphasizing social support systems and positive coping in nursing students to promote positive psychological health.

A study examining relationships between parent-child interactions, emotional support, self-perception, and self-esteem was conducted in Thailand with 307 baccalaureate-nursing students from three different schools (Ross et al., 2006). Of the demographic variables examined including gender, level in school, economic situation, and grade point average, only grade point average was significantly correlated with self-esteem ($p < 0.01$). Using simultaneous regression, emotional support contributed the greatest percentage (16.3%) of the variance for self-esteem, while self-perception accounted for 7.2% of the variance. The researchers determined that parent-child interaction contribution to variance for self-esteem was significant ($p < 0.05$) but small. Upon further investigation by the researchers, it was determined that social support was most important among friends, although the significant but small contribution for social support from parent-child interactions should not be neglected in development of programs to improve social support.

Situational Influences Specifically Academic Outcomes, Significant to Nursing Students

Baccalaureate nursing students encounter numerous challenging academic experiences when enrolled in their nursing education program including science and nursing coursework and clinical experiences in both the laboratory and health care setting. Health related concerns impact a student's ability to be successful in the academic setting. Research on the general college population is reviewed first, followed by research on the nursing student population.

Heiligenstein, Guenther, and Herman (1996) investigated the relationship between depression and academic impairment in 63 college students at the University of Wisconsin. The inclusion criteria for participants were that they reported they were 'a little bit' sad, dejected, or feeling depressed on an intake form at the campus mental health clinic and that they scored greater than 9 on the Beck Depression Inventory. The researchers operationally defined academic impairment as absenteeism from class, decreased academic productivity, and interpersonal problems at school. The researchers concluded that risk for academic impairment was more likely to occur at moderate to severe levels of depression.

The impact of depression on academic productivity was investigated in a study conducted by Hysenbegasi, Hass, and Rowland (2005). Undergraduate students (121) at the Western Michigan University who were diagnosed with depression were compared to students (209) who did not have a diagnosis of depression. Depressed students reported significantly higher rates of number of classes missed ($p < 0.0001$), higher number of assignments missed ($p < 0.0001$), higher number of exams missed ($p < 0.0003$), higher

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number of courses dropped ($p < 0.0001$), and higher number of social activities missed ($p < 0.0021$) than non-depressed students. A diagnosis of depression was associated with a 0.49 point drop in grade point average (GPA). Additionally, a 0.44 point increase in GPA was evidenced for students who were treated for the episode of depression. A significant improvement in self-reported school performance was found in students who sought treatment for the depression diagnosis ($p \leq 0.05$). The researchers concluded that the findings in the study were consistent with other studies investigating individuals with depression and work performance.

Andrews and Wilding (2004) conducted a study on the relationships between depression, anxiety, adverse life events and academic achievement in 351 college students in the United Kingdom. The researchers concluded that depression had a significant influence on poor exam grades ($p < 0.01$), with financial problems also contributing to the variance for poor exam grades. Anxiety and adverse life events were not significantly correlated with poor exam grades.

A study was conducted to investigate the relationships between positive mental health, mental health disorders, and perceived academic impairment in college students (Keyes et al., 2012). Participants were randomly selected from 13 schools from a diverse geographical area in the United States, private and public institutions with diverse demographics, enrollment size, and graduation rate. The sample size was large, with 3,962 undergraduate students and 1,727 graduate students. Mental health disorders most frequently reported included major depression (7.9%), generalized anxiety (5.9%), and panic disorder (3.8%). Overall, 12.7% of the participants reported having a mental health disorder. A strong, inverse relationship was determined between positive mental health

and mental health disorders; however, there were significant relationships ($p < 0.001$) between these three mental health disorders and descriptions of all three measures of mental health, flourishing (1 of 3 emotional well-being symptoms and 6 of 7 symptoms of positive functioning almost or every day in the previous month), moderate (neither flourishing or languishing criteria met), and languishing (1 of 3 symptoms of emotional well-being and 6 of 7 positive functioning never or once during the previous month) mental health. Suicidal intent was reported by 5.8% of the participants, with 1.4% reporting plans for suicide, and 0.5% reporting previous attempts. Both positive mental health and mental health disorder were significantly related to suicide attempts. There was an inverse relationship with positive mental health and suicide attempts and a positive relationship with mental health disorder and suicide attempts. Level of academic impairment, defined as six or more days in the past four weeks where emotional or mental difficulties hurt their academic performance, was significantly higher in students who reported a mental health disorder, and for those students, significantly higher in students who also reported a languishing or moderate level of positive mental health. Also significant was that students who reported no mental health disorders, and languishing (odds ratio 1:28) or moderate (odds ratio 1:50) mental health reported academic impairment at higher levels than those with flourishing (odds ratio 1:16) mental health. These findings reveal academic concerns for students who report moderate and languishing mental health regardless of diagnosis for mental health disorders. For those students who reported mental health disorders, there was a higher odds ratio of impaired academic performance than for those who were free of mental health disorders regardless of reported level of mental health functioning.

Floyd (2012) conducted a descriptive, correlational study to understand the effect of depression, anxiety, and stress on the grade point average of nursing students (n = 100) at a university in the south. Depression and anxiety contributed significantly ($p < 0.05$) to the prediction of grade point average. The researcher concluded that higher levels of anxiety and depression contribute to poor academic achievement.

Gomes, Tavares, de Azevedo (2011) studied the relationship between sleep and self reported academic performance in 1654 undergraduate Portuguese students. The results indicated that students who failed most academic courses the prior academic year reported significantly later phases of the sleep-wake cycle ($p < 0.001$), higher eveningness orientation ($p < 0.001$), and greater variation in rise-time ($p < 0.01$). Increases in past academic achievement were evident in students who had lower rise-time oscillations during the week ($p < 0.05$) and those who had earlier sleep-wake cycles during the school week ($p < 0.001$). Students who achieved higher end of the semester grades reported significantly earlier sleep phases during the week ($p < 0.001$), higher morningness scores ($p < 0.05$), more stable bedtime schedules during the week ($p < 0.05$), better sleep quality ($p < 0.05$), and higher frequency of enough sleep ($p < 0.05$).

Poston, Bowman, and Rouse (1994) conducted a study on health behaviors and academic success in 196 freshmen through senior nursing students. Six health behaviors were correlated with academic grade point average, including unintentional and intentional injuries, drug and alcohol use, sexual practices, tobacco use, dietary behavior and physical exercise. Although no statistical significance was related to intentional and unintentional injuries and GPA, 15.3% of the students reported serious thoughts about suicide, 10.7% of the students had made specific plans, and 3.1% reported an actual

attempt. Regarding drug and alcohol use, no statistical significance was found in relationship to GPA; however, negative behaviors of drug and alcohol use was reported by 20% of the freshmen, 43% of the sophomores, 30% of the juniors, and 50% of the seniors. Sexual practices reported by the students included 89.3% of the students stating they had sexual intercourse over the previous 30 days, with 72.4% reporting not using a condom to prevent sexually transmitted diseases. Again, no statistical significance was found between sexual practices and GPA. The same was true for tobacco use, with no significant differences between tobacco use and GPA. Forty percent of the freshmen, 54% of the sophomores, 36% of the juniors, and 48% of the seniors reported smoking cigarettes within the past 30 days. Additionally, there was no significant difference between level of physical activity reported and GPA. However, students reporting exercising for fewer than 3 days per week included 80% of the freshmen, 80% of the sophomores, 91% of the juniors, and 90% of the seniors. There was a significant difference found between GPA and dietary behaviors ($p = 0.05$). Additionally, a significant difference was found between negative dietary behaviors by level in school. Negative dietary behaviors were defined as no vegetables, no fruits, and eating fried foods the day before completing the survey. Thirty percent of the freshmen, 46% of the sophomores, 38% of the juniors, and 65% of the seniors reported negative dietary behaviors the prior day. The significant difference determined between negative dietary behaviors and GPA were found in 27% of the 'A' students, 48% of the 'B' students, and 61% of the 'C' students. Although the study was published in 1994, it highlights the importance of promoting healthy lifestyles in nursing students.

Kernan and Wheat (2008) identified that academic success is best achieved when barriers to health are low and efforts are made to remove the barriers that exist. This study sample included 198 baccalaureate and masters' level nursing students enrolled in a private college in New York. Specifically, mental health concerns were identified by 33.5% of nursing students as having a perceived negative academic impact (Kernan & Wheat, 2008). Additionally, the students reported the health-related concerns that were impediments to academic performance including stress (23.1%), cold/flue/sore throat (18.1%), sleep difficulties (17.0%), concern for a troubled friend or family member (15.5%), relationship difficulty (14.9%), and depression/anxiety/seasonal affective disorder (10.8%).

Al-Kandari and Vidal (2007) found no significant differences between male and female nursing grade point average. However, utilizing the *t*-test, there were significant differences between the cumulative grade point averages with females having a higher overall grade point average than males ($p = 0.03$).

Can et al. (2008) examined Turkish nursing student self-perceived academic performance using a visual analog scale in relationship to the HPLP-II reported outcomes. There was a significant positive correlation between self-reported good academic performance and overall health promoting lifestyle profile ($p < 0.001$) and between self-reported good academic performance and all six sub-scales of the profile ($p < 0.01$).

Goff (2011) investigated the relationship between stressors and academic performance in 53 baccalaureate-nursing students. No relationship was found between personal or academic stressors and academic performance by the researchers. The

authors concluded that this result was not what was hypothesized and that potentially the timing of the data collection and the small sample size drove the results.

Self-Efficacy, Health Related Behaviors, and College Students

Albert Bandura developed the Social Cognitive Theory and posited that self-efficacy, a proximal and direct predictor of both intention and behavior, leads to change in health behavior through a personal sense of control (Bandura, 1997). Schwarzer and Fuchs (1995) determined that when an individual has a personal sense of control, they are self-confident that they can deal with life stressors. Additionally, once a person determines a direction of action, their level of self-efficacy either impedes or enhances their motivation to act. Self-efficacy is based on past experiences and generally is not associated with unreasonable risk taking. Positive self-efficacy is associated with health behavioral changes and is the single most powerful resource factor in the adoption and maintenance of health behaviors (Schwarzer & Fuchs, 1995; Strecher et al., 1986).

Bandura's construct of perceived self-efficacy is best defined as situation specific behavior (Bandura, 1997). However, researchers are finding that a measurement of generalized self-efficacy reveals the individual's confidence in their overall coping resources (Schwarzer & Fuchs, 1995). Indeed, Bandura (1997) postulated that there is a place for macrolevel relations correlating aggregated self-efficacy beliefs. For example, these marcrolevel relations could be within a domain of behaviors such as health behaviors. The measure of general self-efficacy is appropriate for this study that considers health-promoting behaviors as measured by the HPLP II (Pender, 2012). Studies examining health related behaviors in college students and specific or general self-efficacy will be reviewed.

Cho, So, and Lee (2009) conducted a study on 210 male, South Korean college students who self-reported as cigarette smokers. Results of the study where self-efficacy to stop smoking was measured revealed that those students who previously had success with an attempt to stop smoking would have higher self-efficacy that they could stop again ($p < 0.001$), self-efficacy was positively associated with independent self-construal, those who consider themselves to be autonomous ($p < 0.001$), and social communication was significantly correlated with self-efficacy ($p < 0.02$). The researchers concluded that college student smokers' belief in their personal ability to quit smoking is influenced by personal, social, and cultural factors.

Constantine, Okazaki, and Utsey (2004) investigated whether self-concealment behaviors and social self-efficacy in 320 international college students would have a significant relationship to acculturative stress, the psychological impact of adapting to a new culture, and depression. In contrast to other studies, the researchers found that social self-efficacy and self-concealment behaviors were not significantly associated with acculturative stress and depression in African, Asian, and Latin American international students. They concluded that other factors must be considered to understand adjustment of international students to a new culture.

In a randomized, controlled trial investigating the impact of an internet-based education program on the self-efficacy, physical activity, and nutrition in college students, Franko et al. (2008) found that students participating in the program had a significant positive change in health promoting behaviors. On six college campuses, three randomly selected group's health behaviors, attitudes, and BMI were measured at three times following internet based educational sessions lasting between 45 minutes to

1.5 hours over a five week period. At the conclusion of the study, significant differences were found between the control and intervention groups in dietary self-efficacy ($p < 0.05$), encouragement for dietary change ($p < 0.01$), motivation to change nutrition behaviors ($p < 0.05$), knowledge regarding nutrition ($p < 0.05$), and attitude toward exercise ($p < 0.05$). The groups exposed to interventions scored significantly higher in each category. No significant findings were found in any of the groups for actual increases in physical activity.

Jackson, Tucker, and Herman (2007) conducted a study on the health promoting lifestyles of 162 college students. Utilizing a cross-sectional design, the researchers found that health value ($p < 0.01$) and health self-efficacy ($p < 0.05$) significantly predicted student's engagement in health promoting lifestyles. No significance was found between social support and health promoting lifestyles. The researchers concluded that consistent with Pender's Health Promotion Model, personal factors and self-efficacy were important for health promoting lifestyles; however, in contrast, this study did not find a significant relationship between social support and health promoting lifestyles in college students.

In another study, Maglione and Hayman (2009) investigated the relationship between social support, self-efficacy, commitment to a plan of action, and physical activity in 95 low income college students in New Jersey. Simultaneous multiple regression was used to determine that 21% of the variance in physical activity behavior was explained by social support, physical activity self-efficacy, and commitment to a plan of physical activity ($p < 0.001$). Additional findings in the study indicated that social support from family ($p = 0.022$) was significantly stronger than social support

from friends ($p = 0.044$) for commuter students, whereas, social support from family ($p = 0.109$) and friends ($p = 0.119$) was similar for residential students.

Makaremi (2000) examined the correlations between depression and self-efficacy in 200 Iranian college students. In this population of Iranian college students, there were no significant differences between men and women related to depression scores. However, the researcher did find a significant negative correlation between self-efficacy and depression ($p > 0.001$). As depression levels increased, self-efficacy scores decreased. Additionally, as difficulty in remaining employed increased, self efficacy decreased.

An investigation of the mediating effects of self-esteem and self-efficacy on the antidepressant effect of physical activity was conducted on a sample of 388 college students enrolled in an Introduction to Psychology course (Ryan, 2008). Task self-efficacy was measured as it related to ability to complete physical activities. Scheduling self-efficacy was measured as goal setting and planning that promotes participation in physical activity. The researcher concluded that the direct effect of exercise on depression was negligible when self-esteem and self-efficacy were controlled for in the model. Lower self-esteem and low perceived self-efficacy are likely sufficient explanations for the depressive symptomatology in this group of college students. Additionally, the findings were not significant for the role of task self-efficacy in anti-depressant effects of exercise. However, the findings were significant for the role of scheduling self-efficacy's role in the anti-depressant effects of exercise.

Singleton, Bienemy, Hutchinson, Dellinger, and Rami (2011) studied 49 college students from a historically black college where approximately 86% of the participants

were African American. The intervention study correlated student BMI with self-esteem, body image, self-care, and self-efficacy related to eating habits and exercise regimens pre- and post-intervention. Interventions included a self guided journal on recommended carbohydrate intake, fat intake, information on exercise and weight control, eating behavior, and an area for the students to journal on their eating and exercise over the course of the study. Participants also received a pedometer and were encouraged to aim for 10,000 steps daily.   Forty five percent of the participants were overweight or obese as defined as BMI over 25 and only 17% reported being satisfied with their body image. Significant findings included that students who were dissatisfied with their body image were more likely to be overweight ($p < 0.05$), and students with greater BMI's reported lower self-efficacy to regulate exercise habits ($p < 0.05$). Pre- and post-intervention self-care was significantly correlated with both exercise and regulation of eating habits self-efficacy.

A wide array of health behaviors including alcohol consumption, smoking, use of sun protection, physical activity, and nutrition behavior was correlated with self-efficacy in a study on 161 college students enrolled in an introductory psychology course (Von Ah, Ebert, Ngamvitroj, Parj, & Kang, 2004). A self-efficacy scale was developed for this study to measure the participant's confidence in performing or controlling the identified health behaviors. Additionally perceived stress and social support were measured. Study findings were that self-efficacy was the only significant predictor of the five health behaviors including decreased alcohol use ($p \leq 0.0001$), physical activity and nutrition behavior ($p \leq 0.0001$), general safety ($p \leq 0.004$), and sun-protective behavior ($p \leq 0.0001$). Of interest was that higher self-efficacy was also significantly correlated with

increased smoking ($p \leq 0.0001$). Perceived stress and social support were not

significantly correlated with self-efficacy for health behaviors.

Zalewska-Puchala, Majda, Galuszka, and Kolonko (2007) conducted a study on

164 first year baccalaureate-nursing students in Poland to investigate the relationship

between health behaviors and self-efficacy. In this population, 82.5% of the students

were found to be underweight based on BMI. Results revealed student reports of

perceived self-efficacy as high (53.7%), average (38.4%), and low (7.9%). There were no

significant findings related to self-efficacy as correlated with age, mother's education,

father's education, income per family member, place of residence of family, or place of

residence of student during study. Significant findings were found related to high self-

efficacy and low fat consumption ($p < 0.05$). Additionally, the results indicated that

individuals who reported a high sense of self-efficacy drank alcohol more often. There

were no significant findings between self-efficacy and consumption of fiber, smoking,

and physical activity.

Pender's model does identify perceived self-efficacy as a behavior specific

cognition in the prediction of health promoting behaviors. Literature review of studies

generally support the model, although discrepancies in findings lend itself to further

investigation of the relationship of self-efficacy in health promoting lifestyles for college

students.

Relationship Between Support and Self-efficacy

The relationship between support and self-efficacy among college students is not

clear. Cho, So, and Lee (2009) investigated personal, social, and cultural correlates of

smoking self-efficacy among South Korean college students (n = 210). Findings in this

study were not significant for a relationship between smoking self-efficacy and social or descriptive norms as measures of social support. This was contrary to the researcher's hypothesis, who based their directional hypothesis on a significant relationship found in another study investigating self-efficacy related to drinking behavior and social support (Campo et al., 2003).

Jackson, Tucker, and Herman (2007) investigated the relationships between health value, perceived social support, and health self-efficacy as correlated with health promoting lifestyles in college students. The study was conducted at a university in the southeastern part of the United States and had 162 participants. Significant correlations were found between health value, perceived family and friend social support, health self-efficacy, and health promoting lifestyles.

In a study conducted by Maglione and Hayman (2009), 95 students participated in a study examining whether social support, self-efficacy, and commitment to a plan of action for physical activity were positively related to physical activity behavior in low-income college students. The study findings were significant, demonstrating that these three variables together contributed a significant proportion of the variance for physical activities performed by the students.

Several studies on populations other than college students demonstrate the relationship between social support and self-efficacy. Studies on adolescent's physical activity have demonstrated the mediating effect of self-efficacy between social support and physical activity (Haerens et al., 2008; Y. Miller, Trost, & Brown, 2002; Peterson, Lawman, Wilson, Fairchild, & Lee, 2013). Other studies have provided evidence of the relationship between social support, self-efficacy, and the general health of retirees

(Adejumo, 2010), return to work across health conditions (Brouwer, Reneman, Bültmann, Klink, & Groothoff, 2010), and severe acute respiratory syndrome (Mak, Law, Woo, Cheung, & Lee, 2009). Each of these studies demonstrated significant relationships between social support and self-efficacy.

Together these studies provide evidence that further exploration of the relationship between social support and self-efficacy on health promoting lifestyles in nursing students would be useful.

Health Promoting Lifestyles and Nursing Students

Pender's Health Promotion Model, as measured by the Health Promoting Lifestyle Profile, is often used as a theoretical framework in studies investigating health promoting lifestyle behaviors in nursing students. Other instruments, with similar health promoting behaviors measured, have also been utilized to investigate these behaviors in nursing students. A review of the literature regarding outcomes determined from these studies will be considered.

Al-Kandari and Vidal (2007) conducted a descriptive study in Kuwait investigating 224 associate degree nursing student's health promoting lifestyles correlated with level of enrollment in nursing coursework and academic performance. The researchers determined a statistically significant correlation between the subscale health responsibility (personal accountability for one's own well-being) and enrollment level in nursing coursework, with students in the higher level of coursework having higher mean scores on health responsibility ($r = 0.175$, $p = 0.035$). No significant relationship was determined between academic grade point average and health promoting lifestyle behaviors, however, the researchers suggested study limitations including the

relatively small sample size and lack of generalizability to students enrolled in other types of nursing programs such as baccalaureate programs.

Another study by Al-Kandari, Vidal, and Thomas (2008) investigated the relationship between body mass index (BMI) and health-promoting lifestyles (measured by the HPLP-II) in 202 Kuwaiti nursing students. Significant differences were found based on gender, with males scoring higher mean scores than females for overall HPLP ($p = 0.01$), physical activity ($p = 0.001$), interpersonal relations ($p = 0.008$), and stress management ($p = 0.02$). Body mass index in the overweight to obese range for the entire sample was 28.7%. Significant differences were found related to age and health-promoting lifestyles. Older students had higher mean scores for spiritual growth ($p = 0.001$) and stress management ($p = 0.039$). There was also a significant difference in BMI categories and the nutrition subscale ($p = 0.014$) of the HPLP-II. The lowest subscale for the students was physical activity.

Alpar, Senturan, Karabacak, and Sabuncu (2008) conducted a longitudinal study on health promoting lifestyle behaviors over the course of the nursing program. Fifty-two Turkish nursing students participated in the study. There were significant differences in the total health promoting lifestyle score of the students from the beginning to the end of the program ($p = 0.001$), self-actualization ($p = 0.21$), health responsibility ($p = 0.000$), nutrition ($p = 0.051$), interpersonal support ($p = 0.000$), and stress management ($p = 0.019$). No significant increase was found in the physical exercise sub-scale from the beginning of the program to the end. The researchers concluded that in this nursing program, the knowledge gained over the course of the program led to significantly higher health promoting lifestyles in the nursing students.

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Can et al. (2008) investigated 1,616 university students in Istanbul, Turkey and compared health promoting lifestyles in students' enrolled in nursing school with those enrolled in schools of social sciences regarding their health-promoting practices. The average BMI was considered to be within healthy limits for both groups of students, as was self-reported overall health status and relationships with families and friends of both groups. There were reported significant differences for overall health promoting lifestyle profile ($p < 0.001$), health responsibility ($p < 0.001$), nutrition ($p < 0.001$), interpersonal relations ($p < 0.01$), and stress management ($p < 0.01$) between nursing and non-nursing students, with nursing students having higher means than the non-nursing students. Only the sub-scales of physical activity and spiritual growth were found to have no significant differences between the two groups and spiritual growth was the subscale with the highest mean score for both groups.

Haddad, Kane, Rajacich, Cameron, and Al-Ma'aitah (2004) compared the health promoting lifestyles of nursing students in Canada (n = 49) and Jordan (n = 44) during their first year of nursing school. Significant differences were found between the students on the total HPLP-II, and for the subscales of health responsibility ($p < 0.001$), physical activity ($p < 0.1$), and interpersonal relations ($p < 0.001$). The Canadian nursing students scored higher means on these three subscales. The researchers identified cultural issues as a possible explanation for these findings; since Jordanians only visit the doctor when they are ill, do not study health education in school, and existing political unrest possibly contributes to the lower health responsibility scores.

Hawker (2012) studied the relationship between physical activity and mental well-being in nursing students (n = 215) in the United Kingdom. Only 23.8% of the total

sample met the criteria for the Department of Health's physical activity guideline. In this sample, the mean body mass index (BMI) was 25 with 40% of the sample meeting criteria as being overweight or obese. Self-esteem was significantly positively correlated with physical activity ($p < 0.038$); however, there were no other significant findings with depression, anxiety, and satisfaction with life. The researcher found that BMI was a significant predictor for satisfaction with life ($p < 0.027$).

In 2002, Hui (2002) investigated the health promoting lifestyles of undergraduate nursing students in Hong Kong using a culturally modified HPLP II. From a possible 256-subject study group, 169 (66%) completed the survey. Significant findings included differences in physical activity (mean = 1.90 versus 1.65; $p = 0.001$) and stress management (mean = 2.24 versus 2.08; $p = 0.01$) with younger students scoring higher when compared to older students. Working students had significantly higher scores than non-working students in four areas including total health promoting lifestyle ($p = 0.011$); health responsibility ($p = 0.007$); interpersonal relations ($p = 0.002$); and spiritual growth ($p = 0.007$). The researchers also investigated differences in the health promoting lifestyles based on year enrolled in school. Findings included significant differences in stress management ($p = 0.000$) and spiritual growth ($p = 0.009$) among various enrollment levels with junior-level students reporting higher means than the other students. There were no significant findings based on gender from this study, however, only 5% of the study sample was male. Another significant finding in this study was that senior level students reported significantly lower overall health promoting lifestyle, worse stress management, and less spiritual growth than junior level students.

Two intervention studies were found in the literature where the HPLP-II was the measurement tool and nursing students were the participants. Stark, Manning-Walsh, and Vliem (2005) conducted a study using a pretest-posttest, single group design to determine whether students enrolled in a course emphasizing self-care health-promoting lifestyles reported improvement at the end of the semester long course. The study enrolled 67 students at a nursing college in the Midwest of the United States. For both overall and five of the six subscales, excluding interpersonal relations, there was statistical significance at the $p \leq 0.05$ level between pre and post test results. Demographic variables were analyzed as potential confounding variables, with significant findings determined between age and overall HPLP II scores ($p = 0.015$) and age and health responsibility ($p = 0.001$). Older students scored higher than younger students in both of these categories. Students who were married scored higher on the health responsibility scale ($p = 0.004$) than single never married students.

Chen et al. (2001) conducted a longitudinal study over the course of two years to determine the effectiveness of health promotion counseling for overweight Taiwanese nursing students. Students who were overweight met inclusion criteria for the study (n = 166 out of 980; 17%). Of the students who met criteria, 58 students were randomly selected for participation and 55 agreed to participate. Of the participants, 18.4% reported feeling unhealthy. Twelve months following the health promotion counseling, significant positive change was determined for nutrition ($p = 0.006$), exercise ($p = 0.000$), health responsibility ($p = 0.000$), stress management ($p = 0.020$), and total score ($p = 0.000$). Physiological findings with significance included decreased body weight (Kg) (p

= 0.000), improved weight for length index (p = 0.000), systolic blood pressure decline (p = 0.000), and higher high-density lipoprotein cholesterol (HDL) (p = 0.000).

Other studies have investigated health related behaviors and self-care behaviors in nursing students using other instruments. These studies contribute to the knowledge regarding health-promoting lifestyles of nursing students to date.

Kamwendo (2000) researched differences in adherence to healthy lifestyles between nursing students, occupational therapy students, and physiotherapy students at three universities in Sweden using a researcher-developed questionnaire with demographic questions and lifestyle indicators. Participation rate was 95% with total sample sizes of 97 nursing students, 61 occupational therapy students, and 67 physiotherapy students. The study had inclusion criteria of female gender. Significant differences were found in somatic reporting of neck pain with occupational therapy students reporting neck pain more frequently than nursing students (p = 0.005). However, no other significant findings were determined when considering physical exercise, smoking, intake of sweets, sleep, fitness, and perceived general health.

Using the same study population and excluding results obtained from the occupational therapy students, Kamwendo, Faresjo, Gustavsson, and Jansson (2000) investigated differences in adherence to healthy lifestyle between nursing students and physiotherapy students in Sweden. The sample included 112 nursing students and 92 physiotherapy students, with significant differences found in the two samples related to gender (physiotherapy students 27% male; and nursing students 13% male). Physiotherapy students reported a significantly higher frequency of current physical exercise (p = 0.001). Additionally, physiotherapy students had significantly healthier

behaviors including smoking less ($p < 0.001$), less unhealthy snack consumption ($p < 0.05$), and more physically active transportation means ($p = 0.01$) than the nursing students. Significant differences were also found between physiotherapy students and nursing students when comparing their own perceived physical activity level, fitness level, and general health with their peers. Physiotherapy students reported they were more active physically ($p < 0.001$), had higher physical fitness ($p < 0.001$), and better perceived general health ($p < 0.05$) than their peers.

A qualitative study was conducted by Yearwood and Riley (2010) to describe 159 nursing student's experiences with the infusion of health topics into the academic content of coursework and their well-being. The study was conducted at a university in the United States. Several themes were identified in this study including isolation, shock and anger, taking time, awareness, and valuing. The researchers defined isolation as being both physically removed from others and being disconnected from thinking about issues such as emotional and physical health. Shock and anger included being surprised over the numbers of students who seek mental health services and anger towards the amount of stress students' experience, both academic and societal. Taking time as a theme was related to student's awareness of looking at campus mental health and well-being issues with other members of the campus community. Awareness occurred as coursework was infused with information regarding health and well-being. The final theme identified was valuing, where students expressed a better understanding of the campus community, a place where educators lend support and self-care is valued.

Blake, Malik, Mo, and Pisano (2011) conducted a study in the United Kingdom and invited 650 nursing students to participate. Of those invited to participate, 325

completed the survey tool and 96% were female. A data collection tool was developed

based on two national surveys administered to health professionals and included

questions on physical activity level, barriers to physical activity, self-efficacy for physical

activity, knowledge of physical activity, social support for physical activity, general

health, smoking, diet, self-efficacy for healthy eating, social support for healthy eating,

alcohol consumption, work performance (based on academic performance), and sickness

absence. Less than half of the participants met the current government public health

recommendations for levels of physical activity (45.98%). However, most participants

reported a high level of knowledge regarding the benefits of physical activity. Low

levels of self-efficacy for physical activity and social support for engaging in physical

activity were reported. Significant differences were found between those participants who

were classified as active participants (those who met current government

recommendations for physical activity) and those who were not active participants,

including higher self-efficacy for physical activity ($p < 0.01$) and social support for

physical activity ($p < 0.001$). Inactive participants reported statistically significant

barriers to participating in physical activity including affordability ($p < 0.05$); too tired to

participate ($p < 0.05$); can't be bothered ($p < 0.05$); not the sporty type ($p < 0.05$); active

enough ($p < 0.05$); no motivation ($p < 0.01$); no one to be physically active with ($p <$

0.01); don't enjoy it ($p < 0.01$); and injured ($p < 0.001$). Regarding general health factors

27.1% of the participants were classified as overweight or obese; the mean score of

general perception of health on a Likert scale of 0-5 ranging from poor to excellent ($M =$

1.79; SD = 0.91) was poor; and 25.9% reported low mood. Significant differences were

found between active and non-active participants with active participants reporting

overall higher general perception of health ($p < 0.001$); better mood ($p < 0.01$); and more likely to get 7 hours of sleep per night ($p < 0.01$). Active participants were less likely to smoke ($p < 0.01$); more likely to eat five servings of fruit/vegetables per day ($p < 0.01$); and less likely to consume alcohol on a typical day ($p < 0.05$). No significant differences were found between active and non-active participants on work performance and sickness absence; however 86.2% reported satisfaction on work performance and 22.5% reported sick-related absence within the past month.

McCann, Clark, and Rowe (2005) compared smoking and non-smoking undergraduate nursing student's attitudes towards smoking health promotion. Students in the second and third year of their studies from a nursing program in Victoria, Australia were invited to participate in the study. Of the students, 52.9% reported never smoking, 24.1% reported still smoking, and 23% reported stopped smoking. Of the 11-question survey on attitudes toward smoking health promotion, six questions had significantly different responses between non-smokers and smokers. Significant differences were found regarding whether all health professionals should be non-smokers ($p < 0.01$, non-smokers more likely to agree), applicants to health professional programs should be non-smokers ($p < 0.01$, non-smokers more likely to agree), health professionals should promote a health lifestyle ($p < 0.01$, non-smokers more likely to agree), health professionals should never smoke while on duty ($p < 0.01$, non-smokers more likely to agree), a health professional who is a smoker is just as good a health promoter as one who is not a smoker ($p < 0.01$, smokers more likely to agree), a health professional who is a smoker may feel guilty about giving advice about smoking cessation ($p < 0.05$, non-smokers more likely to agree).

Chow and Kalischuk (2008) examined undergraduate nursing student's self-care behaviors. The researchers developed their own tool asking questions on sleep, exercise, diet, fluid intake, weight, checkups, relaxation, complementary therapy use, alcohol intake, health goals and smoking. Of the 211 students who participated in the study, 93% were female. Descriptive statistical analysis found that 39% of the students reported not eating a balanced diet, 29% reported not exercising or rarely exercising, 59% reported occasional alcohol consumption, 85% were non-smokers, 76% reported using complementary therapies with massage therapy the most frequently reported (54%), 42% reported regular health check-ups, 40% perceived themselves to be overweight, and 89% reported their health status was good or excellent.

Horneffer (2006) conducted a study investigating 300 undergraduate nursing students' self-concepts, health behaviors, and responses to a health promotion message. Students' reported never smoking (71%), never drank alcohol (18%), and 56% reported regularly exercising. Students who reported themselves as healthy did not smoke or consume alcohol and exercised regularly. Positive responses to the health promotion message advertisement were found in students who had positive self-perceptions.

Another study conducted by Pawloski and Davidson (2003) examined the impact of an exercise program conducted over the course of one semester on risk for obesity and activity level in female undergraduate nursing students. A convenience sample of 30 nursing students enrolled in a nursing program in the United States was used. Interventions included exercising three days per week for 30 minutes; participating in exercise with peer on one of these periods per week, and recommended participation in monthly educational sessions centered on fitness and nutrition. Results indicated a

statistically significant change in body mass index (BMI) comparing pre- and post-intervention measurements ($p = 0.042$). There was also a statistically significant difference in percent body fat between time one and time two ($p = 0.001$). A statistically significant difference was determined from time one to time two for fitness levels ($p = 0.05$). No results were provided regarding the implications of social support or educational programming.

Research Gaps

The Health Promotion Model is the underpinning framework in over one hundred research studies. Although it has been tested in several populations, representing different age groups and diverse backgrounds, further empirical research is needed to refine the model leading to the determination of appropriate interventions to promote health behavior (Alligood & Tomey, 2010).

Seven studies utilizing the HPLP to examine the health promoting lifestyles of undergraduate nursing students in countries outside of the United States in the last ten years were identified through the literature search, one of which was an intervention study (Al-Kandari & Vidal, 2007; Al-Kandari et al., 2008; H. Chen, Feng, Shen, & Guo, 2009; Haddad et al., 2004; Hui, 2002). However, only two studies, an intervention study and one examining the relationship between social support and health promoting lifestyles, were found using the HPLP as the measurement tool to examine the health-promoting lifestyles of nursing students in the United States in the last ten years (Jackson et al., 2007; Stark et al., 2005). This paucity of research regarding the health promoting lifestyles of future nursing professionals in the United States is of particular interest given

the national policy initiatives concerning healthcare reform found in the Patient Protection and Affordable Care Act of 2010.

Nursing professionals are considered role models for patients and one of their professional roles is to teach health promoting lifestyles to patients. In addition to the responsibility for role modeling and teaching health promoting lifestyles, their personal engagement in health promoting lifestyles is important for their own well being.

Behaviors established by nursing students during the developmentally influential college years potentially impact their commitment to health promoting lifestyles in the future. Therefore, in the proposed study, factors significant to nursing students including personal factors, social support, self-efficacy, and academic performance will be considered in relationship to their health promoting lifestyles. Determining the relationships between these factors and influences and the student's health promoting lifestyles will guide future intervention studies using the Health Promotion Model as a framework.

Summary

Knowledge regarding predictors of health promoting lifestyles for nursing students will facilitate future intervention studies that will target strategies of most significance for baccalaureate nursing students. The development of health promoting lifestyles during the student's college years will impact their ability to remain an active participant in the challenging health care work environment and model these behaviors to patients.

Chapter 3: Methodology

Design of the Study

A descriptive cross sectional design was used for the study. Variables examined included: gender, age, BMI, financial resources, school debt, race/ethnicity, relationship status, living situation, tobacco use, alcohol use, street drug use, general health status, self-reported depressive symptoms, social support, academic outcomes, self-efficacy, and health promoting lifestyles.

Setting

The study was conducted at three baccalaureate programs of nursing located in the Midwest. All three universities were private not for profit institutions. Enrollment in the junior and senior year nursing coursework was a requirement for participation. The college's enrollment in the nursing program was 100, 174, and 301, with a potential for 575 participants.

Sample

A convenience sample of junior and senior level baccalaureate nursing students was obtained for the study. Inclusion criteria included completion of the Assessment Technology Institute Test of Essential Academic Skills IV/V (TEAS-IV/V) prior to the beginning of the junior year. Junior level nursing students are considered those who were enrolled in 300 level courses and senior level nursing students were those who were enrolled in 400 level coursework.

Data Collection Instruments

A demographic questionnaire (Appendix A), Beck Depression Inventory II (BDI-II) (Appendix B), Interpersonal Support Evaluation List College Version (ISEL CV)

(Appendix C), Generalized Self-Efficacy (Appendix D), and Health Promoting Lifestyle

Profile II (HPLP II) (Appendix E) were utilized. Consent for use of each of these tools

may be found in Appendix J. Additionally, the registrars provided the number of

completed credit hours, cumulative grade point average, nursing course grade point

average, and overall scores on the TEAS-V as part of the demographic questionnaire with

the student's consent for release of the information.

Demographic questionnaire.

A researcher designed demographic tool (Appendix A) was administered to gather

data on age, gender, BMI, race/ethnicity, financial resources, anticipated college debt,

relationship status, living situation, general health status, tobacco use, alcohol use, street

drug use, prior history of mental health diagnosis, current mental health treatment

including medication, therapy, or both, TEAS-IV/V score, cumulative grade point

average, and nursing cumulative grade point average. Students provided consent for the

registrar's office to provide their number of completed credit hours, cumulative GPA,

nursing cumulative GPA, and TEAS-IV/V scores. This tool required approximately 5

minutes for completion.

Beck Depression Inventory II

The Beck Depression Inventory is considered the gold standard measurement tool

demonstrating excellent reliability and validity over a wide age span (Beck et al., 1996).

Researchers from many disciplines have utilized the tool to investigate depression

specifically in the college student population, with subpopulations identified, one being

the nursing student subpopulation. In its current revision, the BDI-II (Appendix B) is a

better reflection of the nine diagnostic criteria from the *Diagnostic and Statistical Manual*

of Mental Disorders – Fourth Edition-TR (American Psychiatric Association, 2000). These nine criteria include depressed mood, anhedonia, changes in weight, changes in sleep, psychomotor agitation or retardation, loss of energy, worthlessness or guilt, diminished ability to think or concentrate, and recurrent thoughts of death or suicidal ideation (American Psychiatric Association, 2000). The Likert response scale is a 4-point scale ranging from 0-3. With the revision to the BDI-II, two of the items, changes in sleeping pattern (item 16) and changes in appetite (item 18) allow seven responses including 0, 1a, 1b, 2a, 2b, 3a, and 3b allowing for the differentiation of increases and decreases in sleep and eating behaviors, part of the diagnostic criteria for depression (Beck et al., 1996). Respondents are asked to score the items related to the previous two-week time frame.

Scoring the BDI-II is based on a range from minimal level of depression to severe level of depression. Descriptive ranges for total scores were determined based on cut score studies and are as follows: 0-13 for minimal; 14-19 for mild; 20-28 for moderate; and 29-63 for severe. A recommendation to set a relatively lower threshold to detect depression, decreasing the likelihood of false negatives, was the rationale for development of these ranges (Beck et al., 1996).

The psychometric properties of the BDI-II are sound with investigation of these characteristics completed in four different psychiatric outpatient clinics and one college-student group during the pilot study (Arbisi & Farmer, 2010; Beck et al., 1996). The coefficient alpha for reliability in the outpatient population was 0.92 and the college student group was 0.93 (Arbisi & Farmer, 2010). In the college student group the corrected item-total correlation was between 0.27 for loss of interest in sex, and 0.74 for

self-dislike. The test-retest reliability over a week's period of time was high at 0.93

(Arbisi & Farmer, 2010; Beck et al., 1996). Cronbach's alpha was reported for studies

involving nursing students with an alpha range between 0.86-0.92 (Hsiao et al., 2010;

Kang, Choi, & Ryu, 2009).

Regarding correlations with sex and age, the pilot study in the college student

population (n = 120) found females with higher mean total scores (M = 14.55, SD =

10.47) than males (M = 10.04, SD = 8.23) and age was inversely correlated ($r = -0.18$, p

< 0.05) with BDI-II scores (Beck et al., 1996).

Interpersonal Support Evaluation List College Version.

The Interpersonal Support Evaluation List College Version (ISEL-CV) (Appendix C)

is a tool designed to test the individual's perceived availability of four social support

functions including tangible, belonging, self-esteem, and appraisal (Cohen & Hoberman,

1983). The tool may be scored for an overall social support measure, as well as for the

individual subscales.

The tangible scale measures the individual's perceived availability of material aid.

The appraisal scale measures the individual's availability of someone to speak with about

problems. The self-esteem scale measures the individual's perceived ability to consider

one's self positively when comparing themselves to others. The belonging scale measures

the individual's perception of the availability of others to do activities with (Cohen &

Hoberman, 1983).

The tool has 48 items scored as either 'probably true' or 'probably false'. The four

subscales are scored by specific item numbers with some of the items reversed in score.

There is no time frame or referent period within which the respondents are to base their

responses (Cohen, Memelstein, Kamarck, & Hoberman, 1985). The tool requires about 10-15 minutes for the average individual to complete.

The internal reliability for the overall scale was determined using Cronbach's Alpha and was found to be .77 - .86 for the undergraduate student population (Cohen & Hoberman, 1983; Cohen et al., 1985). The individual scale internal reliabilities ranged between .60 and .77 with reasonable independence from one another in the original studies (Cohen & Hoberman, 1983). Studies where the tool was used in college student populations both nationally and internationally have good internal reliabilities with Cronbach alpha's of .63 - .89 for the overall and four subscale measurements (Cooley, Toray, & Roscoe, 2010; Goodwin, Costa, & Adonu, 2004; Hale, Hannum, & Espelage, 2005; McColl, Davies, Carlson, Johnston, & Minnes, 2001; Sheese, Brown, & Graziano, 2004).

Assessment Technology Institute Test of Essential Academic Skills.

The ATI TEAS-IV/V was used to control for academic ability as it relates to cumulative overall and nursing grade point averages. The ATI TEAS-V is a test that measures the nursing student's ability to be successful in nursing school and tests reading, English, math, and science ability (Wolkowitz & Kelley, 2010). A combination of the Angoff and the Bookmark standard setting methods were used to establish cut scores for the test (Wolkowitz & Kelley, 2010).

Cut scores were established at five levels including exemplary, advanced, proficient, basic, and developmental levels. Students scoring in the exemplary and advanced categories have a high level of academic preparedness and likely will not require additional study of the content tested on the examination. Those students who

score in the proficient level have a moderate level of understanding of the content covered on the examination. Students in the basic and developmental levels will likely require additional preparation to understand and apply the knowledge to nursing content (Wolkowitz & Kelley, 2010). Assessment Technology Institute does not allow the test to be shared publically to assure test integrity.

Generalized Self-Efficacy.

The Generalized Self-Efficacy tool (Appendix D) has 10-items that are used to assess a general sense of self-efficacy in individuals. The authors, Schwarzer and Jerusalem (1995) developed the tool to predict daily coping as well as to predict adapting following stressful life events. The tool is available in over 30 languages and may be used on the general adult population for individuals over the age of twelve. The paper/pencil version of the tool has ten questions scored as four possible responses including not at all true, hardly true, moderately true, and exactly true. Scoring is from a range of 10 to 40 with higher scores indicative of a stronger perceived self-efficacy. Mean scores may be calculated where a mean score of 2.9 has been determined in international samples collectively. The tool generally requires around four minutes for administration. In samples from 23 nations, reliability was determined using Cronbach's alpha. The scores ranged from 0.76 to 0.90 on the unidimensional scale.

Strengths of the tool include the use of the tool internationally over two decades with suitability in a broad range of applications. Weaknesses are that the tool does not tap specific behaviors and researchers may need to add other tools if specific behavior self-efficacy is required (Schwarzer & Jerusalem, 1995).

Health Promoting Lifestyle Profile II.

The Health Promoting Lifestyle Profile II (HPLP-II) (Appendix E) is a 52-item tool used to measure behaviors of health promoting lifestyles. The tool scores an overall lifestyle as well as six subscales including spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management (Walker & Hill-Polerecky, 1996).

Spiritual growth involves the development of inner resources and may be achieved through transcending, connecting, and developing. The interpersonal relations subscale measures the individual's perception of the ability to utilize communications to develop intimate, close relationships with others. The nutrition subscale is a measurement of the individual's perception that they choose a healthy diet daily from the four food groups. The physical activities subscale reflects the individual's involvement in regular physical activity. The health responsibility subscale includes the individual's perception of assuming accountability for their own health, educating themselves regarding health, and practicing informed consumerism when seeking health care assistance. The stress management subscale reflects in the individual's perception of their ability to control and reduce tension (Walker & Hill-Polerecky, 1996).

The tool requires approximately 15 minutes to complete. Cronbach's Alpha coefficient for internal consistency for the entire scale was .943 and the subscales ranged from .793 to .872. Test-retest reliability at three weeks was .892 for the entire scale (Walker et al., 1987). The tool has been used in both the college student population and the nursing student population nationally and internationally with Cronbach alpha's for the entire scale ranging from .91 to .94 and for the six subscales ranging from .65 to .94

(Al-Kandari & Vidal, 2007; R. Lee & Loke, 2005; Mackey, McKinney, & Tavakoli, 2008; Stark et al., 2005).

Procedure for Protection of Human Subjects / Ethical Considerations

Informed consent was obtained from the participants who were approached by the researcher at the end of class in designated nursing courses within each college. The research packet included an informed consent document (Appendix H). The informed consent included the purpose of the research, duration of anticipated participation, description of the research process, description of benefits to the participants, confidentiality of the data, contact information of the researcher, a statement that participation is voluntary with no penalty if the individual determines to not participate, and a statement regarding withdrawal at any time without penalty (Waltz, Strickland, & Lenz, 2010).

Although risk associated with the study is believed to be minimal, students were provided an information sheet on available counseling services (sample included as Appendix I) in the research packet. This is important as the completion of the questionnaires may lead to heightened awareness of personal issues that the participant desires to discuss with counselors.

Institutional Review Board (IRB) Implications

Institutional Review Board approval was obtained from Duquesne University and the three baccalaureate nursing colleges where data was gathered. Approval letters may be found in Appendix K.   Data was de-identified, made free of all identification, via the process of data collection to meet the criteria of exempt status designated by the IRB. Permission to conduct the research was obtained from appropriate administrators at the

nursing colleges. Data is stored in a secure location under double lock protection (file cabinet and office door). The data was gathered for purposes of research and dissemination of findings to inform others regarding knowledge obtained. Results are provided only in an aggregate manner to assure college and individual confidentiality and anonymity.

Power Analysis for Determination of Sample Size

After exploring sample size requirements based on a priori power analysis, a minimum sample size of 340 was determined to provide adequate power. This calculation was based on a potential of 17 variables for a multiple regression data analysis at the recommended ratio of 20 participants for each variable considered (Polit & Beck, 2010).

Procedure for Data Collection

Data was gathered during the fall semester of 2012 and early spring semester of 2013. With the assistance of college administrators, courses and class times were identified at each of the three universities to include junior and senior level nursing students. The administrators requested permission from course faculty for the researcher to collect data at the end of class within the designated courses (course identified by administrator). After the data was collected, the registrar's office provided the student identification number, credit hours completed, TEAS cumulative score, cumulative GPA, and nursing cumulative GPA for each student who participated in the study. Staff in the registrar's office at each institution determined that providing the information on an excel spreadsheet was the preferred method of providing the information to the researcher. Student permission was granted to release academic information (Appendix F).

The researcher arrived at the designated classes at the times specified by the administrator and faculty, explained the research to the students, and allowed those students who did not want to participate to leave the classroom. The research packets were then distributed to the students. The research packet contained the following: Cover Letter (Appendix G), Informed Consent (Appendix H), Demographic Questionnaire, BDI-II, ISEL-CV, Generalized Self-Efficacy, HPLP-II, the Student Participant Academic Form Example (Appendix F), and the Counseling Services Document (Appendix I). Students were allowed time to complete the paper/pencil tools and turn them into the researcher on the same day in a sealed envelope, or provided an opportunity to return the surveys by the end of the day in a designated administrator's office in a sealed box. The cover letter instructed students to turn the informed consent document in separate from the research packet. The researcher provided two boxes for the students to return the research items, one for the informed consent and one for the sealed research packet. Students who did not choose to participate in the study were allowed to leave the room at any time, and were asked to return the research packet to the researcher prior to leaving. Many of the students who chose not to participate left the room prior to the explanation about the research. Participants were informed that aggregate study results would be made available to them through the participating institution at the conclusion of the study. Following each data collection period, the researcher marked the outside of the packets with the course number and institution to assure accurate recording of student level and institution.

Procedure for Data Analysis / Statistical Methods Addressing Research Questions

The data was analyzed using the Statistical Package for Social Sciences, version

19.0 (SPSS)(*IBM SPSS statistics 19.*2010). Initially descriptive analysis was conducted. This included consideration of both graphical and summary measure analytic techniques. Univariate data was analyzed initially using frequency distributions and histograms. Bivariate descriptive statistics were used to examine the relationships between variables (Polit & Beck, 2008).

Based on the initial exploration of data, the gathered information assisted with describing the sample distributions, identifying relationships between the variables, and checking for the violation of assumptions critical to the determination of continued statistical analysis. Initially, the distributions were analyzed to determine normality of distribution, if the distributions were symmetric, asymmetric or skewed. Modality was examined to determine if the data was represented as unimodal, bimodal, or multimodal depicting high frequency results (Polit & Beck, 2008).

Next, outliers were evaluated using visual screening of histograms and box plots for univariate outliers and Mahalanobis distance for multivariate outliers. The cut off criteria assigned for the Mahalanobis distance calculation was $p < 0.001$, a conservative probability estimate (Tabachnick & Fidell, 2007). Missing data was handled using the recommended process for each tool. Demographic data was analyzed for missing data and determinations regarding management were made on a case-by-case basis dependent on the analysis.

Linearity among pairs of variables was examined using bivariate scatter plots. In a regression setting, if homoscedasticity was not present, the data was transformed. The problem of multicollinearity was examined for multiple regression analyses and path analysis. Multicollinearity occurs when predictor variables are highly correlated.

Calculating an index of tolerance and establishing a cut-off of <0.01 was established to manage problems with multicollinearity.

Cronbach's coefficient alpha was used to determine the internal consistency of the tools utilized in the study.

Descriptive statistics were used to gain an understanding of sample characteristics. Measures of frequencies, central tendency, and variability including range and standard deviations assisted the researcher in detecting the spread of the data. Frequencies were calculated for categorical variables listed as nominal variables in Table 2 (Polit & Beck, 2008). Central tendency data was provided as either mean or median based on the type of variable considered. Medians were used if the data was skewed and means were used for the continuous variables whose distributions approximated normal (Polit & Beck, 2008).

Contingency tables and correlations were used to examine the bivariate relationships between variables. Pearson's *r*, product-moment correlation coefficient was used for interval and ratio scale variables and Spearman's rho (*p)* for ordinal level data. Variables for the study and level of data are described in Table 3.1.

Table 3.1

Variables and Level of Data

Tool	Variable	Nominal	Ordinal	Interval	Ratio
Demographic	Age		x		
	Gender	x			
	BMI				x
	Enrollment status	x			
	Credit hours				x
	Cumulative GPA				x
	Nursing GPA				x
	TEAS				x
	General Health		x		
	Relationship status	x			
	Marital status	x			
	Living situation	x			
	Race	x			
	Ethnicity	x			
	Financial resources	x			
	Tobacco use		x		
	Alcohol use		x		
	Street drug use		x		
	Prescription drugs not prescribed to you		x		
	Previously diagnosed with mental illness	x			
	Previous treatment with medication	x			
	Current diagnosis with mental illness	x			
	Current treatment with medication	x			
	Seek mental health services	x			
BDI-II	Overall score			x	
	Minimal-Mild-Moderate-Severe		x		

Table 3.1 continued on following page

Table 3.1 (continued)

Variables and Level of Data

Tool	Variable	Nominal	Ordinal	Interval	Ratio
ISEL-CV	Overall score			x	
	Tangible			x	
	Belonging			x	
	Self-Esteem			x	
	Appraisal			x	
Generalized Self-Efficacy	Perceived Self-Efficacy			x	
HPLP-II	Overall			x	
	Spiritual Growth			x	
	Interpersonal Relations			x	
	Nutrition			x	
	Physical Activity			x	
	Health Responsibility			x	
	Stress Management			x	

The study examined the relationships between the identified variables within the study using inferential parametric data analysis with the sample identified as baccalaureate junior and senior level nursing students from the three colleges of nursing in the Midwest as one sample. Pender's model identifies that personal factors have a direct relationship with health promoting behaviors and that interpersonal, situational influences, and perceived self-efficacy have both a direct and moderating effect on health promoting behaviors. Therefore, the study examined both direct and moderating effects of the predictive variables identified in the study. Research questions with associated statistical analysis plans are as follows:

Research Question 1: What is the relationship between personal factors and health promoting lifestyles in baccalaureate nursing students?

$H_0 1.1$: Health promoting lifestyles are not significantly influenced by age, gender, and BMI in baccalaureate nursing students.

$H_0 1.2$: Health promoting lifestyles are not significantly influenced by health status and depressive symptoms in baccalaureate nursing students.

$H_0 1.3$: Health promoting lifestyles are not significantly influenced by race/ethnicity, financial resources, relationship status, and living situation in baccalaureate nursing students.

Analysis:

An analysis of the relationship between health promoting lifestyles, the dependent variable, and each of the personal factors, the independent variables, was considered including age, gender, BMI, health status, depressive symptoms, race/ethnicity, financial resources, relationship status, and living situation. Since gender, race/ethnicity, income, relationship status, and living situation are nominal level categorical independent variables, the two sample t-test procedure was used to consider whether health-promoting lifestyles in nursing students were influenced by gender, income, relationship status, living situation, and race. Assumptions for parametric testing were checked including normality of distribution of the dependent variable, health promoting lifestyles, and homogeneity of variance using Levene's Test for equality of variance. Since the assumptions for parametric testing were met, 95% confidence intervals were established to determine the significance of these relationships. The significance level was set at $p \leq 0.05$.

Age, BMI, health status, and depressive symptoms are interval level data; therefore, Pearson Correlation was used to determine if health-promoting lifestyles were significantly correlated with these personal factors. To determine the magnitude and

strength of the relationships scatter plots were examined and Pearson correlation coefficients were calculated. The significance level was established at $p \leq 0.05$.

Research Question 2: What is the relationship between social support and health promoting lifestyles in baccalaureate nursing students?

H$_1$2.1: Health promoting lifestyles are positively correlated with social support in baccalaureate nursing students.

Analysis:

An analysis of the relationship between health-promoting lifestyles and social support was considered. Literature supports a positive relationship between social support and health promoting lifestyles; however, the literature is not specific to this population. Therefore, Pearson's correlation was used to determine if this is supported by the data in this population. To determine the magnitude and strength of the relationships scatter plots were examined and Pearson correlation coefficients were calculated. The significance level was set at $p \leq 0.05$.

Research Question 3: What is the relationship between academic outcomes and health promoting lifestyles in baccalaureate nursing students?

H$_1$3.1: Health promoting lifestyles are positively correlated with academic outcomes in baccalaureate nursing students.

Analysis:

To determine if there was a relationship between academic outcomes and health promoting lifestyles Pearson's correlations were used. Academic outcomes including TEAS V score, cumulative GPA, and nursing GPA were correlated with health promoting lifestyles. To determine the magnitude and strength of the relationships

scatter plots and Pearson correlation coefficients were calculated. The significance level was established at $p \leq 0.05$.

Research Question 4: What is the relationship between general self-efficacy and health promoting lifestyles in baccalaureate nursing students?

$H_1$4.1: Health promoting lifestyles are positively correlated with general self-efficacy in baccalaureate nursing students.

Analysis:

The relationship between health promoting lifestyles and general self-efficacy was considered. The literature documents a positive relationship between perceived self-efficacy and health promoting lifestyles; however not in this population. Therefore, Pearson's correlation was used to determine the relationship that was supported by the data in this population. To determine the magnitude and strength of the relationships, scatter plots were examined and Pearson correlation coefficients were calculated. The significance level was set at $p \leq 0.05$.

Research Question 5: What are the predictors of health promoting lifestyles in baccalaureate nursing students?

Analysis:

Structural equation modeling, path analysis was used for analysis. Path analysis is used to determine the goodness of fit between the hypothesized model to predict health promoting lifestyles and the sample data (Byrne, 2010). Specifically, the hypothesized model aligns partially with Pender's Health Promotion Model where health-promoting lifestyles are exogenously mediated by personal factors and endogenously moderated by self-efficacy, interpersonal influences, and situational influences. Path analysis allows for

simultaneous testing of the model and allows the researcher to determine the goodness of fit of the proposed model (Byrne, 2010). The analytical software package used for data analysis was IBM SPSS AMOS software (Arbuckle, 2012).

Variables considered in the model were those independent variables found to be significantly correlated with the overall health promoting lifestyle score including gender, BMI, health status, overall BDI II score, anticipated debt upon graduation, general self-efficacy, and social support as measured by the ISEL-CV. These variables were from the proposed model (Figure 1) that were found to be significantly correlated with health promoting lifestyles. The model is found in Figure 3 below.
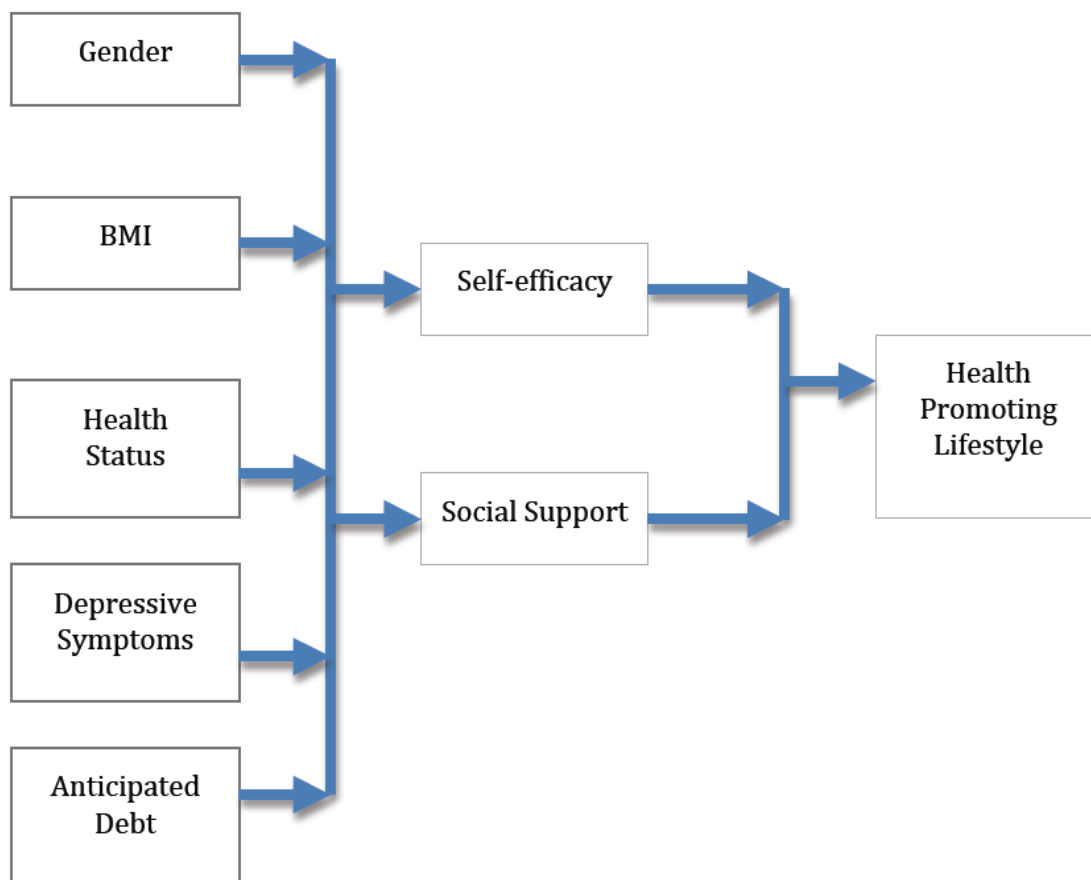
Figure 3: Path Analysis Model for Predicting Health Promoting Lifestyles

Inherent for this model to be used was consideration of how missing data was handled, how outliers were handled, how non-normality was managed, what model fit indices were used, how the model was evaluated, and how statistical power was determined post-hoc.

Model evaluation occurred by first considering the amount of variance in the endogenous variables accounted for by variables in the model. Residuals were determined to summarize the amount of variance not explained by the variables in the model. The goodness of fit of the model was determined using three fit indices. Chi Square was used first to test model fit. For the model to be a good fit, Chi Square should be statistically non-significant. The comparative fit index (CFI), an incremental model fit indices, was used and a value greater than 0.95 was considered to be a good fit. The Root Mean Square Error of Approximation (RMSEA), an absolute fit index, was also used, with a value of 0.08 would be significant to declare the model a good fit (Byrne, 2010).

Following model fitting, model adequacy was evaluated using regression weights, with determinations made regarding whether parameter estimates were statistically different from zero at a significance level of $p < .05$.

Chapter 4

Introduction

A descriptive cross-sectional study to consider predictors of health promoting lifestyles in baccalaureate nursing students drew a convenience sample from three private, faith-based universities in the Midwest. Students enrolled in junior and senior level nursing coursework were asked to participate in the study. Pender's Health Promotion Model was used to guide the study. A total of 330 students returned the surveys from a possible sample size of 575 (57.4%).

Participants from the three institutions were included as one sample. The three institutions were chosen for the purpose of increasing the sample size and representation of the sample population, baccalaureate-nursing students. The overall sample of baccalaureate nursing students from the three colleges was a broader representation of students enrolled in baccalaureate nursing programs. This potentially leads to greater generalizability of results. T-tests and Analysis of Variance (ANOVA) was used to determine if major variables in the study, including gender, age, BMI, depressive symptoms, overall social support, general self-efficacy, and health promoting lifestyles were significantly different between the three institutions. Of these variables, significant differences were found in age between the three schools. Students in colleges varied by age with the mean/median ages for each college (23.9/22, 29.1/28, and 22.2/21). Students in college two had more students over the age of 29 than either of the other two colleges. Students in colleges one and two did not differ significantly on any other major variables. Students in colleges two and three also differed significantly on BDI scores. However, when explored further the results showed that they differed only on the percentage whose

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scores were in the *moderate* range. College two and three differed on BMI and ISEL scores with students in college number two having higher ISEL scores and higher BMIs. Although significant differences were found in these variables, upon examination of each, it was determined that the differences supported the broader representation of the baccalaureate nursing student population. Of importance, there were no significant differences found between the three institutions and the dependent variable overall HPL score.

The study aimed to answer the following research questions: (1) What is the relationship between personal factors and health promoting lifestyles in baccalaureate nursing students? (2) What is the relationship between social support and health promoting lifestyles? (3) What is the relationship between academic outcomes and health promoting lifestyles in baccalaureate nursing students? (4) What is the relationship between general self-efficacy and health promoting lifestyles in baccalaureate nursing students? and (5) What are the predictors of health promoting lifestyles in baccalaureate nursing students?

Data from five survey tools was gathered using a demographic questionnaire, the Beck Depression Inventory II (BDI II), the Interpersonal Support Evaluation List College Version (ISEL-CV), the Generalized Self-Efficacy tool (GSE), and the Health Promoting Lifestyle Profile II (HPLP II). Data were entered into SPSS 21 for analysis. An initial check of every eleventh data set occurred, frequencies were examined for wild codes, boxplots were used to assess for outliers, and the data was cleaned. Decisions were made regarding managing missing values for each data set in accordance with recommendations from the tool developers and the literature. Out of 330 participants,

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three did not report height, which prevented the BMI calculation for those three participants. The determination was made to use the BMI data without management, listwise excluding those three participants. Only one participant did not report health status and the data was used without management. A weighted BDI II score was calculated using the weighted mean estimates as recommended by the developer, two scores were deleted from analysis due to insufficient responses (Beck et al., 1996). The data for the generalized self-efficacy was found to have no missing data. Five participants failed to respond to 50% of the items on the ISEL-CV, and these participant scores were listwise deleted. Cohen (1985) recommended that if 75% of the items were scored, the researcher could take the mean of all non-missing items and multiply by the total number of items on the scale. This method was used to impute missing values on the ISEL-CV with at least 75% of the data present. For the HPLP II overall score, Walker (2013) recommended that if more than 10% of the responses were missing, the cases should be listwise deleted. This was done for 15 cases with more than 10% of their responses missing. For the HPLP, each subscale was managed in the same manner when used in individual analyses.

Calculations of scores for each variable were computed, including subscales for the ISEL-CV and the HPLP II, and a severity index for the BDI II, within the working data sets. Following this process, variables for data analysis were merged into one data set.

The results of the study are presented including descriptive analysis of the data and bivariate parametric analysis of the five research questions. Analysis of the data included descriptive statistics to describe characteristics of the students and study

variables. Frequencies and percentages are documented for categorical variables. Means, ranges, and standard deviations of student's BDI II, ISEL-CV, GSE, and HPLP II are presented. Pearson's product moment correlation was used to examine relationships between continuous variables. Independent samples t-test was used to consider relationships between a categorical variable and a continuous variable, and path analysis was used to examine the predictors of health promoting lifestyles for baccalaureate nursing students.

Demographic description of the participants

Junior and senior level baccalaureate nursing students from three universities in the Midwest were asked to participate in the study. Table 4.1 provides information regarding the potential number of participants versus those who participated.

Table 4.1

Final Participant Numbers Versus Potential Participant Numbers By University

Identifier	Junior			Senior			Total		
	Total	Return	%	Total	Return	%	Total	Return	%
University 1	51	45	88	49	45	92	100	90	90
University 2	144	61	42	157	53	34	301	114	38
University 3	104	76	73	70	50	71	174	126	72
Totals	299	182	61	276	148	54	575	330	57

A total of 61% (n = 182) of the juniors' participated and 54% (n = 148) of the seniors participated for a total sample participation of 57% (n = 330).

Participants were asked if they were enrolled full time or part time in the nursing program. Ninety three percent (n = 306) were enrolled full time and seven percent (n =

22) were enrolled as part time students. Reports of gender found 18.2% (n = 60) males and 81.8% (n = 270) females. Race and ethnicity were combined and included 1.2% American Indian or Alaska Native (n = 4), 2.4% Asian (n = 8), 4.8% Black or African American (n = 16), 3.3% Hispanic (n = 11), 87% White (n = 287), and 0.9% other (n = 3). The majority of the students reported marital status as being single (73%; n = 241), with 21.5% married/partnered (n = 71), 4.2% divorced (n = 14), and 1.2% separated or other (n = 4). Age ranged from a minimum of 19 to a maximum of 53 with a mean of 25.34 (S.D. = 6.83). These statistics are summarized in Table 4.2.

Table 4.2

Descriptive Demographics

	Junior (n = 182)		Senior (n = 148)		Total (n = 330)	
Enrollment Status						
Full time	96.7%	(n = 174)	89.2%	(n = 132)	93.3%	(n = 306)
Part time	3.3%	(n = 6)	10.8%	(n = 16)	6.7%	(n = 22)
Gender						
Male	18.1%	(n = 33)	18.2%	(n = 27)	18.2%	(n = 60)
Female	81.9%	(n = 149)	81.8%	(n = 121)	81.8%	(n = 270)
Race/Ethnicity						
American Indian / Alaska Native	2.2%	(n = 4)	0.0%	(n = 0)	1.2%	(n = 4)
Asian	2.2%	(n = 4)	2.7%	(n = 4)	2.4%	(n = 8)
Black/African American	5.5%	(n = 10)	4.1%	(n = 6)	4.9%	(n = 16)
Hispanic	3.3%	(n = 6)	3.4%	(n = 5)	3.3%	(n = 11)
White	85.1%	(n = 154)	89.9%	(n = 133)	87.2%	(n = 287)
Other	1.7%	(n = 3)	0.0%	(n = 0)	0.9%	(n = 3)
Marital Status						
Single	69.8%	(n = 127)	77.0%	(n = 114)	73%	(n = 241)
Married/Partnered	23.6%	(n = 43)	18.9%	(n = 28)	21.5%	(n – 71)
Divorced	4.4%	(n = 8)	4.1%	(n = 6)	4.2%	(n = 14)
Separated/Other	2.2%	(n = 4)	0.0%	(n = 0)	1.2%	(n = 4)
Age						
Mean	25.57		25.02			
Standard deviation	51.39		39.53			

Other demographic variables revealed the largest percentage of students living either off campus (53.6%, n = 117) or in their parent's home (35.8%, n = 118), with 10.6% (n = 35) living in campus housing. The mean hours worked per week were 17.02 , with a 95% Confidence Interval (*CI*) of 15.76 to 18.29. When students were asked how

much debt they anticipated at the completion of their education, they reported a mean of $43,266, with a 95% *CI* between $40,233 and $46,300. Students were asked if their available income met their financial needs and 59.6% (n = 195) reported that their income did meet their current financial needs.

The registrar's office provided student's overall cumulative grade point average and nursing grade point average at each institution. The three nursing programs have similar academic policies with dismissal of students who receive below a 'C' in two nursing courses. Thus, the population is skewed towards higher GPAs' since students who have academic challenges are likely already dismissed from the programs. The mean overall cumulative grade point average was 3.27 (*SD* = .37). The mean nursing grade point average was 3.12 (*SD* = .42). Another academic measure that was requested from the registrar's office was the Test of Essential Academic Skills (TEAS). Colleges were initially selected using the TEAS as inclusion criteria. The three institutions confirmed that their junior and senior level students had taken the test. The TEAS measures the student's ability to be successful in nursing school and assists colleges in identifying academically at-risk students. The researcher intended to use TEAS scores as an additional academic variable to analyze consistency between TEAS scores and GPA. However, following data collection, it was determined that there was a significant amount of missing data for this academic measurement, mostly from one of the institutions. Student TEAS scores were available for only 64% (n = 213) of the sample and a determination was made to not utilize this academic measurement in the analysis.

Students reported their general health status as 16.4% excellent (n = 54), 40.7% very good (n = 134), 38% good (n = 125), 4.9% fair (n = 16), and no reports of poor

health. The mean for the student's body mass index (BMI) was 25.76 (*SD* = 5.53). The

Centers for Disease Control and Prevention (2011) categorize BMI ranges as: less

than18.5 is underweight, 18.5 – 24.9 is normal, 25 – 29.9 is overweight, and 30 and over

is obese. Students reported their height and weight on the demographic questionnaire and

BMI was calculated based on these self reported measurements. From these reports,

2.2% (n = 7) were underweight, 51.7% (n = 167) were normal weight, 26.6% (n = 86)

were overweight, and 19.5% (n = 63) were obese. When students were asked to describe

their weight, their perceptions varied from actual BMI calculations as follows: very

underweight 0.9% (n = 3), slightly underweight 5.2% (n = 17), about the right weight

49.7% (n = 164), slightly overweight 36.4% (n = 120), and very overweight 7.9% (n =

26). Of interest is the comparison between actual BMI and the student's perceived

weight category. Forty six percent (n = 146) of the BMI scores were either overweight or

obese and 44.3% (n = 146) of the students reported their weight as either slightly

overweight or very overweight. The major difference was between those who

categorized themselves as very overweight (7.9%, n = 26) and those whose BMI score

was in the obese category (19.5%, n = 63). Table 4.3 provides BMI by gender for the

student population.

Table 4.3

Student Body Mass Index by Gender

Gender	N	Underweight		Normal		Overweight		Obese	
		N	%	N	%	N	%	N	%
Male	59	1	1.7%	20	33.9%	23	39%	15	25.4%
Female	264	6	2.3%	147	55.7%	63	23.9%	48	18.2%
Total	323	7	2.2%	167	51.7%	86	26.6%	63	19.5%

Substance use, including tobacco, alcohol, and street drugs, was also considered. Students were asked to report tobacco use and 14.5% (n = 282) reported regular use of tobacco products. Use of alcohol was more widespread among the students, with 68.5% (n = 226) of the students reporting regular alcohol use. Street drug use was also asked, with only 1.5% (n = 5) of the students reporting current street drug use.

Additionally, the students were asked about currently diagnosed and treated mental health disorders including depression, bipolar disorder, anxiety disorder, post traumatic stress disorder, attention deficit hyperactivity disorder, and schizophrenia. Although 15 students did not respond to the question, of the remaining sample, 18.7% (n = 59) of the students reported a current diagnosis of a mental health disorder. Similarly, 19% (n = 61) of the students reported they were currently seeking treatment with medication, therapy, or a combination of both.

The Beck Depression Inventory II (BDI II) (Beck et al., 1996) was administered to determine presence of depressive symptoms reported by participants. The Cronbach's alpha for the BDI II in this study was .92 for the 21-item tool. Scores ranged between 0 – 39 (out of a possible total score of 63), with higher scores representing a higher level of

depressive symptoms reported. The mean score was 9.5 (SD = 8.22, n = 328), which is within the minimal level of depressive symptomatology (minimal = 0-13). However, 15.5% (n = 51) reported mild depressive symptoms; 10.4% (n = 34) reported moderate depressive symptoms; and 2.4% (n = 8) reported severe depressive symptoms as may be seen in Table 4.4. In summary, 28.3% (n = 93) of the participants reported mild to severe depressive symptoms.

Table 4.4

Depressive Symptoms from Beck Depression Inventory II

Level	Score	Junior		Senior		Total	
		N	%	N	%	N	%
Minimal	(0-13)	128	70.7%	107	72.8%	235	71.6%
Mild	(14-19)	29	16.0%	22	15.0%	51	15.5%
Moderate	(20-28)	19	10.5%	15	10.2%	34	10.4%
Severe	(29-63)	5	2.8%	3	2.0%	8	2.4%

Social support was measured using the Interpersonal Support Evaluation List College Version (ISEL CV) (Cohen et al., 1985). Students respond either "probably true" or "probably false" to 48 questions regarding social support items specific to college students. Scores are totaled and a mean score is determined, with a score closer to one representing higher levels of social support. Four subscales, including tangible, belonging, appraisal, and self-esteem are also determined. The Cronbach's alpha for the overall ISEL CV was .90, with subscales as follows: tangible was .78, appraisal was .84,

belonging was .75, and self-esteem was .68. The overall ISEL CV mean score was .77
(*SD* = .16), with subscale scores found below in Table 4.5.

Table 4.5

Social Support as Reported on Interpersonal Support Evaluation List College Version

Social Support Variable	Mean	*SD*	95% CI
Overall Support	.77	.16	.76 – .79
Tangible	.86	.18	.84 – .88
Belonging	.66	.22	.63 – .68
Appraisal	.85	.20	.83 – .87
Self-Esteem	.73	.18	.71 - .75

General self-efficacy was measured using the tool from Schwarzer and Jerusalem
(1995). Students score the questions from "not at all true" to "exactly true" (scores from 1
– 4) with higher mean scores indicating higher levels of general self-efficacy. The
Cronbach's alpha for the GSE was .90 for the 10-item tool. Nursing students' mean score
was 3.3 (*SD* = .44; *CI* = 3.28, 3.37).

The health promoting lifestyle score was calculated by totaling the 52 responses
on the HPLP II and dividing the score by the total number of items (Pender, Walker,
Sechrist, & Stromborg, 1988). Students responded to the items on a Likert scale as either
"never," "sometimes," "often," or "routinely." These scores were converted to outcomes
1 – 4, with higher scores indicative of routinely performing the behavior. Means and

standard deviations were calculated for the overall lifestyle score and for the six subscales, including health responsibility, interpersonal relations, nutrition, physical exercise, spiritual growth, and stress management. Cronbach's alpha for the subscales of the HPLP II ranged from .80 to .84, with a Cronbach's alpha of .95 for the entire tool. Minimum and maximum scores, means, standard deviations, and 95% confidence intervals are provided in Table 4.6 for the overall and subscale scores. Of the 330 study participants, 30 student participants were not utilized in the analysis since 10% or more of their responses were missing (Walker, 2013). For this population of student nurses, the overall health promoting lifestyle mean score was 2.79 (*SD* = .47). Subscale scores went from the highest mean score in Interpersonal Relations (*M* = 3.30, *SD* = .51) to the lowest mean score for Physical Activity (*M* = 2.46, *SD* = .74).

Table 4.6

Summary of Health Promoting Lifestyles for Study Participants (n = 300)

HPLP II Variable	Min	Max	*M*	*SD*	95% *CI*
Overall	1.60	3.92	2.79	.47	2.73 – 2.84
Health Responsibility	1.11	4.00	2.51	.59	2.44 – 2.58
Physical Activity	1.00	4.00	2.46	.74	2.38 – 2.54
Nutrition	1.00	4.00	2.62	.56	2.56 – 2.69
Spiritual Growth	1.33	4.00	3.26	.54	3.20 – 3.32
Interpersonal Relations	1.56	4.00	3.30	.51	3.24 – 3.35
Stress Management	1.00	4.00	2.50	.61	2.43 – 2.57

Results Research Question 1

The first research question, "What is the relationship between personal factors and health promoting lifestyles in baccalaureate nursing students?" led to the formation of three hypotheses:

H_0 1.1: Health promoting lifestyles are not significantly influenced by age, gender, and BMI in baccalaureate nursing students.

$H_0$1.2: Health promoting lifestyles are not significantly influenced by health status and depressive symptoms in baccalaureate nursing students.

$H_0 1.3$: Health promoting lifestyles are not significantly influenced by race/ethnicity, financial resources, relationship status, and living situation in baccalaureate nursing students.

The relationship between health promoting lifestyles and the biological personal factors of gender, age, and BMI in baccalaureate nursing students was examined first. Gender, a nominal level categorical variable was examined using a two-sample t-test. The null hypothesis states that health-promoting lifestyles are not significantly influenced by gender. The first assumption for the t-test is met in that gender, the independent variable, is a dichotomous nominal-level variable and health promoting lifestyle, the dependent variable is an interval level variable. Although the sample was a convenience sample, the population was drawn from three institutions in the Midwest and therefore, although not random, represents the population of baccalaureate nursing students who were willing to participate in the study.

Normality, the second assumption, is presumed for the dependent variable for both populations. Examination of histograms found bell-shaped curves indicating normality of distribution for both males and females. Before the t-test is run, Levene's Test for Equal Variances was completed. For this test, the Levene's Test result was not significant, so the variances of the two groups are equal, $(F(1, 313) = .22, p = .64)$; therefore, the pooled procedure was completed.

To test the hypothesis that health-promoting lifestyles are not significantly influenced by gender, a two sample independent t-test was conducted. This test was found to be statistically significant, $t(313) = 3.0, p < .001$. The 95% confidence interval (*CI)* between .07 and .33 demonstrates a mean difference between males (*M* = 2.96, *SD* =

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.47) and females (*M* = 2.76, *SD* = .46) health promoting lifestyle overall score, indicating

that the average male HPL score is higher than the average female score. Males had

higher mean scores on four of the six subscales including physical activity, nutrition,

spiritual growth, and stress management as may be seen in Table 4.7.

Table 4.7

Health Promoting Lifestyles and Gender

Health Promoting Lifestyle	Gender	N	*M*	*SD*	*p*	CI
Overall	Male	58	2.96	.47	.003**	.07 - .33
	Female	257	2.76	.46		
Health Responsibility	Male	57	2.59	.64	.243	-.07 - 27
	Female	255	2.49	.58		
Physical Activity	Male	58	2.72	.78	.005**	.09 - .51
	Female	251	2.42	.72		
Nutrition	Male	58	2.77	.63	.043*	.01 - .33
	Female	255	2.60	.55		
Spiritual Growth	Male	58	3.43	.48	.011**	.05 - .36
	Female	256	3.23	.55		
Interpersonal Responsibility	Male	58	3.40	.46	.117	-.03 - .26
	Female	256	3.28	.52		
Stress Management	Male	58	2.79	.54	.000**	.19 - .53
	Female	255	244	.61		

**p ≤ .05, (2-tailed)
**p ≤ .01, (2-tailed)

Further examination to determine the association between health-promoting

lifestyles and age and BMI was completed using the Pearson Product-Moment

Correlation coefficient (Pearson's *r*). Assumptions for this analysis include interval or

ratio level variables, variables approximately normally distributed, linear relationship between the variables, and outliers kept to a minimum or removed (Polit, 2010). Age, BMI, and health promoting lifestyle overall scores are interval or ratio level data. Scatter plots were used to confirm that the variables HPL, BMI, and age have relatively linear relationships with no issues with outliers. Examination of the histograms found approximate symmetric curves for each of the variables, indicating the normality assumption was not violated. The correlation between overall health promoting lifestyles and age was not significant, Pearson's r (311) = -.065, p = .255. However, there was a negative correlation between overall health promoting lifestyles and BMI that was significant, Pearson's r (309) = -.244, p = .000 as may be seen in Table 4.8 below. Correlational analysis was also conducted between age and the HPLP subscales. These findings are found in Table 4.9. Although the overall HPL and age were not significantly related, significant findings were found with age and the HPLP subscales physical activity, Pearson's r (305) = -.141, p = .014; interpersonal relations, Pearson's r (310) = -.127, p = .024; and stress management, Pearson's r (309) = -.121, p = .033.

Table 4.8

Correlations between Health Promoting Lifestyles, Age, and Body Mass Index

Independent Variables	1	2	3
1. HPLP Score (n = 315)	1.00	-.065	-.244**
2. Age (n = 327)		1.00	.288**
3. BMI (n = 325)			1.00

* $p \le .05$, (2-tailed)
** $p \le .01$, (2-tailed)

Table 4.9

Correlations Between Health Promoting Lifestyles and Age

Variables	1	2	3	4	5	6	7	8
1.HPL overall (n = 313)	1.00	.800**	.757**	.798**	.806**	.770**	.833**	-.065
2.Health Responsibility (n = 310)		1.00	.485**	.610**	.565**	.553**	.583**	.056
3.Physical Activity (n = 307)			1.00	.641**	.426**	.338**	.602**	-.141*
4.Nutrition (n = 311)				1.00	.482**	.453**	.586**	.039
5.Spiritual Growth (n = 312)					1.00	.806**	.619**	-.014
6.Interpersonal Responsibility (n = 312)						1.00	.602**	-.127*
7.Stress Management (n = 311)							1.00	-.121*
8.Age (n = 328)								1.00

** $p < .01$, (2-tailed)
 * $p < .05$, (2-tailed)

The first hypothesis, that health-promoting lifestyles are not significantly influenced by age, gender, and BMI is partially rejected since health-promoting lifestyles are significantly influenced by gender and BMI. However, health-promoting lifestyle is

not significantly correlated with age and the null hypothesis for this personal biological

factor, age, is not rejected.

The second hypothesis, health-promoting lifestyles is not significantly influenced

by health status and depressive symptoms in baccalaureate nursing students was

examined. Since both health status and depressive symptoms are interval level data,

Pearson's correlation was used for analysis. Table 4.10 shows the correlations among

health status, depressive symptoms and health promoting lifestyles. There were

significant positive correlations between health promoting lifestyles and health status,

Pearson's r (312) = .499, p =.001. This suggests that individuals who report higher levels

of positive health status also report higher levels of health promoting lifestyles.

Significant negative correlations were found between depressive symptoms as reported

on the BDI II and health promoting lifestyles, Pearson's r (313) = -.561, p =.001. There

was enough statistical evidence to indicate an inverse relationship between perceived

higher levels of health promoting lifestyles and reported depressive symptomatology.

Individuals with more depressive symptoms report being engaged in fewer health

promoting lifestyle behaviors. The null hypothesis was rejected.

Table 4.10

Correlations between Health Promoting Lifestyle, Health Status, and Depressive Symptoms

Independent Variables	1	2	3
1. HPL (n = 315)	1.00	-.499**	-.561**
2. Health Status (n = 314)		1.00	-.407**
3. Depressive Symptoms (n = 327)			1.00

* $p \leq .05$, (2-tailed)
** $p \leq .01$, (2-tailed)

The third hypothesis, health-promoting lifestyles are not significantly influenced by race/ethnicity, financial resources, relationship status, and living situation in baccalaureate nursing students was analyzed using independent samples t-tests. For all the following t-tests, the assumptions were checked with no violations. Eighty-seven percent of the sample reported white (n = 287) for race. Race and ethnicity categories were combined with 1.2% American Indian or Alaska Native (n = 4), 2.4% Asian (n = 8), 4.8% Black or African American (n = 16), 3.3% Hispanic (n = 11), 87% White (n = 287), and 0.9% other (n = 3). Based on these findings, the decision was made to recode race into 'white' or 'nonwhite'. The independent sample t-test found no significant difference in health promoting lifestyles between students who reported white race and those who reported non-white race, $t(312) = .421$, $p = .67$.

Students were asked to respond 'yes' or 'no' regarding whether their financial resources met their financial needs. There was a significant difference found in health

promoting lifestyles between students who reported their financial needs were met and those who reported their financial needs were not met, $t(311) = 2.571$, $p = .011$. There is enough statistical evidence to indicate that students who reported their financial needs were met also scored overall higher health promoting lifestyles. The 95% confidence interval (CI) between .03 and .24 demonstrates a mean difference in health promoting lifestyle overall scores between students whose financial needs are met ($M = 2.85$, $SD = .42$) and those whose financial needs are not met ($M = 2.71$, $SD = .52$). There is 95% confidence that students whose financial needs are met will have average HPL scores between .03 and .24 points higher than students whose financial needs are not met.

For relationship status, students were asked to report if they were single, married/partnered, divorced, or separated. Numbers of divorced and separated students represented only 5% of the sample and were recoded as part of the single group. An independent sample t-test was used to determine if there was a significant difference in health promoting lifestyles between single and married/partnered students. No significant difference was found in health promoting lifestyle scores between students who are single and those who are married, $t(298) = -.239$, $p = .811$.

Finally, living situation was considered as a variable that could potentially influence health-promoting lifestyles. Students were asked to report if they lived in the campus residence halls (9.4%, $n = 31$), other campus housing (1.2%, $n = 4$), off-campus housing (53.6%, $n = 177$), or parent's home (35.8%, $n = 118$). For analysis, responses were recoded as parent's home or other housing. There were no significant differences found using an independent two sample t-test, $t(313) = -.735$, $p = .463$.

Therefore, for the third hypothesis, the null hypothesis was not rejected for all variables (race, relationship status, and living situation) except for financial resources where a significant difference was determined in health promoting lifestyles with students who report financial needs met having significantly higher health promoting lifestyle scores than those whose need is not met.

Results Research Question 2

The second research question, "What is the relationship between social support and health promoting lifestyles in baccalaureate nursing students?" led to the formation of the directional alternative hypothesis: $H_1 2.1$: Health promoting lifestyles are positively correlated with social support in baccalaureate nursing students. This directional hypothesis is supported by the literature indicating positive associations between strong social support and health promoting lifestyles (Jackson et al., 2007; Ross et al., 2006). The analysis was conducted using the Pearson Product-Moment Correlation coefficient (Pearson's r) using a one-tailed statistical test. Assumptions for this analysis include interval or ratio level variables, variables approximately normally distributed, and a linear relationship between the variables (Polit, 2010). All assumptions for this correlation test were met. The correlation between overall health promoting lifestyles and overall social support was moderately strong, Pearson's r (313) = .569, p = .000 may be seen in Table 4.11 below. Additionally, health promoting lifestyles and all subscales of the health promoting lifestyle were statistically significantly correlated, with the strongest positive correlation found between social support and interpersonal relationships, Pearson's r (312) = .653, p = .000. All subscales had at least a moderately strong significant relationship with the weakest relationship between social support and physical exercise

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scores, Pearson's *r* (311) = .307, *p* = .000. This implies that students with less social

support report lower levels of engaging in physical exercise.

Table 4.11

Correlations Between Health Promoting Lifestyles and Social Support

Variables	1	2	3	4	5	6	7	8
1. HPL overall (n = 315)	1.00	.800**	.757**	.798**	.806**	.770**	.833**	.569**
2. Health Responsibility (n = 312)		1.00	.485**	.610**	.565**	.553**	.583**	.362**
3. Physical Activity (n = 309)			1.00	.641**	.426**	.338**	.602**	.307**
4. Nutrition (n = 313)				1.00	.482**	.453**	.586**	.351**
5. Spiritual Growth (n = 314)					1.00	.806**	.619**	.611**
6. Interpersonal Responsibility (n = 314)						1.00	.602**	.653**
7. Stress Management (n = 313)							1.00	.475**
8. Social Support (n = 315)								1.00

** *p* < .01, (1-tailed)

Social support and health promoting relationships are significantly correlated.

Results Research Question 3

The third research question, **"**What is the relationship between academic outcomes and health promoting lifestyles in baccalaureate nursing students?" was analyzed using Pearson Product Moment Correlational analysis as well. The alternative directional hypothesis, $H_1 3.1$: "Health promoting lifestyles are positively correlated with academic outcomes in baccalaureate nursing students" was made based on literature findings where a positive relationship was found between academic outcomes and health promoting lifestyles (Can et al., 2008). This was the reason for the alternative directional hypothesis and for using Pearson's r with a one-tailed direction. All assumptions for this correlation test were met. The correlations between overall health promoting lifestyles and cumulative and nursing GPA were not found to be significant, cumulative GPA Pearson's r (306) = .011, p = .421, and nursing GPA Pearson's r (306) = -.005, p = .463. Of interest, even though the overall HPL score was not significant for either cumulative GPA or nursing GPA, one subscale score of the HPLP II was significantly correlated with both cumulative GPA and nursing GPA. The nutrition subscale was positively correlated with cumulative GPA, Pearson r (304) = .131, p = .011 and nursing GPA, Pearson r (304) = .117, p = .021. Students who reported more activities associated with the HPL nutritional subscale, also had higher GPA's.

Even though no correlation was found between HPL and GPA's, one noteworthy finding was that the health promoting lifestyle nutritional subscale was positively correlated with grade point average. This finding demonstrates that students' who have higher grade point averages, also report more nutritionally healthy behaviors.

Results Research Question 4

Pearson Product Moment Correlation (Pearson's *r*) was used to analyze the research question, "What is the relationship between general self-efficacy and health promoting lifestyles in baccalaureate nursing students?" A directional alternative hypothesis was used for this question, "H_1.4.1: Health promoting lifestyles are positively correlated with general self-efficacy in baccalaureate nursing students." A positive relationship exists between self-efficacy and health promoting lifestyles in the literature (Jackson et al., 2007; Maglione & Hayman, 2009; Von Ah et al., 2004). All assumptions were met which included interval level data, a normal distribution for each variable, and linearity between the variables. The correlation between overall health promoting lifestyles and general self-efficacy was moderately strong, Pearson's r (313) = .561, p = .000 and may be seen in Table 4.12 below. The strongest correlation found was between the health promoting lifestyle spiritual growth subscale and general self-efficacy, Pearson's r (312) = .638, p = .000. The weakest correlation was between the health promoting lifestyle physical activity subscale and general self-efficacy, Pearson'r (307) = .270, p = .000.

Health promoting lifestyles and general self-efficacy are moderately correlated.

Table 4.12

Correlations Between Health Promoting Lifestyles and General Self-Efficacy

Variable	HPL (n = 315)	HR (n = 312)	PA (n = 309)	NU (n = 313)	SG (n = 314)	IR (n = 314)	SM (n = 313)
Self-Efficacy	.561**	.415**	.270**	.377**	.638**	.511**	.494**

** $p < .01$, (1-tailed)
HPL – Health Promoting Lifestyle; HR – Health Responsibility; PA – Physical Activity; NU – Nutrition; SG – Spiritual Growth; IR – Interpersonal Relations; SM – Stress Management

Results Research Question 5

The final research question, "What are the predictors of health promoting lifestyles in baccalaureate nursing students?" was analyzed using path analysis. Path Analysis was used to illustrate patterns of correlation/covariance among variables and to explain as much of their variance as possible with a specified model (Byrne, 2010). A recursive model, one that is unidirectional, was used to illustrate how the relationships of the variables in the model (Figure 1) were used to predict health-promoting lifestyles in baccalaureate nursing students. The model proposes that there is a causal flow from a set of exogenous variables, gender, BMI, health status, depressive symptoms, and projected debt, through intervening variables, self-efficacy and social support, to an outcome dependent variable, health-promoting lifestyle. The AMOS IBM SPSS program was used for analysis (Wuensch, 2009). The path model diagrams presented below identify the parameters using abbreviations. Body mass index is labeled as BMI. Health status is labeled as Health. Depressive symptoms are labeled as BDI and were measured using the BDI II. Self-efficacy was measured using the GSE. Social support is labeled as support

and was measured using the ISEL-CV. Health promoting lifestyle is labeled as HPLP and was measured using the HPLP II.

Prior to running the path analysis, the data was screened for missing values and outliers. The IBM SPSS AMOS software package manages missing values by using maximum likelihood estimation (Tabachnick & Fidell, 2007). Multivariate outliers were evaluated using Mahalanobis distance. The Mahalanobis Distance is a multivariate outlier detection procedure (Tabachnick & Fidell, 2007). The Mahalanobis Distance statistic follows a chi-square distribution with the degrees of freedom equal to the number of variables included in the calculation. This statistic requires that the variables be an interval or ordinal level variable. In the case of a multivariate outlier, the probability associated with the Mahalanobis Distance statistic is less than .001. Using the final variables in the Path Analysis model, this procedure yielded 3 possible outliers. These outliers were identified and examined, but were not deleted from the Path Analysis model. The BDI score for these three cases were well above the average for the sample.

Assumptions important to path analysis that were addressed include linearity, additivity, interval level data, multicollinearity, over identification, proper specification of the model for interpretation of path coefficients, appropriate correlation input, and adequate sample size.

Linearity of the key variables was evaluated using scatter plots. The variables were determined to be linear based on the scatter plots when examined in relation to the dependent variable HPLP. The model is additive in nature as no interaction effects were explored. The variables were all interval level data excluding health status, which was ordinal level. However, it was determined that the variable would be used in the model

and could be treated as interval level since responses had five levels and health status had

a relative linear relationship with the other interval level variables (Polit, 2010). The

possibility of multicollinearity was examined by entering the model variables into a

multiple regression model. Tolerance was examined for the variables, with the lowest

tolerance for the variables found to be .560 for BDI. This tolerance result demonstrates

that there was not a problem with multicollinearity, as the default for excluding a

multicollinear variable within SPSS is .10 (Polit, 2010).

       Other assumptions that were checked included assuring that the model was

overidentified, meaning that better estimates of the underlying true values are presented

(Suhr, 2008). There were 3 degrees of freedom assuring that the model is overidentified.

Proper specification of the model is important for the interpretation of path coefficients

(Suhr, 2008). For this study, the initial model was not appropriately specified based on

the fit indices. The model was respecified and the fit indices indicated a good model,

allowing for interpretation of the path coefficients. Appropriate correlation input was

assured using Pearsonian correlation to analyze the correlations between model

parameters as found in Table 4.13. The original model was specified using gender, BMI,

health status, depressive symptoms, anticipated debt, self-efficacy, and social support

based on these findings.

Table 4.13

Correlations Between Health Promoting Lifestyles and Path Model Variables

Variables	1	2	3	4	5	6	7	8
1. HPL (n = 315)	1.00	-.167**	-.244**	.499**	-.561**	-.122*	.561**	.569**
2. Gender (n = 315)		1.00	-.117*	-.234**	.172**	.058	-.246**	-.106
3. BMI (n = 326)			1.00	-.340**	.138**	.098	-.094	-.211**
4. Health Status (n = 329)				1.00	.407**	-.097	.322**	.324**
5. BDI (n = 328)					1.00	.137*	-.489**	-.566**
6. Debt (n = 302)						1.00	-.072	-.090
7. Self-efficacy (n = 330)							1.00	.530**
8. Social Support (n = 315)								1.00

 * $p \leq .05$, (2-tailed)
** $p \leq .01$, (2-tailed)

Based on the original path model, 27 parameters are to be estimated. It is recommended that 10-20 cases per parameter estimate be used to generate enough power (Byrne, 2010). In this study, 330 cases were recruited, thus, yielding enough power with a ratio of 12.2 cases/parameter estimate.

The final assumption, use of the same sample for the key variables was met. Based on the method of managing missing data, maximum likelihood estimation, the

same sample was utilized for analysis of key variables in the model. The mean, standard deviation, and range of key variables are represented in Table 4.14.

Table 4.14

Mean, Standard Deviation, and Range of Key Variables

Variable	Mean	(SD)	Actual Range	Possible Range
BMI	25.76	5.53	16.95 – 48.19	> 0
Health Status	3.69	0.80	2 – 5	1 – 5
BDI II	9.53	8.22	0 – 39	0 – 63
Anticipated Debt	43,324	27,755	0 – 200,000	≥ 0
GSE	3.33	0.44	1.5 – 4	0 – 4
ISEL CV	0.77	0.16	0.08 – 1.00	0 – 1
HPLP II	2.79	0.47	1.6 – 3.92	1 – 4

The initial model was run using the AMOS software. Results indicated that two of the parameters were not significant, including gender and anticipated debt. The model was respecified with these parameters removed from the model.

The model was run again using the AMOS software with the results found in Figure 4. As may be seen on this initial model, there was no relationship demonstrated between social support and self-efficacy.
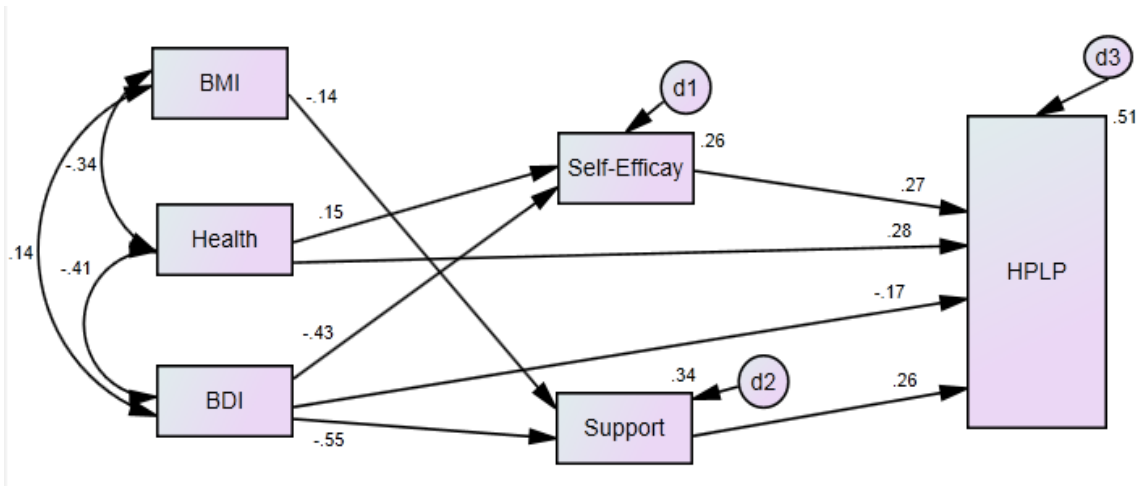
Figure 4: Health Promoting Lifestyle Path Initial Model without Relationship Between Self-efficacy and Support.

Table 4.15 shows results of this initial model (without an arrow to represent the relationship between social support and self-efficacy) including unstandardized path coefficients with their respective standard errors, critical ratios, p-values, and standardized path coefficients.

Table 4.15

Maximum Likelihood Estimates for the Recursive Path Model

Parameter	Unstandardized	SE	CR	*p*	Standardized
GSE Mean <---Health	.079	.029	2.784	.005	.145
ISEL Overall <---BMI	-.004	.001	-2.953	.003	-.135
ISEL Overall <---BDI Score	-.010	.001	-11.991	***	-.548
GSE Mean <---BDI Score	-.023	.003	-8.270	***	-.431
HPLP Score <---GSE Mean	.285	.048	5.885	***	.270
HPLP Score <---ISEL Overall	.770	.142	5.428	***	.261
HPLP Score <---BDI Score	-.010	.003	-3.157	.002	-.172
HPLP Score <---Health	.160	.025	6.312	***	.277

*** $p < .001$

Based on this model, the HPLP outcome was predicted directly by health status (standardized coefficient = .28, $p < .001$), depressive symptoms (standardized coefficient = -.17, $p < .001$), self-efficacy (standardized coefficient = .27, $p < .001$), and support (standardized coefficient = .26, $p < .001$).

Indirect effects of the intervening variables, self-efficacy and support, were evaluated using the Sobel test that has more power when examining intervening variables than the mediating variable approach (Tabachnick & Fidell, 2007). A free on-line Sobel calculator was used to determine the significance of the intervening variables self-efficacy and support (Sobel, 1982; Soper, 2013). Self-efficacy served as an intervening

variable between health (standardized indirect effect coefficient = .145, $p < .01$), BDI

(standardized indirect effect coefficient = -.431, $p < .001$) and HPLP. Support served as

an intervening variable between BDI (standardized indirect effect coefficient = -.548, $p <$

.001) and HPLP. Table 4.16 represents the Sobel test statistic and significance.

Table 4.16

Sobel Results for Intervening Variables in Path Model

Intervening Variables	Sobel Test Statistic	Two-tailed Probability
Health → Self-efficacy → HPLP	2.48	.01**
BDI → Self-efficacy → HPLP	4.69	.001***
BDI → Support → HPLP	4.77	.001***

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

Together these variables accounted for 51% ($R^2 = .51$) of the explained variance

in health promoting lifestyles. For this model, the significant standardized direct and

indirect effects are presented in Table 4.17.

Table 4.17

Standardized Direct, Indirect, and R^2 Values for the Path Model (only significant results shown) and Respecified Path Model (AMOS results).

	Direct effect: from → to					
Model	BMI → Support	Health → Self-efficacy	Health → HPLP	BDI → Self-efficacy	BDI → Support	BDI → HPLP
Initial	-.14	.14	.27	-.431	-.55	-.17
Respecified	-.14	.11	.27	-.25	-.55	-.17

	Indirect effect: from → to					
	BMI → Support → HPLP	Health → Self-efficacy → HPLP	BDI → Self-efficacy → HPLP	BDI → Support → HPLP	BDI → Support → Self-efficacy → HPLP	R^2
Initial	-.04	.04	-.12	-.14	--	.51
Respecified	-.04	.03	-.01	-.14	-.05	.52

Analysis of the goodness of fit of this model includes consideration of the Chi-square, CFI, and RMSEA indices. Chi-Square goodness of fit is used to test the null hypothesis that the over-identified (reduced) model fits the data as well as just-identified

(full) model. The Chi-square goodness of fit results (χ^2 (4) = 46.082, p = .000), indicated

that the model is not a good fit, the null hypothesis is accepted.

Other goodness of fit indices were also indicative of a poor model fit, including

the CFI (.928) and the RMSEA (.179). With these goodness of fit results, review of the

model in comparison to the literature led to recognition that the model should be

respecified to define a relationship between social support and self-efficacy. The model

was respecified and analyzed again using the IBM SPSS AMOS software, Figure 5.
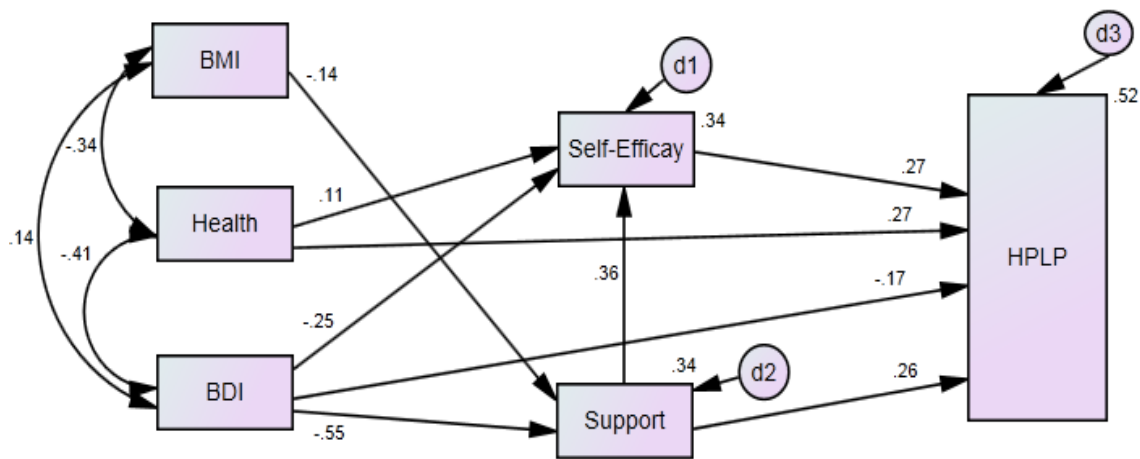
Figure 5: Health Promoting Lifestyle Respecified Path Model

Table 4.18 provides results of model analysis including unstandardized path

coefficients with their respective standard errors, critical ratios, p-values, and

standardized path coefficients.

Table 4.18

Maximum Likelihood Estimates for the Recursive Respecified Path Model

Parameter	Unstandardized	SE	CR	*p*	Standardized
ISEL Overall <---BMI	-.004	.001	-2.956	.003	-.135
ISEL Overall <---BDI Score	-.010	.001	-11.999	***	-.548
GSE Mean <---Health	.058	.027	2.172	.030	.107
GSE Mean <---BDI Score	-.013	.003	-4.267	***	-.246
GSE Mean <---ISEL Overall	.998	.153	6.522	***	.357
HPLP Score <---GSE Mean	.285	.051	5.538	***	.266
HPLP Score <---ISEL Overall	.770	.151	5.103	***	.257
HPLP Score <---BDI Score	-.010	.003	-3.299	***	-.169
HPLP Score <---Health	.160	.025	6.339	***	.273

*** $p < .001$

Based on this model there are direct, indirect, and total effects that are predictive of health promoting lifestyles, much the same as there were with the first model. One additional indirect path was added to the model through respecification. This was the path from BDI to health promoting lifestyles through both mediating parameters, demonstrating the relationship between support and self-efficacy (standardized coefficient = .36, $p < .001$).

Indirect effects of the intervening variables, self-efficacy and support, were evaluated using the Sobel test (Soper, 2013; Tabachnick & Fidell, 2007). Self-efficacy served as an intervening variable between health (standardized indirect effect coefficient = .107, $p < .05$), BDI (standardized indirect effect coefficient = -.246, $p < .001$), social support (standardized indirect effect coefficient = .357, $p < .001$) and HPLP. Support served as an intervening variable between BDI (standardized indirect effect coefficient = -.548, $p < .001$) and HPLP. Table 4.19 represents the Sobel test statistic and significance.

Table 4.19

Sobel Results for Intervening Variables in Respecified Path Model

Intervening Variables	Sobel Test Statistic	Two-tailed Probability
Support → Self-efficacy → HPLP	4.24	.001***
Health → Self-efficacy → HPLP	2.01	.045*
BDI → Self-efficacy → HPLP	3.42	.001***
BDI → Support → HPLP	4.54	.000***

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

Together these parameters in the respecified model accounted for slightly more of the explained variance in health promoting lifestyles than the original model 52% ($R^2 = .52$). For this model, the significant standardized direct and indirect effects are presented in Table 4.17 above. The indices of fit used to determine if the model was a good fit

included Chi-Square, CFI, and RMSEA. The model was determined to be a good fit

using these three indices. The Chi-Square goodness of fit test for the model results was

(χ^2 (3) = 6.463, p = .091). The results are not significant at the p < .05 level, indicating

that the model is a good fit since the Chi-square goodness of fit results were not

significant. A non-significant Chi-square result implies that the model-implied

covariance matrix does not differ from the observed covariance matrix (Suhr, 2008). Two

other indices of fit, CFI and RMSEA were examined to confirm the goodness of fit.

Table 4.20 identifies the differences in values between the initial model and the

respecified model and confirms the Chi-square statistic that the respecified model is a

good fit.

Table 4.20

CFI and RMSEA Comparison Between Initial Model and Respecified Model

Model	CFI	RMSEA
Initial	.928	.179
Respecified	.994	.059

Statistically BMI had a negative effect on social support, with those reporting

higher BMI's having lower levels of social support. Body mass index had no direct

effect on health promoting lifestyles, but did have a direct negative effect on support.

This implies that those individuals who have higher BMI's, have less social support.

Health status had a direct effect on health promoting lifestyles and an indirect mediating

effect through self-efficacy. Individuals, who reported lower levels of health status, yet

had higher levels of self-efficacy, likely engaged in more health promoting lifestyles.

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Depressive symptoms had a negative direct effect on health promoting lifestyles and indirect effects through both mediating variables self-efficacy and social support. The more depressive symptoms reported by participants, the lower their self-efficacy and social support. Additionally, individuals who do report more depressive symptoms, yet have more social support and higher levels of self-efficacy will likely engage in more health promoting lifestyle behaviors based on the model outcomes.

Summary

Understanding the variables that are associated with health promoting lifestyles in undergraduate nursing students allowed a path model to be constructed that was guided by Pender's Health Promotion Model. Significant findings were determined between personal factors and health promoting lifestyles including gender, BMI, health status, depressive symptoms, and perception that financial needs are met. Males had higher HPL than did females. An inverse relationship was found between BMI and HPL, with individuals who have higher BMI's scoring lower HPL's. Individuals who reported good to excellent health status also reported higher HPL scores. Depressive symptoms and HPL's had an inverse relationship with individuals who reported more depressive symptoms reporting lower HPL scores. Students, who reported that their financial needs were met, responded with a higher HPL score.

On the portion of Pender's model that demonstrates behavior-specific cognitions and affect, three variables were measured and analyzed. Self-Efficacy was strongly correlated with HPL's, with the strongest correlation found between the subscale spiritual growth and HPL. The weakest correlation was between self-efficacy and the HPL physical activity subscale. The interpersonal influence of social support, as measured by

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the ISEL-CV, was strongly correlated with HPL, with the strongest correlation with the HPL subscale interpersonal relations and the weakest correlation with physical activity. There was no significant correlation found between the situational influence of academic GPA with HPL overall scores and most subscales. One point of interest was the significant correlation found between the HPL nutrition subscale and GPA. Students with higher GPA's, both cumulative and nursing, scored higher on the nutrition HPL subscale.

The final research question considered a path analysis model to predict nursing student health promoting lifestyle behaviors. Once the model was respecified, a good fit was found with direct and indirect effects explaining 52% of the variance in HPL's. Direct effects were found between health status, depressive symptoms, self-efficacy, and support and HPL. Indirect effects occurred with self-efficacy mediating between health status and HPL; self-efficacy mediating between depressive symptoms and HPL; support mediating between depressive symptoms and HPL; and self-efficacy mediating between support and HPL. The model was a good fit based on goodness of fit indices including Chi-square, CFI, and RMSEA.

Chapter 5

Health promoting lifestyles are increasingly important as the United States seeks to find ways to improve health outcomes, reduce health care costs, and promote health for the populace. The World Health Organization identified that health promotion is a widely recognized, cost effective way to reduce the burden of disease, thereby improving population health (Bayarsaikhan & Muiser, 2007). As future health care professionals, nursing students have a primary role in educating the public regarding health-promoting lifestyles. As such, a closer examination of their personal health promoting lifestyles is warranted so that these future health professionals will not only understand the importance of healthy lifestyles, but will choose to make healthy lifestyle choices daily. University administrators and faculty, as leaders and role models, have a responsibility to provide programming that promotes these lifestyles while the students are enrolled in college (Al-Kandari & Vidal, 2007; Al-Kandari et al., 2008; Blake et al., 2011; Can et al., 2008).

The purpose of this study was to determine the relationships between specific personal factors, behavior cognitions and affect, and health promoting lifestyles identified in Pender's Health Promotion Model. By understanding these relationships, the development of a model that predicts health-promoting lifestyles in nursing students will lead to informed programming to promote healthy lifestyles. The discussion of the findings, study limitations, implications for practice, and recommendations for future research is provided.

Discussion of Results

Studies exploring potential associations between the study variables and health promoting lifestyles, as measured by the HPLP II, in nursing students in the United States are nonexistent in the last ten years. Research conducted in Turkey, Canada, Jordan, and Kuwait explored health-promoting lifestyles in nursing students and their relationship with certain demographic variables. Additionally, studies in the literature considered the influence of individual variables on health promoting lifestyles among college students. However no studies were found that lead to a predictive model for health promoting lifestyles in nursing students.

Results of this study provide evidence of important predictors of health promoting lifestyles in baccalaureate nursing students, as identified in the Health Promotion Model. Studies found in the literature that examined health promoting lifestyles in nursing students using the HPLP or a translated version are considered as a comparative group (Al-Kandari & Vidal, 2007; Al-Kandari et al., 2008; Alpar et al., 2008; Can et al., 2008; Haddad et al., 2004; Hui, 2002). Studies examining the relationships of health promoting lifestyles in college students and individual variables are also used as a comparative group (Franko et al., 2008; Jackson et al., 2007; Maglione & Hayman, 2009; Makaremi, 2000; Ryan, 2008; Von Ah et al., 2004; Zalewska-Puchala et al., 2007).

Overall health promoting lifestyle for the nursing students in this study was higher than what was found in the literature except for one study on a small sample of Turkish nursing students who reported higher means on overall health promoting lifestyles (Alpar et al., 2008). Nursing students from Kuwait, Hong Kong, and a larger sample from Turkey had lower overall health promoting lifestyles (Al-Kandari & Vidal, 2007; Can et

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al., 2008; Hui, 2002). Although these international studies may not be directly compared, due to methodology and statistical analyses employed, of particular interest is the similarity among the nursing students from the studies with regard to specific behaviors measured on the HPLP II (Table 5.1).

The students in the majority of the studies across nationalities, including this study, reported low physical activities (Al-Kandari & Vidal, 2007; Can et al., 2008; Hui, 2002). The low incidence of physical activity in nursing students is similar to findings reported by Bock, Jarczok, and Litaker (2013) and Nelson, Gortmaker, Subramanian, and Wechsler (2007) for college students. Physical activity is known to be an important moderator of health, being positively associated with longevity and important in the management of diabetes, cardiovascular disease, obesity, and hypertension (Bock et al., 2013; Nelson et al., 2007). Plans to promote healthy lifestyles in nursing students will logically include strategies to increase physical activity.

Spiritual growth was the highest reported mean in the majority of the studies. In this study, spiritual growth was the second highest mean with interpersonal relations the highest mean. Spiritual growth questions on the HPLP II included items such as 'feel I am growing and changing in positive ways', 'am aware of what is important to me in life', and 'expose myself to new experiences and challenges'. Capitalizing on these strengths as expressed by the students will lend support in the development of a program to promote healthy lifestyles. There are no studies found in the literature that explore how spiritual growth impacts health-promoting lifestyles.

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Table 5.1

Study Comparison of Mean for Overall and Subscale Highest and Lowest HPLP II Scores For Nursing Students

Study	N	Overall Mean (SD)	HR Mean (SD)	PA Mean (SD)	NU Mean (SD)	SG Mean (SD)	IR Mean (SD)	SM Mean (SD)
Grund, 2013 US	330	2.79 (.47)		lowest 2.46 (.74)			highest 3.30 (.51)	
Al-Kandari & Vidal, 2007 Kuwait	224	2.6 (.50)		lowest 2.2 (.71)			highest 3.1 (.60)	
Alpar, 2008 Turkey	57	2.92 not given			lowest	highest		
Can & et al, 2008 Turkey	484	2.46 (.34)		lowest 1.98 (.54)		highest 2.96 (.48)		
Haddad & et al, 2004	49 Canada	not given	lowest 2.37 (.51)				highest 3.12 (.52)	
Canada / Jordan	44 Jordan	not given	lowest 2.07 (.54)			highest 2.98 (.53)		
Hui, 2002 Hong Kong	169	2.24 not given		lowest 1.78 (.48)		highest 2.61 (.46)		

HR – Health Responsibility; PA – Physical Activity; NU – Nutrition;
SG – Spiritual Growth; IR – Interpersonal Relations; SM – Stress Management

The first research question asked if personal factors were associated with health

promoting lifestyles. Each category of personal factors in Pender's Health Promotion

Model, including biological, psychological, and sociocultural, was analyzed. The first

null hypothesis was that biological factors including age, gender, and BMI would not be

significantly associated with health promoting lifestyles. Age was not significantly

correlated with health promoting lifestyle, which was similar to the findings of Al-

Kandari and Vidal (2007) and Can et al. (2008). However, Hui's (2002) study on

undergraduate nursing students in Hong Kong did find significant results between age

and overall health promoting lifestyle with older students reporting lower levels of health

promoting lifestyles. Although no explanation was provided, heightened concern was

expressed due to an anticipated increase in chronic illness as individuals' age.

Gender differences in health promoting lifestyles were also found in the study,

with males reporting significantly higher health promoting lifestyles than females. Males

also had higher means on four of the six areas investigated including physical activity,

nutrition, spiritual growth, and stress management. Similarly, Al-Kandari and Vidal

(2007) found significant differences between male and female overall health promoting

lifestyles and physical activity, interpersonal relations, and stress management with males

reporting higher scores. Hui (2002) found no differences in health promoting lifestyle

based on gender. These findings support consideration of differences in interventions

that may be designed for males and females in future studies.

Of concern, 46% of the students in this study had BMI's categorized as either

overweight or obese according to established national guidelines (Centers for Disease

Control and Prevention, 2011). These findings are considered in light of other research

indicating that 32.4% of college students reported being overweight or obese (American

College Health Association, 2011). Al-Kandari, Vidal, and Thomas (2008) found 35.2%

of the students either overweight or obese. In addition, Miller and colleagues (2008) found that 54% of practicing nurses reported being overweight or obese. In the current study, students were asked to describe their weight as very underweight, slightly underweight, about the right weight, slightly overweight, or very overweight. Only 7.9% of the students described themselves as very overweight, yet according to the BMI classification 19.5% of the students met criteria for being obese. There is a discrepancy in calculated BMI and student's perception of their weight category with more than twice the number of students meeting criteria for obesity than those who reported being very overweight. There may be negative stigma associated with the words 'very overweight' and students obviously did not perceive themselves to meet this criterion. This could impact the student's understanding of how their weight impacts their health outcomes and should be considered in planning for future programming.

Body mass index was negatively correlated with health promoting lifestyles; students with higher body mass index had fewer healthy lifestyle behaviors. Al-Kandari, Vidal, and Thomas (2008) found similar results for BMI and health promoting lifestyle in Kuwait nursing students; however, Can et al. (2008) found no significant correlation between health promoting lifestyle and BMI. The negative correlation between BMI and health promoting lifestyle in nursing students, along with the high percentage of students who are either overweight or obese poses great concern as a public health problem. Individuals who meet BMI criteria for being overweight or obese are at increased risk for chronic illnesses, including diabetes, hypertension, and heart disease (Centers for Disease Control and Prevention, 2011). Additionally, as stated above, students reported low physical activity. Students who have difficulty managing their weight and who have low

participation in physical activity are not positioned to improve their health outcomes. Although BMI was not found to be a direct predictor of health promoting lifestyles, it was a predictor as mediated by social support. Students with higher BMIs who had greater social support reported better health-promoting lifestyles than those who did not have social support.

Psychological factors included in the study were health status and depressive symptoms. Students were asked to rank their health status as poor, fair, good, very good, or excellent. Ninety five percent of the students reported their health as good, very good, or excellent. Can, et al. (2008) asked students to respond to a 10-point visual analog scale regarding health, with higher scores indicating better health and the majority of students reported their health as being good or better. The results of this study found nursing students reporting better health status than university students in the United States, where approximately 92% reported good, very good, or excellent (American College Health Association, 2013). These findings are similar to the current study and reflect that the overall health status perception of students enrolled in the nursing programs is positive. As would be expected, there was a significant positive correlation found between health status and health promoting lifestyle. Can, et al. (2008) also found that students who reported better health status also reported higher health promoting lifestyle.

The other psychological personal factor, depressive symptoms was measured using the BDI II. Students were asked to report on depressive symptoms experienced within the last two weeks. Although the mean for the student participants fell within the minimal level of depressive symptoms, 12.8% of the students reported moderate to severe levels of symptoms and 28.3% reported mild, moderate, or severe levels of depressive

symptoms. Of the five comparative studies using the HPLP II as a measurement of health promoting lifestyles, none of them measured depressive symptoms. Therefore, other studies reporting depression in nursing students are considered for reference. In one study, Kernan and Wheat (2008) reported that 33.5% of the nursing students expressed concerns over depression/anxiety/ seasonal affective disorder. Ross et al. (2005) investigated nursing students in Thailand and found 50% of the students reported some level of depression. These findings in nursing students are of concern when compared to a similar question asked of university students where 9.5% of the students reported being so depressed that it was difficult to function (American College Health Association, 2013). In the current study, students who reported higher levels of depressive symptoms reported lower health promoting lifestyles. With 28.3% of the nursing student participants experiencing at least a mild level of depressive symptoms, interventions need to be investigated to provide support for these students particularly in programs to promote healthy lifestyles.

The sociocultural personal factor that was found to be significant in the current study was financial need met. A large percentage of students reported that their financial needs were currently met (59%). Students reported anticipating being in debt at the conclusion of their baccalaureate education an average of $43,324. However, financial status is a difficult variable to capture in studies, as college students may rely on a combination of financial aid, family, and work to meet their financial needs. Also, students may not be concerned while enrolled in school about the amount of debt they are accumulating. Some studies considered income as a factor in relationship to health promoting lifestyles, often defining income as both the student's income and the parent's

income combined. Al-Kandari and Vidal (2007) did not find a significant relationship between income and health promoting lifestyle. However, Can et al. (2008) did find a significant relationship between income and health promoting lifestyle's in Turkish nursing students. In this study, students were asked if their financial needs were met. There was a significant difference in health promoting lifestyles with students who reported their needs were met having higher health promoting lifestyles. Nursing students reported working an average of 16.98 hours per week to provide supplementary income. Students who are enrolled in full time study and working almost half time, may have difficulty finding time to prioritize behaviors consistent with health promoting lifestyles. Based on these findings, it is important to consider the student's perception of whether their financial needs are met when developing health promotion programming.

Other sociocultural factors that were investigated, including race, living situation, and relationship status, were not significantly related to health promoting lifestyles. Thirteen percent of the students from the three institutions reported being from diverse backgrounds, which represents a less diverse population of baccalaureate nursing students than found nationally, where 28.3% of the nursing students report they are from diverse backgrounds (American Association of Colleges of Nursing (AACN), 2013). Two of the colleges were geographically close to large metropolitan cities and the other was located in a rural area in the Midwest. Even though no significant differences were found based on cultural factors in the current study, cultural awareness may facilitate effective interventions for students as health promoting lifestyle programming is developed.

Relationship status and living situation were also not significantly related to health promoting lifestyle. Al-Kandari and Vidal (2007) did find a significant difference in relationship status and health promoting lifestyle, with married students reporting higher means on health promoting lifestyle than single students. However, Can et al. (2008) also found no significant relationship between relationship status and health promoting lifestyle. Finally, similar to Can et al. (2008), there was no significant relationship found between living situation and health promoting lifestyle in this study.

The second research question, "what is the relationship between social support and health promoting lifestyles" was measured using the ISEL CV and HPLP II. According to Pender's Health Promotion Model, there is an association between interpersonal influences and health promoting lifestyles. Strong associations are reported in the literature between social support and healthy behaviors (Jackson et al., 2007; Luo & Wang, 2009). Of interest, the belonging subscale had the lowest mean score for social support. This subscale is a measurement of the individual's perception of the availability of others to participate in activities with them (Cohen & Hoberman, 1983). These results are of importance in light of other results from the *National College Health Assessment* (American College Health Association, 2013) including feelings of loneliness in the last 12 months (19.3%), difficulty managing social relationships in the prior 12 months (24.3%), and low participation in university activities such as club sports (10.2%), intramurals (18.1%), and Greek life (11.8%). Additionally, students who reported strong social support also reported high participation in health promoting lifestyles. As expected, the strongest correlation was found between the interpersonal relations and social support. Of interest, particularly as it relates to other findings, was that the

weakest correlation was found between physical activity and social support. As intervention studies are planned to improve student's health promoting lifestyles this relationship is important. Programming should include a focus on building social support as part of a physical activity program to encourage participation.

Academic outcomes were identified as a situational influence in Pender's model since students must be successful in nursing coursework to progress and it was hypothesized that there would be a significant relationship between academic outcomes and health promoting lifestyle based on the literature. However, there was not a significant relationship between GPA and health promoting lifestyle. One other study corroborated this finding (Goff, 2011). However, other studies have investigated this relationship and found significant correlations between GPA and health promoting lifestyle (Al-Kandari & Vidal, 2007; Can et al., 2008). Additionally, Kernan and Wheat (2008) reported that baccalaureate nursing students identified that mental health concerns have a negative academic impact. Similar findings involving academic impairment in university students with depressive symptoms, anxiety, and stress raise concern for these students (Andrews & Wilding, 2004; Hysenbegasi et al., 2005; Keyes et al., 2012).

Although no significant results were found between academic outcomes and health promoting lifestyle, two factors should be recognized related to the study. First, the academic policies at the three institutions where the sample was drawn dismiss nursing students who receive a 'C-' or below in 2 nursing courses. Second, 28.3% of the nursing student participants reported a mild or higher level of depressive symptoms. The relationship between actual academic outcomes and health promoting lifestyles is one for further consideration, particularly as it relates to whether students who struggle

academically have less opportunity to engage in physical activities due to increased time required to study. This is important since students who may have been dismissed from the nursing programs over the last few semesters may have impacted the results of the study. The current findings however, support that academic outcome, for those involved in the study, was not a situational influence on health promoting lifestyle.

Of interest, the nursing student's reported higher self-efficacy scores than college students in the northeast (Scherbaum, Cohen-Charash, & Kern, 2006). The research question examining the relationship between health promoting lifestyle and self-efficacy in nursing students was based on Pender's Health Promotion Model where self-efficacy is considered to be a behavior specific cognition and affect. The literature strongly supports a positive relationship between health behaviors and self-efficacy (Cho et al., 2009; Jackson et al., 2007; Maglione & Hayman, 2009; Von Ah et al., 2004). Although Bandura recommends behavior specific measurements of self-efficacy, Pender was consulted regarding the use of the General Self-Efficacy tool as a measurement in this research design (Bandura, 1986; Pender, 2012; Schwarzer & Jerusalem, 1995). Pender (2012) communicated that the general self-efficacy tool was an appropriate tool for this research design since no one specific health promoting behavior was considered. Positive self-efficacy was associated with high participation in health promoting lifestyles. The literature supports the relationship between high levels of self-efficacy and health behaviors (Schwarzer & Fuchs, 1995; Strecher et al., 1986). The weakest relationship was found between physical activity and self-efficacy, with students who reported lower levels of general self-efficacy, also reporting low levels of physical activity. Other studies reported weak relationships between self-efficacy and physical

activity (Franko et al., 2008; Maglione, 2007; Maglione & Hayman, 2009). Based on the research, the relationship between self-efficacy and health promoting lifestyles supports inclusion of self-efficacy in the model to increase health-promoting lifestyles.

The decision to utilize path analysis to determine a predictive model for health promoting lifestyles in baccalaureate nursing students was based on Pender's Health Promotion Model as the theoretical framework for the research. Pender's model lends itself well to understanding the possible relationships between variables that predict health-promoting lifestyles. Path analysis allows the researcher to specify a model and analyze the relationships between variables (Suhr, 2008). Path analysis also relies on knowledge regarding theoretical models and the literature to define the relationships that are part of the model. Goals with path analysis are to understand the patterns of the correlations among a group of variables and to explain as much of the variance in the dependent variable as possible with the specified model (Suhr, 2008). The model that was found to be a good fit included both direct and indirect effects of the exogenous and endogenous variables. All the direct relationships that were defined by the model were also significantly correlated with health promoting lifestyles (health status and health promoting lifestyle, depressive symptoms and health promoting lifestyle, self-efficacy and health promoting lifestyle, and support and health promoting lifestyle). The model further informs the direct relationships between health promoting lifestyles and the parameters. Within the context of the model and adjusting for the relationship to health promoting lifestyles, depressive symptoms have a negative relationship with health promoting lifestyles and health status, social support, and self-efficacy have positive relationships with health promoting lifestyles. Additionally, the indirect effects help to

further understand the relationships that will be useful in the development of interventional programming to improve the health promoting lifestyle of nursing students. Self-efficacy mediates the effect of health status on health promoting lifestyles, meaning that individuals who report lower health status, but have good self-efficacy will have better health promoting lifestyles. Additionally, social support and self-efficacy mediate the relationship between depressive symptoms and health promoting lifestyles. Individuals who have higher levels of depressive symptoms, but have social support and higher self-efficacy will have better health promoting lifestyles. One finding of interest, is the mediating relationship that self-efficacy has between social support and health promoting lifestyles. This relationship is not specified on Pender's Health Promotion Model, and therefore contributes new knowledge to predictors of health promoting lifestyles in baccalaureate nursing students. When the initial model was not found to be a good fit, the literature supporting a relationship between social support and self-efficacy was used as a basis for adding this relationship into the path model. Knowledge regarding these effects, both direct and indirect, will be invaluable as intervention studies are designed.

This is the first model using path analysis that demonstrates the relationships between these variables for predicting health-promoting lifestyles in baccalaureate nursing students. As these students become future health professionals, both educators and role models for patients, it is important to assist them in developing health-promoting lifestyles that will facilitate their own self-care.

Study Limitations

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Study limitations include a relatively small sample size of baccalaureate nursing students from three private, faith-based institutions. Although this allowed for the three groups of students to be combined into one sample for analysis, it limits the generalizability of the results. The design of the study, using a cross-sectional design with a convenience sample potentially leads to a sample that may not be truly representative of the nursing student population. Other demographic factors that were limitations included low diversity in the sample both of race and gender. Diversity of both gender and race are high priorities for nursing colleges in order to graduate a workforce that more closely resembles the population. Each of the schools identified diversity of race and gender as a priority for recruitment efforts.

A demographic measure and four measurement tools were used in the study, which took approximately 25 minutes to complete. Although most students completed the tools in approximately 25 minutes, some students required 40 minutes to complete the tools. Length of time to complete the tools when others are leaving the room may have been an issue. Additionally, one limitation was in the production of the tools for administration. The BDI II, ISEL-CV, and HPLP II were printed on the front and back of the paper, but the demographic questionnaire and the GSE were one sided. A few participants failed to turn over the page and complete their responses on the back of the tool. In future studies, tools will be printed one-sided.

Another limitation is related to data collection. One of the three institutions with the largest enrollment had classes scheduled back to back in some of the classrooms. Therefore, students enrolled in these classes were asked to move to an auditorium that was removed from the classrooms to participate in the study. Although the response was

adequate, it was not nearly as good as when the researcher was allowed to approach students for participation at the end of class and remain in the same room for data collection.

A limitation associated with data analysis was a decision that was made by the dissertation committee to consider the students from the three colleges as one sample, without a priori analysis to determine if differences existed in the variables between students at the three colleges. In retrospect, it may have been preferable to analyze the differences statistically prior to combining the students from the three colleges into one sample of baccalaureate nursing students from private institutions in the Midwest. Post-priori analysis revealed that the differences were not significant and the analyses would not have changed the data analyses of the research questions.

It was expressed by older participants that the ISEL-CV had several questions that were not relevant to their age group, as they were not typical college age students. This was not anticipated and resulted in students not responding to these questions on the tool.

A limitation of the study that may have impacted study outcomes related to the relationship between academic outcomes to health promoting lifestyles is a policy in the three institutions that dismisses students who have a 'C-' of below in two nursing courses. Since students who were dismissed from the program were not included in the population, the grade point averages of students who did participate are likely higher. This may have been the reason that there was no relationship found between academic outcomes and health promoting lifestyles. Additionally, initial plans were to utilize the ATI TEAS test as another measurement of academic outcomes, however, one of the universities, which was already engaged to participate, recognized that their senior

students had not taken the TEAS. This led to not including this as an academic variable. Additionally, students may have given responses they deemed to be socially acceptable, particularly at the one institution where the researcher was employed.

Recommendations for Future Research

Recommendations for future research are directly focused on the predictive model for health promoting lifestyles in baccalaureate nursing students. Future design for addressing the issues in this study will take into consideration the limitations of the current study and will strengthen future designs by doing so. An interventional study, based on the predictive model and the development of a health promotion program, will be the next step. This program will include interventions focused on the direct and indirect effects found to be predictive of health promoting lifestyles. As the model is holistic in nature, including the impact of the biological factor BMI, the psychological factors of health status and depressive symptoms, and two behavioral cognitions and affect elements, self-efficacy and social support, it will require a multifaceted program.

Since the ultimate outcome would be to impact health promoting lifestyles over the course of time, a longitudinal study design will include outcomes related to interventions while enrolled in the nursing college with a design that encourages continued participation for improved outcomes as they become professional nurses.

Additionally, investigating health-promoting lifestyles in university students across disciplines, first focused on health science student populations, and then across the university, will be part of the program of research. Once a descriptive study is completed on the population of interest, interventional studies based on a health promotion lifestyle

program model has the potential to impact long-term health outcomes for students enrolled in post-secondary education.

Conclusions

Pender's Health Promotion Model was the theoretical model used for the investigation of health promoting lifestyles in baccalaureate nursing students. Nursing students are future health leaders and their personal health is important for their own well-being as well as for their professional responsibility to role model and encourage health promoting lifestyles for patients. The health professional's role is to assist individuals, families, and communities to achieve their full health potential (Pender et al., 2011). To achieve this health potential, individuals must participate in healthy lifestyle behaviors.

Health behaviors reported in this study included nursing students who are overweight or obese, students who reported depressive symptoms, and students who reported low physical activities according to their health promoting lifestyle scores. These health behaviors were similar to those reported in other studies of nursing students both nationally and internationally and are primary health concerns that lead to the development of chronic illness (Adderlye-Kelly & Green, 2000; American College Health Association, 2013; Mooney et al., 2011). Of note, these same behaviors are prevalent in practicing nurses (Halcomb, 2005; Healy & McKay, 2000; Jinks & Daniels, 2003; S. Miller et al., 2008). Additionally, almost half the students reported that their financial needs were not currently met. This sociocultural factor was the only sociocultural factor found to be significant in the study.

Pender et al. (2011) concluded that health promotion activities should be directed towards increasing an individual's level of well-being and self-actualization, aiming to move towards a state of high-level wellness and well-being. Using evidence to develop a model that predicts health-promoting lifestyles in baccalaureate nursing students is paramount to achieving the goal of improved wellness, well-being, and prevention of illness in these future professionals. The model resulting from this research provides the foundation for future intervention studies to improve health-promoting lifestyles in nursing students. As these students develop health-promoting lifestyles, they have the potential to become leaders in the development of health promotion programming in their communities. Additionally, as the students graduate and become nursing professionals, their established healthy lifestyles will result in improved personal health and they will role model these behaviors to patients.

REFERENCES

Abdel-Khalek, A., & Tomás-Sábado, J. (2005). Anxiety and death anxiety in Egyptian

and Spanish nursing students. *Death Studies, 29*(2), 157-169. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2005092164&

site=ehost-live

Adderlye-Kelly, B., & Green, P. (2000). Health behaviors of undergraduate African

American nursing students. *ABNF, 11*(1), 7-12.

Adejumo, A. O. (2010). Influence of social support, self-efficacy, and personality on the

general health of retirees in Lagos, Nigeria. *Educational Gerontology, 36*(10-11),

907-918. doi:10.1080/03601271003744640

Ahmadi, J., Toobaee, S., & Alishahi, M. (2003). Depression in nursing students.

Blackwell Publishing, 124-125.

Ahmadi, J., Toobaee, S., & Alishahi, M. (2004). Research in brief: Depression in nursing

students. *Journal of Clinical Nursing, 13*(1), 124-124. Retrieved from

http://search.ebscohost.com.authenticate.library.duq.edu/login.aspx?direct=true&d

b=cin20&AN=3000023152&site=ehost-live

Alexandrino-Silva, C., Pereira, M., Bustamante, C., Ferraz, A., Baldassin, S., Andrade,

A., & Alves, T. (2009). Suicidal ideation among students enrolled in healthcare

training programs: A cross-sectional study. *Rev Bras Psiquiatr, 31*(4), 338-344.

Al-Kandari, F., & Vidal, V. L. (2007). Correlation of the health-promoting lifestyle,

enrollment level, and academic performance of college of nursing students in

Kuwait. *Nursing & Health Sciences, 9*(2), 112-119. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009579152&
site=ehost-live

Al-Kandari, F., Vidal, V. L., & Thomas, D. (2008). Health-promoting lifestyle and body
mass index among college of nursing students in Kuwait: A correlational study.
Nursing & Health Sciences, 10(1), 43-50. Retrieved from
http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009778927&
site=ehost-live

Alligood, M. R., & Tomey, A. M. (2010). In Alligood M. R., Tomey A. M. (Eds.),
Nursing theorists and their work (7th ed.). Maryland Heights, Missouri: Mosby
Elsevier, Inc.

Alpar, S., Senturan, L., Karabacak, U., & Sabuncu, N. (2008). Change in the health
promoting lifestyle behaviour of Turkish university nursing students from
beginning to end of nurse training. *Nurse Education in Practice, 8*, 382-388.
doi:10.1016/j.nepr.2008.03.010

Altun, I. (2008). Effect of a health promotion course on health promoting behaviours of
university students. *Eastern Mediterranean Health Journal, 14*(4)

American Association of Colleges of Nursing. (2008). Essentials of baccalaureate
education for professional nursing education. Retrieved April 4, 2010, 2010, from
http://www.aacn.nche.edu/education/pdf/BaccEssentials08.pdf

American Association of Colleges of Nursing. (2011). State snapshot: Ohio. Retrieved
January 8, 2012, from http://www.aacn.nche.edu/government-
affairs/resources/Ohio1.pdf

American Association of Colleges of Nursing. (2012). Amid calls for more highly

    educated nurses, new AACN data show impressive growth in doctoral nursing

    programs. Retrieved February 12, 2012, from

    http://www.aacn.nche.edu/news/articles/2010/enrollchanges

American Association of Colleges of Nursing (AACN). (2013). Fact sheet: Enhancing

    diversity in the nursing workforce., May 26, 2013.

American College Health Association. (2011). American College Health Association

    National College Health Assessment II: Reference group executive summary fall

    2010. Retrieved June 12, 2010, 2011, from http://www.acha-ncha.org/docs/ACHA-

    NCHA-II_ReferenceGroup_ExecutiveSummary_Fall2010.pdf

American College Health Association. (2013). *American College Health Association-*

    National College HealthAassessment II: Reference group executive summary fall

    2012. Hanover, MD: American College Health Association.

American Holistic Nurses Association. (2007). *Holistic nursing scope and standards of*

    practice. Silver Springs, MD: American Nurses Association.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental*

    disorders – fourth edition (4th ed.). Washington, DC: Author.

American Psychiatric Association. (2000). *Diagnostic and statistical manual IV-TR* (4th

    ed.). Arlington, Virginia: American Psychiatric Association.

Andrews, B., & Wilding, J. (2004). The relation of depression and anxiety to life-stress

    and achievement in students. *British Journal of Psychology, 95*, 509-521.

Arbisi, P., & Farmer, R. (2010). *Mental measurements yearbook* (14th ed.). San Antonio,

    Texas: The Psychological Corporation.

Arbuckle, J. (2012). *IBM SPSS21 AMOS user's guide* IBM, Inc.

Bandura, A. (1986). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. doi:10.1037/0033-295X.84.2.191

Bayarsaikhan, D., & Muiser, J. (2007). *Financing health promotion* (HHS/HSF/DP.07.4 ed.). Geneva: World Health Organization.

Beck, A., Steer, R., & Brown, G. (1996). *Beck depression inventory manual* (2nd ed.). San Antonio, Texas: Pearson Education, Inc.

Berkman, L. (1995). The role of social relations in health promotion. *Psychosomatic Medicine, 57*, 245-254. doi:0033-3174/95/5703-0245$03.00/0

Berndt, E., Finkelstein, S., Greenberg, P., Howland, R., Keith, A., Rush, A., . . . Keller, M. (1998). Workplace performance effects from chronic depression and its treatment. *Journal of Health Economics, 17*, 511-535.

Blake, H., Malik, S., Mo, P., & Pisano, C. (2011). 'Do as I say, but not as I do': Are next generation nurses role models for health? *Perspectives in Public Health, 131*(5), 231-239. doi:10.1177/1757913911402547

Bock, C., Jarczok, M., & Litaker, D. (2013). Community based efforts to promote physical activity: A systematic review of interventions considering mode of delivery, study quality and population subgroups. *Journal of Science and Medicine in Sport, in press* doi:http://dx.doi.org/10.1016/j.jsams.2013.04.009

Bowling, A. (2005). Single item measures - editorial: Just one question: If one question works, why ask several?
. *Journal of Epidemiology and Community Health, 59*(5), 342-345. doi:10.1136/jech.2004.021204

Brouwer, S., Reneman, M. F., Bültmann, U., Klink, J., & Groothoff, J. W. (2010). A prospective study of return to work across health conditions: Perceived work attitude, self-efficacy and perceived social support. *Journal of Occupational Rehabilitation, 20*(1), 104-112. doi:10.1007/s10926-009-9214-z

Buerhaus, P. (2007). On hopes and threats for nursing's future. *Nursing Economics, 25*(3), 183-185.

Byrne, B. (2010). *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (Second ed.). New York, NY: Taylor and Francis Group, LLC.

Campo, S., Brossard, D., Frazer, S., Marchell, T., Lewis, D., & Talbot, J. (2003). Are social norms campaigns really magic bullets: Assessing the effects of students' misperceptions on drinking behavior. *Health Communication, 15*, 481-497.

Can, G., Ozdilli, K., Erol, O., Unsar, S., Tulek, Z., Savaser, S., . . . Durna, Z. (2008). Comparison of the health-promoting lifestyles of nursing and non-nursing students in Istanbul, Turkey. *Nursing & Health Sciences, 10*(4), 273-280. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010099123&site=ehost-live

Centers for Disease Control and Prevention. (2011). About BMI for adults. Retrieved September 8, 2012, from

http://www.cdc.gov/healthyweight/assessing/bmi/adult_BMI/index.html#Interprete
d

Chalmers, K., Seguire, M., & Brown, J. (2002). Tobacco use and baccalaureate nursing

students: A study of their attitudes, beliefs and personal behaviours. *Journal of

Advanced Nursing, 40*, 17-24.

Chan, M., Creedy, D., Chua, T., & Lim, C. (2011). Exploring the psychological health

related profile of nursing students in Singapore: A cluster analysis. *Journal of

Clinical Nursing, 20*, 3553-3560. doi:10.1111/j.1365-2702.2011.03807.x

Chapman, L. (2005). Meta-evaluation of worksite health promotion economic return

studies: 2005 update. *American Journal of Health Promotion, 19*(6), 1-11.

Chen, H., Feng, L., Shen, W., & Guo, H. (2009). A study on the psychological state of

nurse-students of a university in affected areas of Wenchuan earthquake [chinese].

Journal of Nursing, 56(5), 30-38. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010443925&

site=ehost-live

Chen, M., Huang, L., Wang, E. K., Cheng, N., Hsu, C., Hung, L., & Shiao, Y. (2001).

The effectiveness of health promotion counseling for overweight adolescent

nursing students in Taiwan. *Public Health Nursing, 18*(5), 350-356. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2001113231&

site=ehost-live

Cho, H., So, J., & Lee, J. (2009). Personal, social, and cultural correlates of self-efficacy

beliefs among South Korean college smokers. *Health Communication, 24*(4), 337-

345. doi:10.1080/10410230902889381

Chow, J., & Kalischuk, R. G. (2008). Self-care for caring practice: Student nurses'

    perspectives. *International Journal for Human Caring, 12*(3), 31-37. Retrieved

    from

    http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010087380&

    site=ehost-live

Christensson, A., Runeson, B., Dickman, P., & Vaez, M. (2010). Change in depressive

    symptoms over higher education and professional establishment: A longitudinal

    investigation in a national cohort of Swedish nursing students. *BioMed Central*

    Public Health, 10, 343. doi:10.1186/1471-2458-10-343

Clement, M., Jankowski, L., Boushchard, L., Perreault, M., & Lepage, Y. (2002). Health

    behaviors of nursing students: A longitudinal study. *Journal of Nursing Education,*

    41(6), 257-

    266http://proquest.t.umi.com/pqdweb?did=126249511&Fmt=4&clientd=3262&R

    QT=309&V Name=PQD.

Cohen, S., & Hoberman, H. (1983). *Positive events and social supports as buffers of life*

    change stress. (No. 258). Carnegie Mellon University Research Showcase:

    Department of Psychology, College of Humanities and Social Sciences.

Cohen, S., Memelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the

    functional components of social support. In I. Sarason, & B. Sarason (Eds.), *Social*

    support: Theory, research and application (pp. 73-94). Martinus Nijhoff: The

    Hague.

Constantine, M., Okazaki, S., & Utsey, S. (2004). Self-concealment, social self-efficacy,

    acculturative stress, and depression in African, Asian, and Latin American

international college students. *American Journal of Orthopsychiatry, 74*(3), 230-241. doi:10.1037/0002.9432.74.3.230

Cooley, E., Toray, T., & Roscoe, L. (2010). Reactions to loss scale: Assessing grief in college students. *Omega: Journal of Death & Dying, 61*(1), 25-51. doi:10.2190/OM.61.1.b

Department of Health and Human Services. (1999). *Healthy people 2000: National health promotion and disease prevention for the country.* (No. (PHS) 91-50213). Washington, DC: Department of Health and Human Services.

Department of Health and Human Services. (2010).
HHS announces the nation's new health promotion and disease prevention agenda
. Retrieved March 24, 2012, 2012, from http://www.hhs.gov/news/press/2010pres/12/20101202a.html

Dossey, B. (2005). Florence Nightingale's 13 formal letters to her nurses (1872-1900). In B. Dossey, L. Selander, D. Beck & A. Attewell (Eds.), *Florence Nightingale today: Healing leadership global action* (pp. 29-63). Silver Spring, MD: American Nurses Association.

Dzurec, L. C., Allchin, L., & Engler, A. J. (2007). First-year nursing students' accounts of reasons for student depression. *Journal of Nursing Education, 46*(12), 545-551. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009736184&site=ehost-live

Floyd, J. (2012). RS12 depression, anxiety, and stress among nursing students and the relationship to grade point average. *American Journal of Critical Care, 21*(3), e78.

Fogarty, G., & McKeon, C. (2006). Patient safety during medication administration: The influence of organizational and individual variables on unsafe work practices and medication errors. *Ergonomics, 49*(5-6), 444-456.

Franko, D. L., Cousineau, T. M., Trant, M., Green, T. C., Rancourt, D., Thompson, D., . . . Ciccazzo, M. (2008). Motivation, self-efficacy, physical activity and nutrition in college students: Randomized controlled trial of an internet-based education program. *Preventive Medicine, 47*(4), 369-377. doi:10.1016/j.ypmed.2008.06.013

Gartner, F., Nieuwenhuijsen, K., van Dijk, F., & Sluiter, J. (2010). The impact of common mental disorders on the work functioning of nurses and allied health professionals: A systematic review. *International Journal of Nursing Studies, 47*, 1047-1061. doi:10.1016/j.ijnurstu.2010.03.013

Gershon, R., Stone, P., Zeltser, M., Faucett, J., MacDavitt, K., & Chou, S. (2007). Organizational climate and nurse health outcomes in the United States: A systematic review. *Industrial Health, 45*(5), 622-636.

Gibbons, C., Dempster, M., & Moutray, M. (2008). Stress and eustress in nursing students. *Journal of Advanced Nursing, 61*(3), 282-290. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009764371&site=ehost-live

Gibbons, C. (2010). Stress, coping and burn-out in nursing students. *International Journal of Nursing Studies, 47*(10), 1299-1309. doi:DOI: 10.1016/j.ijnurstu.2010.02.015

Goetzel, R., & Ozminkowski, R. (2008). The health and cost benefits of work site health-promotion programs. *Annual Review of Public Health, 29*, 303-323.

Goff, A. (2011). Stressors, academic performance, and learned resourcefulness in baccalaureate nursing students. *International Journal of Nursing Education Scholarship, 8*(1), 1-20. doi:10.2202/1548-923X.2114

Gomes, A., Tavares, J., & de Azevedo, M. (2011). Sleep and academic performance in undergraduates: A multi-measure, multi-predictor approach. *Chronobiology International, 28*(9), 786-801. doi:10.3109/07420528.2011.606518

Goodwin, R., Costa, P., & Adonu, J. (2004). Social support and its consequences: 'Positive' and 'deficiency' values and their implications for support and self-esteem. *British Journal of Social Psychology, 43*, 465-474. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2005016567&site=ehost-live

Haack, M. (1988). Stress and impairment among nursing students. *Research in Nursing and Health, 11*, 125-134.

Haddad, L., Kane, D., Rajacich, D., Cameron, S., & Al-Ma'aitah, R. (2004). A comparison of health practices of Canadian and Jordanian nursing students. *Public Health Nursing, 21*(1), 85-90.

Haerens, L., Cerin, E., Maes, L., Cardon, G., Deforche, B., & De Bourdeaudhuij, I. (2008). Explaining the effect of a 1-year intervention promoting physical activity in middle schools: A mediation analysis. *Public Health Nutrition, 11*, 501-512. doi:10.1017/S136898000700078X

Hagerty, B. M., Williams, R. A., Coyne, J. C., & Early, M. R. (1996). Sense of belonging and indicators of social and psychological functioning. *Archives of Psychiatric Nursing, 10*(4), 235-244. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=1996030811&
site=ehost-live

Halcomb, K. (2005). Smoke-free nurses: Leading by example. *Workplace Health and Safety, 53*(5), 209-212.

Hale, C. J., Hannum, J. W., & Espelage, D. L. (2005). Social support and physical health: The importance of belonging. *Journal of American College Health, 53*(6), 276-284. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009047500&
site=ehost-live

Halter, M. J. (2004). Stigma & help seeking related to depression: A study of nursing students. *Journal of Psychosocial Nursing & Mental Health Services, 42*(2), 42-53. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2004059075&
site=ehost-live

Harris, J. (1994). The health benefits of health promotion. In M. O-Donnell, & J. Harris (Eds.), *Health promotion in the workplace* (2nd ed., pp. 3-40). Albany, NY: Delmar.

Hawker, C. (2012). Physical activity and mental well-being in student nurses. *Nurse Education Today, 32*, 325-331. doi:10.1016/j.nedt.2011.07.013

Hawks, S., Nadanat, H., Merrill, R., Goudy, M., & Miyagawa, T. (2002). A cross-cultural comparison of health promoting behaviors among college students. *The International Electronic Journal of Health Education, 5*, 84-92.

Health Resources and Service Administration. (2011).

Find shortage areas: HPSA & MUA/P by address
. Retrieved January 8, 2012, from http://datawarehouse.hrsa.gov/GeoAdvisor/ShortageDesignationAdvisor.aspx

HealthReform.gov. (2011). Affordable care act: Laying the foundation for prevention. Retrieved January 2012, 2012, from www.healthreform.gov

Healy, C., & McKay, M. (2000). Nursing stress: The effects of coping strategies and job satisfaction in a sample of Australian nurses. *Journal of Advanced Nursing, 31*, 681-688.

Heiligenstein, E., Guenther, G., Hsu, K., & Herman, K. (1996). Depression and academic impairment in college students. *Journal of American College Health, 45*(2), 59-64. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009850775& site=ehost-live

Hensel, D. (2011). Relationships among nurses' professional self-concept, health, and lifestyles. *Western Journal of Nursing Research, 33*(1), 45-62. doi:10.1177/0193945910373754

Higginson, R. (2006). Fears, worries and experiences of first-year pre-registration nursing students: A qualitative study. *Nurse Researcher, 13*(3), 32-49. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009220767& site=ehost-live

Horneffer, K. (2006). Students' self-concepts: Implications for promoting self-care within the nursing curriculum. *Journal of Nursing Education, 45*(8), 311-317.

Hsiao, Y., Chien, L., Wu, L., Chiang, C., & Huang, S. (2010). Spiritual health, clinical

practice stress, depressive tendency and health-promoting behaviours among

nursing students. *Journal of Advanced Nursing, 66*(7), 1612-1622.

doi:10.1111/j.1365-2648.2010.05328.x

Hsieh, P. (2011). A school based health promotion program for stressed nursing students

in Taiwan. *Journal of Nursing Research, 19*(3), 230-236.

doi:10.1097/JNR.0b013e318228d010

Hui, W. (2002). The health promoting lifestyles of undergraduate nurses in Hong Kong.

Journal of Professional Nursing, 18(2), 101-111. doi:10.1053/jpnu.2002.32346

Hysenbegasi, A., Hass, S., & Rowland, C. (2005). The impact of depression on the

academic productivity of university students. *The Journal of Mental Health Policy

and Economics, 8*, 145-151.

IBM SPSS statistics 19. (2010). Retrieved March/17, 2011, from http://www.spss.com/

Jackson, E., Tucker, C., & Herman, K. (2007). Health value, perceived social support,

and health self-efficacy as factors in a health-promoting lifestyle. *Journal of

American College Health, 56*(1), 69-74.

Jimenez, C., Navia-Osorio, P., & Diaz, C. V. (2010). Stress and health in novice and

experienced nursing students. *Journal of Advanced Nursing, 66*(2), 442-455.

doi:10.1111/j.1365-2648.2009.05183.x

Jinks, A., & Daniels, R. (2003). A survey of the health needs of hospital staff:

Implications for health care managers. *Journal of Nursing Management, 11*, 343-

350.

Johnson, J., & Breckon, D. (2007). *Managing health education and promotion programs: Leadership skills for the 21st century* (2nd ed.). Sudbury, MA: Jones and Bartlett Publishers.

Kamwendo, K. (2000). Adherence to healthy lifestyles: A comparison of occupational therapy students with nursing and physiotherapy students. *Scandinavian Journal of Occupational Therapy, 7*(4), 156-164. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2001106439&site=ehost-live

Kamwendo, K., Faresjo, T., Gustavsson, U., & Jansson, M. (2000). Adherence to health lifestyles: A comparison of nursing and physiotherapy students. *Advances in Physiotherapy, 2*, 63-74.

Kang, Y. S., Choi, S. Y., & Ryu, E. (2009). The effectiveness of a stress coping program based on mindfulness meditation on the stress, anxiety, and depression experienced by nursing students in Korea. *Nurse Education Today, 29*(5), 538-543. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010321941&site=ehost-live

Kanji, N., White, A., & Ernst, E. (2006). Autogenic training to reduce anxiety in nursing students: Randomized controlled trial. *Journal of Advanced Nursing, 53*(6), 729-735.

Kernan, W. D., & Wheat, M. E. (2008). Nursing students' perceptions of the academic impact of various health issues. *Nurse Educator, 33*(5), 215-219. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010031053&site=ehost-live

Keyes, C., Eisenberg, D., Perry, G., Dube, S., Kroenke, K., & Dhingra, S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. *Journal of American College Health, 60*(2), 126-133.

Lambert, V., Lambert, C., & Ito, M. (2004). Workplace stressors, ways of coping and demographic characteristics as predictors of physical ad emotional health of Japanese hospital nurses. *International Journal of Nursing Studies, 41*, 85-97.

Lee, E., Mun, M., Lee, S., & Cho, H. (2011). Perceived stress and gastrointestinal symptoms in nursing students in Korea: A cross-sectional survey. *BioMed Central Nursing, 10*(22), 1-8. doi:1472-6955/10/22

Lee, R., & Loke, A. (2005). Health-promoting behaviors and psychosocial well-being of university students in Hong Kong. *Public Health Nursing, 22*(3), 209-222.

Lee, W., Tsai, S., Tsai, C., & Lee, C. (2011). A study on work stress, stress coping strategies and health promoting lifestyle among district hospital nurses in Taiwan. *Journal of Occupational Health, 53*, 377-383.

Levett-Jones, T., Lathlean, J., Higgins, I., & McMillan, M. (2009). Staff-student relationships and their impact on nursing students' belongingness and learning. *Journal of Advanced Nursing, 65*(2), 316-324. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010177693&site=ehost-live

Luo, Y., & Wang, H. (2009). Correlation research on psychological health impact on nursing students against stress, coping way and social support. *Nurse Education Today, 29*(1), 5-8. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010199950&site=ehost-live

Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: Multicultural validation studies. *Journal of Psychology, 139*(5), 439-457. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=s3h&AN=18741398&site=ehost-live

Mackey, M. C., McKinney, S. H., & Tavakoli, A. (2008). Factors related to smoking in college women. *Journal of Community Health Nursing, 25*(2), 106-121. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009929356&site=ehost-live

Maglione, J. L. (2007). *Psychosocial correlates of physical activity in low-income college students.* New York University). , 139 p. (UMI Order AAI3301850.) Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010060653&site=ehost-live. (2010060653).

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

Mak, W., Law, R. W., Woo, J., Cheung, F. M., & Lee, D. (2009). Social support and

    psychological adjustment to SARS: The mediating role of self-care self-efficacy.

    Psychology & Health, 24(2), 161-174. doi:10.1080/08870440701447649

Makaremi, A. (2000). Self-efficacy and depression among Iranian college students.

    Psychological Reports, 86, 386-388.

Marlow, J. (2002). Depression's surprising toll on worker productivity. *Employee*

    Benefits Journal, 27(1), 16-21.

McCann, T., Clark, E., & Rowe, K. (2005). Undergraduate nursing students' attitudes

    towards smoking health promotion. *Nursing and Health Sciences, 7*, 164-174.

McColl, M. A., Davies, D., Carlson, P., Johnston, J., & Minnes, P. (2001). The

    community integration measure: Development and preliminary validation. *Archives*

    of Physical Medicine & Rehabilitation, 82(4), 429-434. Retrieved from

    http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2002012464&

    site=ehost-live

McCullagh, M. C. (2009). Middle range theories: Application to nursing research. In S. J.

    Peterson, & T. S. Bredow (Eds.), (2nd ed., pp. 273-285). Philadelphia, PA:

    Lippincott Williams and Wilkins.

McElligott, D., Siemers, S., Thomas, L., & Kohn, N. (2009). Health promotion in nurses:

    Is there a healthy nurse in the house? *Applied Nursing Research, 22*, 211-215.

    doi:10.1016/j.apnr.2007.07.005

McLeroy, K., & Crump, C. (1994). Health promotion and disease prevention: A historical

    perspective. *Generations*, March 25, 2012.

Miller, S., Alpert, P., & Cross, C. (2008). Overweight and obesity in nurses, advanced

practice nurses, and nurse educators. *Journal of the American Academy of Nurse*

Practitioners, 259-265. doi:10.1111/j.1745-7599.2008.00319.x

Miller, Y., Trost, S., & Brown, W. (2002). Mediators of physical activity behavior

change among women with young children. *American Journal of Preventive*

Medicine, 23(2), 98-103.

Mirzaei, T., Oskouie, F., & Rafii, F. (2012). Nursing students' time management,

reducing stress and gaining satisfaction: A grounded theory study. *Nursing and*

Health Sciences, 14, 46-51. doi:10.1111/j.442-2018.2011.00661.x

Mitchell, T., O'Sullivan, P., Smith, A., Burnett, A. F., Straker, L., Thornton, J., & Rudd,

C. J. (2009). Biopsychosocial factors are associated with low back pain in female

nursing students: A cross-sectional study. *International Journal of Nursing Studies,*

46(5), 678-688. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2010261164&

site=ehost-live

Mooney, B., Timmins, F., Byrne, G., & Corroon, A. (2011). Nursing students' attitudes to

health promotion to: Implications for teaching practice. *Nurse Education Today,*

31, 841-848. doi:10.1016/j.nedt.2010.12.004

Morbidity and Mortality Weekly Report. (2011).
Vital signs: Current cigarette

smoking among adults aged ≥18 years --- United States, 2005--2010. *Center for*

Disease Control and Prevention, 60(35), 1207-1212.

Moyle, W., Park, Y., Olorenshaw, R., Grimbeek, P., Griffiths, S., & Murfield, J. (2010). The influence of personal characteristics on student nurse health attitudes. *Australian Journal of Advanced Nursing, 27*(3), 55-61.

Navarro, A., Voetsch, K., Liburd, L., Giles, W., & Collins, J. (2007). Charting the future of community health promotion: Recommendations from the national expert panel on community health promotion. *Preventing Chronic Disease: Public Health Research, Practice, and Policy, 4*(3), 1-7.

Nelson, T., Gortmaker, S., Subramanian, S., & Wechsler, H. (2007). Vigorous physical activity among college students in the United States. *Journal of Physical Activity and Health, 4*, 495-508.

O'Brien-Pallas, L., & Baumann, A. (2000). Toward evidence-based policy decisions: A case study of nursing health human resources in Ontario, Canada. *Nursing Inquiry, 7*(4), 248-257.

O'Donnell, M. (2012). Health promotion definition. Retrieved March 23, 2012, from http://www.healthpromotionjournal.com/

Ogden, C., Carroll, M., Kit, B., & Flegal, K. (2012). *Prevalence of obesity in the United States, 2009-2010.* (No. 82). Hyattsville, MD: U.S. Department of Health and Human Services.

Oncology Nursing Society. (2008). *Nursing leadership in global and domestic tobacco control*. Pittsburgh, PA:

Pawloski, L. R., & Davidson, M. R. (2003). Physical activity and body composition analysis of female baccalaureate nursing students. *Nurse Education in Practice, 3*(3), 155-162. Retrieved from

http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2004131436&
site=ehost-live

Pender, N. (2010). University of Michigan school of nursing. Retrieved March 26, 2010,
2010, from http://www.nursing.umich.edu/faculty/pender

Pender, N. (2012). In Grund F. (Ed.), *Nola Pender: Email communication*. Gmail:

Pender, N., Murdaugh, C., & Parsons, C. (2011). In Connor M. (Ed.), *Health promotion
in nursing practice* (6th ed.). Upper Saddle River, New Jersey: Pearson Education,
Inc.

Pender, N., Murdaugh, C., & Parsons, M. (2006). *Health promotion in nursing practice*
(5th ed.). Upper Saddle River, New Jersey: Pearson/Prentice-Hall.

Pender, N., Walker, S., Sechrist, K., & Stromborg, M. (1988). Development and testing
of the health promotion model. *Cardiovascular Nursing, 24*(6), 41-41-43.

Peterson, M., S., Lawman, H., G., Wilson, D., K., Fairchild, A., & Lee. (2013). The
association of self-efficacy and parent social support on physical activity in male
and female adolescents. *Health Psychology, 32*(6), 666-674. doi:10.1037/a0029129

Pilette, P. (2005). Presenteeism in nursing. *Journal of Nursing Administration, 35*(6),
300-303.

Polit, D. (2010). In Connor M. (Ed.), *Statistics and data analysis for nursing research*
(2nd ed.). Upper Saddle River, New Jersey: Pearson.

Polit, D., & Beck, C. (2008). In Surrena H., Kogut H. and Kors E. (Eds.), *Nursing
research: Generating and assessing evidence for nursing practice* (8th ed.).
Philadelphia, PA: Lippincott Williams and Wilkins.

Polit, D., & Beck, C. (2010). *Essentials of nursing research: Appraising evidence for nursing practice* (7th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

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

Purcell, C., Moyle, W., & Evans, K. (2006). An exploration of modifiable health associated risk factors within a cohort of undergraduate nursing students. *Contemporary Nurse: A Journal for the Australian Nursing Profession, 23*(1), 100-110. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009323973&site=ehost-live

Ratanasiripong, P., Wang, C. (2011). Psychological well-being of Thai nursing students. *Nursing Education Today, 31*, 412-416. doi:10.1016/j.nedt.2010.08.002

Reeves, M., & Rafferty, A. (2005). Healthy lifestyle characteristics among adults in the United States, 2000. *Archives of Internal Medicine, 165*(8), 854-857.

Rella, S., Winwood, P., & Lushington, K. (2008). When does nursing burnout begin? An investigation of the fatigue experience of Australian nursing students. *Journal of Nursing Management, 17*, 886-897. doi:10.1111/j.1365-2834.2008.00883.x

Ross, R., Zeller, R., Srisaeng, P., Yimmee, S., Sawatphanit, W., & Somchid, S. (2006). Self-esteem, parent-child interaction, emotional support, and self-perception among Thai undergraduate nursing students. *International Journal of Nursing Education Scholarship, 3*(1), 1-18. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009285097&site=ehost-live

Ross, R., Zeller, R., Srisaeng, P., Yimmee, S., Somchid, S., & Sawatphanit, W. (2005). Depression, stress, emotional support, and self-esteem among baccalaureate nursing students in Thailand. *International Journal of Nursing Education Scholarship, 2*(1), 15p. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2009230883&site=ehost-live

Rush, K., Kee, C., & Rice, M. (2005). Nurses as imperfect role models for health promotion. *Western Journal of Nursing Research, 27*, 166-183. doi:10.1177/0193945904270082

Ryan, M. (2008). The antidepressant effects of physical activity: Mediating self-esteem and self-efficacy mechanisms. *Psychology and Health, 23*(3), 279-307. doi:10.1080/14768320601185502

Sakraida, T. (2010). Health promotion model: Nola J. Pender. In M. R. Alligood, & A. M. Tomey (Eds.), *Nursing theorists and their work* (7th ed., pp. 434-435-453). Maryland Heights, Missouri: Mosby Elsevier, Inc.

Scherbaum, C., Cohen-Charash, Y., & Kern, M. (2006). Measuring general self-efficacy: A comparison of three measures using item response theory
 . *Educational and Psychological Measurement, 66*(6), 1047-1063. doi:0.1177/0013164406288171

Schwarzer, R., & Fuchs, R. (1995). Self-efficacy and health behaviours. In M. Conner, & P. Norman (Eds.), *Predicting health behaviour: Research and practice with social cognition models* (). Buckingham: Open University Press.

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Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright & M. Johnston (Eds.), *Measures in health psychology: A user's portfolio. causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-Nelson.

Seki, Y., & Yamazaki, Y. (2006). Effects of working conditions on intravenous medication errors in a Japanese hospital. *Journal of Nursing Management, 14*, 128-139.

Sharif, F., & Armitage, P. (2004). The effect of psychological and educational counselling in reducing anxiety in nursing students. *Journal of Psychiatric and Mental Health Nursing, 11*, 386-392.

Sheese, B. E., Brown, E. L., & Graziano, W. G. (2004). Emotional expression in cyberspace: Searching for moderators of the Pennebaker disclosure effect via e-mail. *Health Psychology, 23*(5), 457-464. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2005036659&site=ehost-live

Singleton, E., Kinchen, Bienemy, C., Hutchinson, S., W., Dellinger, A., & Rami, J., S. (2011). A pilot study: A descriptive correlational study of factors associated with weight in college nursing students. *ABNF Journal, 22*(4), 89-95. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=cin20&AN=2011363630&site=ehost-live

Smith, A., Ortiguera, S., Laskowski, E., Hartman, A., Mullenbach, D., Gaines, K., . . . Fisher, W. (2001). A preliminary analysis of psychophysiological variables and nursing performance in situations of increasing criticality. *Mayo Clinical Proceedings, 76*, 275-284.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural

    equation models. *Sociological Methodology, 13*, 290-312.

Soper, D. S. (2013). *Sobel test calculator for the significance of mediation [software].*

    Available from http://www.danielsoper.com/statcalc.

Sprengel, A., & Job, L. (2004). Reducing student anxiety by using clinical peer

    mentoring with beginning nursing students. *Nurse Educator, 29*(6), 246-250.

Stark, M., Manning-Walsh, J., & Vliem, S. (2005). Caring for self while learning to care

    for others: A challenge for nursing. *Journal of Nursing Education, 44*(6), 266-270.

Steptoe, A., Wardle, J., Weiwei, C., Bellisle, F., Zotti, A., Baranyai, R., & Sanderman, R.

    (2002). Trends in smoking, diet, physical exercise, and attitudes toward health in

    European university students from 13 countries, 1990-2000. *Preventive Medicine,*

    35, 97-104. doi:10.1006/pmed.2002.1048

Strecher, V., DeVillis, B., Becker, M., & Rosenstock, I. (1986). The role of self-efficacy

    in achieving health behavior change. *Health Education Quarterly, 13*(1), 73-91.

    doi:0195-8402/86/010073-91

Suhr, D. (2008). *Step your way through path analysis*. Proceedings from the 16th Annual

    Western Users of SAS ® Software Regional Conference, November 5-7, 2009,

    Universal City, California:

Suzuki, K., Ohida, T., Kaneita, Y., Yokoyama, E., Miyake, T., Harano, S., . . . Uchiyama,

    M. (2004). Mental health status, shift work, and occupational accidents among

    hospital nurses in Japan. *Journal of Occupational Health, 46*(6), 448-454.

Suzuki, K., Ohida, T., Kaneita, Y., Yokoyama, E., & Uchiyama, M. (2005). Daytime

    sleepiness, sleep habits and occupational accidents among hospital nurses. *Journal*

    of Advanced Nursing, 52(4), 445-453.

Tabachnick, B., & Fidell, L. (2007). In Hartman S. (Ed.), *Using multivariate statistics*.

    Boston, MA: Pearson Education, Inc.

U.S. Department of Health and Human Services. (2005). Healthy people 2010 fact sheet.

    Retrieved March 20, 2012, from http://www.healthypeople.gov/2010/

United States Department of Labor. (2012a). Bureau of labor statistics: Occupational

    outlook handbook, 2010-2011 edition. Retrieved March 29, 2012, from

    http://www.refworks.com.authenticate.library.duq.edu/refworks2/default.aspx?r=re

    ferences%7CMainLayout::init

United States Department of Labor. (2012b). Bureaus of labor statistics: Economic news

    release the 30 occupations with the largest projected employment growth, 2010-

    2020. Retrieved March 29, 2012, from

    http://www.bls.gov/news.release/ecopro.t06.htm

Urasaki, M., Oshima, N., Okabayashi, A., Sadatsune, M., Shibuya, A., Nishiura, A., &

    Takao, T. (2009). The patient health questionnaire scores and the lifestyles of

    nursing students. *Southern Medical Journal, 102*(8), 800-800-804.

Von Ah, D., Ebert, S., Ngamvitroj, A., Parj, N., & Kang, D. (2004). Predictors of health

    behaviours in college students. *Journal of Advanced Nursing, 48*(5), 463-474.

    doi:10.1111/j.1365-2648.2004.03229.x

vonBothmer, M., & Fridlund, B. (2005). Gender differences in health habits and in motivation for a healthy lifestyle among Swedish university students. *Nursing and Health Sciences, 7*, 107-118.

Walker, S. (2013). In Grund F. (Ed.), *Email communication regarding missing values and HPLP II*

Walker, S., & Hill-Polerecky, D. (1996). *Psychometric evaluation of the health-promoting lifestyle profile II.* Unpublished manuscript.

Walker, S., Sechrist, K., & Pender, N. (1987). The health promoting lifestyle profile: Development and psychometric properties. *Nursing Research, 36*(2), 76-81.

Watson, R., Gardiner, E., Hogston, R., Gibson, H., Stimpson, A., Wrate, R., & Deary, I. (2008). A longitudinal study of stress and psychological distress in nurses and nursing students. *Journal of Clinical Nursing, 18*, 270-278. doi:10.1111/j.1365-2702.2008.02555.x

Weitzman, E. R. (2004). Poor mental health, depression, and associations with alcohol consumption, harm, and abuse in a national sample of young adults in college. *Journal of Nervous & Mental Disease, 192*(4), 269-277. Retrieved from http://ovidsp.ovid.com.authenticate.library.duq.edu/ovidweb.cgi?T=JS&NEWS=N&PAGE=fulltext&AN=00005053-200404000-00003&D=ovftg

Welsh, D. (2009). Predictors of depressive symptoms in female medical-surgical hospital nurses. *Issues in Mental Health Nursing, 30*, 320-326. doi:10.1080/0161284090275437

Wieclaw, J., Agerbo, E., Mortensen, P., Burr, H., Tuchsen, F., & Bonde, J. (2008). Psychosocial working conditions and the risk of depression and anxiety disorders

in the Danish workforce. *BMC Public Health, 8*, 280-289. doi:10.1186/1471-2458-8-280

Williams, R. A., Hagerty, B. M., Murphy-Weinberg, V., & Wan, J. (1995). Symptoms of depression among female nursing students. *Archives of Psychiatric Nursing, 9*(5), 269-278. Retrieved from http://search.ebscohost.com.authenticate.library.duq.edu/login.aspx?direct=true&db=cin20&AN=1995031823&site=ehost-live

Wolkowitz, A., & Kelley, J. (2010). Academic predictors of success in a nursing program. *Journal of Nursing Education, 49*(9), 498-504.

World Health Organization. (2005). The Bangkok charter for health promotion in a globalized world. Retrieved March 23, 2012, from http://www.who.int/healthpromotion/conferences/6gchp/hpr_050829_%20BCHP.pdf

World Health Organization. (2009). *Milestones in health promotion: Statements from global conferences.* (No. WHO/NMH/CHP/09.01). Geneva Switzerland:

Wuensch, K. (2009). *Conducting a path analysis with SPSS/AMOS*. East Carolina University: Department of Psychology.

Yearwood, E., & Riley, J. (2010). Curriculum infusion to promote nursing student well-being. *Journal of Advanced Nursing, 66*(6), 1356-1364. doi:10.1111/j.1365-2648.2010.05304.x

Zalewska-Puchala, J., Majda, A., Galuszka, A., & Kolonko, J. (2007). Health behaviour of students versus a sense of self-efficacy. *Advances in Medical Sciences, 52*(1), 73-77.

Zapka, J., Lemon, S., Magner, R., & Hale, J. (2009). Lifestyle behaviours and weight among hospital-based nurses. *Journal of Nursing Management, 17*(7), 853-860. doi:10.1111/j.1365-2834.2008.00923.x

Appendix A
Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students
Demographic Questionnaire

1. Academic Institution
    a. Ashland University
    b. Lourdes University
    c. Mt. Carmel College of Nursing

2. Student enrollment status (Please circle the item matching the current number of credit hours in which you are enrolled this semester):
    a. Full time
        i. 12 credit hours
        ii. 13-15 credit hours
        iii. 16-19 credit hours
    b. Part time
        i. 6-11 credit hours
        ii. 5 or less credit hours

3. Number of credit hours completed including transfer credit hours: _____

4. Overall Cumulative Grade Point Average: _____

5. Nursing Course Cumulative Grade Point Average: _____

6. TEAS V Cumulative Score: _____

7. Age: _____

8. Gender
    a. Male
    b. Female

9. Race/Ethnicity
    a. Are you:
        i. Hispanic or Latino
        ii. Not Hispanic or Latino
    b. Are you:
        i. American Indian or Alaska Native
        ii. Asian
        iii. Black or African American
        iv. Native Hawaiian or Other Pacific Islander
        v. White
        vi. Other (specify) _____

10. Do your available financial resources:
    a. Meet your financial needs
    b. Not meet your financial needs

11. How many hours per week do you work for pay? _____

12. Do you report on the Free Application for Federal Student Aid (FAFSA) that you are:
    a. Independent
    b. Dependent (parents report you on their income tax forms)

13. How much debt do you anticipate you will have related to your education upon graduation? _____

14. How would you describe your general health?
    a. Excellent
    b. Very Good
    c. Good
    d. Fair
    e. Poor

15. How do you describe your weight?
    a. Very underweight
    b. Slightly underweight
    c. About the right weight
    d. Slightly overweight
    e. Very overweight

16. What is your weight in pounds? _____

17. What is your height in feet and inches? _____feet + _____ inches

18. What is your relationship status?
    a. In a relationship, not living together
    b. In a relationship, living together
    c. Not in a relationship

19. What is your marital status?
    a. Single
    b. Married/Partnered
    c. Divorced
    d. Separated
    e. Other

20. Where do you currently live?
   a. Campus Residence Hall
   b. Sorority or Fraternity House
   c. Other College/University Housing
   d. Other Off-Campus Housing
   e. Parent's Home

21. How often have you used cigarettes and/or cigars in the last 30 days?
   a. Never used
   b. Used in past, but not in last 30 days
   c. 1-5 days
   d. 6-10 days
   e. 11-20 days
   f. 21-30 days

22. How often have you used a water pipe in the last 30 days?
   a. Never used
   b. Used in past, but not in last 30 days
   c. 1-5 days
   d. 6-10 days
   e. 11-20 days
   f. 21-30 days

23. How often have you used alcohol in the last 30 days?
   a. Never used
   b. Used in past, but not in last 30 days
   c. 1-5 days
   d. 6-10 days
   e. 11-20 days
   f. 21-30 days

24. In the last two weeks, how many times have you had four or more drinks at a sitting?
   a. None
   b. 1-2 times
   c. 3-4 times
   d. 5-6 times
   e. 7-8 times
   f. 9-10 times
   g. daily

25. How often have you used any street drugs in the last 30 days?
    a. Never used
    b. Used in past, but not in last 30 days
    c. 1-5 days
    d. 6-10 days
    e. 11-20 days
    f. 21-30 days

26. How often have you used a prescription drug not prescribed to you in the last 30 days?
    a. Never used
    b. Used in past, but not in last 30 days
    c. 1-5 days
    d. 6-10 days
    e. 11-20 days
    f. 21-30 days

27. Have you ever been diagnosed with one of the following mental health disorders:
    a. Depression
    b. Bipolar disorder
    c. Anxiety disorder
    d. Post Traumatic Stress Disorder
    e. Attention Deficit Hyperactivity Disorder
    f. Schizophrenia
    g. Other (specify) _____
    h. None of the above

28. Have you been treated in the past for the mental health disorder with:
    a. Medication
        i. Antianxiety
        ii. Antidepressant
        iii. Antipsychotic
        iv. Mood Stabilizer
        v. Stimulants
        vi. Other (medication specifically for mental disorder)
           _____
    b. Therapy
        i. Type: _____
    c. Medication and Therapy Combined
    d. None of above

29. Do you currently have a diagnosis of one of the following mental health disorders:
   a. Depression
   b. Bipolar disorder
   c. Anxiety disorder
   d. Post Traumatic Stress Disorder
   e. Attention Deficit Hyperactivity Disorder
   f. Schizophrenia
   g. Other (specify) _____
   h. None of the above

30. Are you currently being treated with one of the following for a mental health disorder with:
   a. Medication
      i. Antianxiety
      ii. Antidepressant
      iii. Antipsychotic
      iv. Mood Stabilizer
      v. Stimulants
      vi. Other (medication specifically for mental disorder)

      _____

   b. Therapy
      i. Type: _____
   c. Medication and Therapy Combined
   d. None of above

31. Do you seek mental health/counseling services from:
   a. University/College where you attend
   b. Health care provider locally in community of university/college
   c. Health care provider in home community (including if community where university/college located is your home town)

Appendix B

Marital Status: _____ Age: _____ Sex: _____

Occupation: _____ Education: _____

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group that best describes the way you have been feeling during the **past two weeks, including today.** Circle the number beside the statement you have picked. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure that you do not choose more than one statement for any group, including Item 16 (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

1. Sadness
0   I do not feel sad.
1   I feel sad much of the time.
2   I am sad all the time.
3   I am so sad or unhappy that I can't stand it.

2. Pessimism
0   I am not discouraged about my future.
1   I feel more discouraged about my future than I used to be.
2   I do not expect things to work out for me.
3   I feel my future is hopeless and will only get worse.

3. Past Failure
0   I do not feel like a failure.
1   I have failed more than I should have.
2   As I look back, I see a lot of failures.
3   I feel I am a total failure as a person.

4. Loss of Pleasure
0   I get as much pleasure as I ever did from the things I enjoy.
1   I don't enjoy things as much as I used to.
2   I get very little pleasure from the things I used to enjoy.
3   I can't get any pleasure from the things I used to enjoy.

5. Guilty Feelings
0   I don't feel particularly guilty.
1   I feel guilty over many things I have done or should have done.
2   I feel quite guilty most of the time.
3   I feel guilty all of the time.

6. Punishment Feelings
0   I don't feel I am being punished.
1   I feel I may be punished.
2   I expect to be punished.
3   I feel I am being punished.

7. Self-Dislike
0   I feel the same about myself as ever.
1   I have lost confidence in myself.
2   I am disappointed in myself.
3   I dislike myself.

8. Self-Criticalness
0   I don't criticize or blame myself more than usual.
1   I am more critical of myself than I used to be.
2   I criticize myself for all of my faults.
3   I blame myself for everything bad that happens.

9. Suicidal Thoughts or Wishes
0   I don't have any thoughts of killing myself.
1   I have thoughts of killing myself, but I would not carry them out.
2   I would like to kill myself.
3   I would kill myself if I had the chance.

10. Crying
0   I don't cry any more than I used to.
1   I cry more than I used to.
2   I cry over every little thing.
3   I feel like crying, but I can't.

Subtotal Page 1   **Continued on Back**

201

11. Agitation

   0   I am no more restless or wound up than usual.

   1   I feel more restless or wound up than usual.

   2   I am so restless or agitated that it's hard to stay still.

   3   I am so restless or agitated that I have to keep moving or doing something.

12. Loss of Interest

   0   I have not lost interest in other people or activities.

   1   I am less interested in other people or things than before.

   2   I have lost most of my interest in other people or things.

   3   It's hard to get interested in anything.

13. Indecisiveness

   0   I make decisions about as well as ever.

   1   I find it more difficult to make decisions than usual.

   2   I have much greater difficulty in making decisions than I used to.

   3   I have trouble making any decisions.

14. Worthlessness

   0   I do not feel I am worthless.

   1   I don't consider myself as worthwhile and useful as I used to.

   2   I feel more worthless as compared to other people.

   3   I feel utterly worthless.

15. Loss of Energy

   0   I have as much energy as ever.

   1   I have less energy than I used to have.

   2   I don't have enough energy to do very much.

   3   I don't have enough energy to do anything.

16. Changes in Sleeping Pattern

   0   I have not experienced any change in my sleeping pattern.

  1a   I sleep somewhat more than usual.

  1b   I sleep somewhat less than usual.

  2a   I sleep a lot more than usual.

  2b   I sleep a lot less than usual.

  3a   I sleep most of the day.

  3b   I wake up 1–2 hours early and can't get back to sleep.

17. Irritability

   0   I am no more irritable than usual.

   1   I am more irritable than usual.

   2   I am much more irritable than usual.

   3   I am irritable all the time.

18. Changes in Appetite

   0   I have not experienced any change in my appetite.

  1a   My appetite is somewhat less than usual.

  1b   My appetite is somewhat greater than usual.

  2a   My appetite is much less than before.

  2b   My appetite is much greater than usual.

  3a   I have no appetite at all.

  3b   I crave food all the time.

19. Concentration Difficulty

   0   I can concentrate as well as ever.

   1   I can't concentrate as well as usual.

   2   It's hard to keep my mind on anything for very long.

   3   I find I can't concentrate on anything.

20. Tiredness or Fatigue

   0   I am no more tired or fatigued than usual.

   1   I get more tired or fatigued more easily than usual.

   2   I am too tired or fatigued to do a lot of the things I used to do.

   3   I am too tired or fatigued to do most of the things I used to do.

21. Loss of Interest in Sex

   0   I have not noticed any recent change in my interest in sex.

   1   I am less interested in sex than I used to be.

   2   I am much less interested in sex now.

   3   I have lost interest in sex completely.

_____ Subtotal Page 2

_____ Subtotal Page 1

_____ Total Score

281263-2   32

Appendix C

Interpersonal Support Evaluation List – College Version (S. Cohen)

Instructions: For each statement, circle **probably TRUE (PT)** if the statement is true about you or **probably FALSE (PF)** if the statement is not true about you.

You may find that many of the statements are neither clearly true nor clearly false. In these cases, try to decide quickly whether probably true or probably false is most descriptive of you. Although some questions will be difficult to answer, it is important that you pick one alternative or the other. Please remember to circle only one of the alternatives for each statement.

Please read each item quickly but carefully before responding. Remember that this is not a test and there is no right or wrong answer.

Circle: PROBABLY
True or False

1.	I know someone who would loan me $50 so I could go away for the weekend.	PT	PF
2.	Most of my friends have not adjusted to college as easily as I have.	PT	PF
3.	There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have with making friends.	PT	PF
4.	I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have adjusting to college life.	PT	PF
5.	I don't know anyone at school or in town who makes my problems clearer and easier to understand.	PT	PF
6.	I know someone who would give me some old dishes if I moved into my own apartment.	PT	PF
7.	Most people who know me well think highly of me.	PT	PF
8.	Most people are more attractive than I am.	PT	PF
9.	Even if I needed it my family would (or could) not give me money for tuition and books.	PT	PF
10.	I will have a better future than most other people will.	PT	PF
11.	I know someone who would loan me $100 to help pay my tuition.	PT	PF
12.	I don't talk to a member of my family at least once a week.	PT	PF
13.	I don't know anyone at school or in town who would help me study for an exam by spending several hours reading me questions.	PT	PF
14.	I don't usually spend two evenings on the weekend doing something with others.	PT	PF
15.	There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about my feelings of loneliness and depression.	PT	PF
16.	If I needed it, my family would provide me with an allowance and spending money.	PT	PF
17.	Lately, when I've been troubled, I keep things to myself.	PT	PF
18.	I know someone who I see or talk to often with whom I would feel perfectly comfortable discussing any sexual problems I might have.	PT	PF
19.	I don't know anyone at school or in town who would loan me their car for a couple of hours.	PT	PF
20.	I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have with drugs.	PT	PF

This scale is from:

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985)

21.	If I wanted a date for a party next weekend, I know someone at school or in town who would fix me up	PT	PF
22.	People hang out in my room or apartment during the day or in the evening.	PT	PF
23.	There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have with getting along with my parents.	PT	PF
24.	I don't know anyone at school or in town who would get assignments for me from my teachers if I was sick.	PT	PF
25.	There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about difficulties with my social life.	PT	PF
26.	I know someone at school or in town who would bring my meals to my room or apartment if I were sick.	PT	PF
27.	I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about sexually transmitted diseases.	PT	PF
28.	Most of my friends think that I'm smart.	PT	PF
29.	There are people at school or in town who I regularly run with, exercise with, or play sports with.	PT	PF
30.	I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have budgeting my time between school and my social life.	PT	PF
31.	I don't know anyone who would loan me several hundred dollars to pay a doctor bill or dental bill.	PT	PF
32.	I am not a member of any social groups (such as church groups, clubs, teams, etc.)	PT	PF
33.	Most of my friends don't do as well as I do in school.	PT	PF
34.	I hang out in a friend's room or apartment quite a lot.	PT	PF
35.	I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have meeting people.	PT	PF
36.	I don't know anyone who would give me some old furniture if I moved into my own apartment.	PT	PF
37.	I belong to a group at school or in town that meets regularly or does things together regularly.	PT	PF
38.	Lately, I often feel lonely, like I don't have anyone to reach out to.	PT	PF
39.	I can get a date who I enjoy spending time with whenever I want.	PT	PF
40.	Most people think I have a good sense of humor.	PT	PF
41.	Most of my friends have more control over what happens to them than I.	PT	PF
42.	I don't have friends at school or in town who would comfort me by showing some physical affection.	PT	PF
43.	I don't feel friendly with any teaching assistants, professors, and campus or student officials.	PT	PF
44.	If I decided at dinner time to take a study break this evening and go to a movie, I could easily find someone to go with me.	PT	PF
45.	Most of my friends are more popular than I am.	PT	PF
46.	Most of my friends are more satisfied or happier with themselves than I am.	PT	PF
47.	I don't often get invited to do things with other people.	PT	PF
48.	Most of my friends are more interesting than I am.	PT	PF

Generalized Self-Efficacy

Instructions: For each statement, circle the response that is most descriptive of you:

Not at all True (NT)
Hardly True (HT)
Moderately True (MT)
Exactly True (ET)

Item	Statement	Not at all True (NT)	Hardly True (HT)	Moderately True (MT)	Exactly True (ET)
1	I can always manage to solve difficult problems if I try hard enough.	NT	HT	MT	ET
2	If someone opposes me, I can find the means and ways to get what I want.	NT	HT	MT	ET
3	It is easy for me to stick to my aims and accomplish my goals.	NT	HT	MT	ET
4	I am confident that I could deal efficiently with unexpected events.	NT	HT	MT	ET
5	Thanks to my resourcefulness, I know how to handle unforeseen situations.	NT	HT	MT	ET
6	I can solve most problems if I invest the necessary effort.	NT	HT	MT	ET
7	I can remain calm when facing difficulties because I can rely on my coping abilities.	NT	HT	MT	ET
8	When I am confronted with a problem, I can usually find several solutions.	NT	HT	MT	ET
9	If I am in trouble, I can usually think of a solution.	NT	HT	MT	ET
10	I can usually handle whatever comes my way.	NT	HT	MT	ET

Schwarzer, R., & Jerusalem, M. (1995).

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
23.	Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24.	Feel content and at peace with myself.	N	S	O	R
25.	Find it easy to show concern, love and warmth to others.	N	S	O	R

	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

Permission to Release Education Record

I give my permission for the Lourdes University Registrar's Office to release my:

- total number of credit hours completed
- cumulative grade point average
- nursing grade point average
- Test of Essential Academic Skills (TEAS) cumulative score

To: Faye J. Grund, PhDc, APRN, 1430 Ledgewood Ct., Mansfield, OH 44906
    Graduate Student at Duquesne University, Pittsburg, Pennsylvania

For: Research study - Predictors of Health Promoting Lifestyles in Junior and Senior Baccalaureate Nursing Students

_____

Student name (Please Print):

_____

Student ID_____

Signature:_____
Date:_____

Appendix G

Cover Letter

DUQUESNE UNIVERSITY

SCHOOL OF NURSING
FISHER HALL

600 FORBES AVENUE
PITTSBURGH, PA 15282
TEL 412.396.6550
FAX 412.396.6346
www.nursing.duq.edu

Dear Participant:

Thank you for considering participating in the research study: Predicting Health Promoting Lifestyles in Junior and Senior Nursing Students. Within this research packet you will find several documents for completion as follows:

- Informed Consent: Please read this document carefully and if you decide to participate in the study, please sign the consent and continue with the remaining documents. If you **decide you do not want to participate, please STOP now, return all documents to the envelope research packet and return the sealed envelope to the researcher before leaving.**

If you signed the informed consent please continue to complete the following research tools:
- Demographic Questionnaire: .The envelope you received from the Registrar (or their designee) has information about your academic record that you will be asked to transfer onto the demographic questionnaire. You will keep this information sheet provided by the Registrar and NOT PUT THE INFORMATION SHEET INTO THE RESEARCH PACKET.
- Beck Depression Inventory II
- Interpersonal Support Evaluation List College Version
- General Self-Efficacy tool
- Health Promoting Lifestyle Profile II

Additionally, in the research packet there is an information sheet on available counseling services on this campus. Please take this Counseling Services Information sheet with you when you complete the research tools. Should you determine you would like to seek counseling, please contact the counseling center for an appointment. Counseling services are confidentially provided and the researcher will not be made aware of your contact with them.

Upon completion of the research tools, please place them into the envelope, seal the envelope, put the last four digits of your school identification number on the outside of the envelope and return the envelope to the researcher. If you prefer, you may take the completed research packet sealed envelope to the nursing office (Room ###) by closing today (#:##pm).

You may contact the researcher with any questions by phone:
Faye Grund, MSN, APRN
419-631-2205

Thank you!

Faye J. Grund

DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: Predictors of Health Promoting Lifestyles in Baccalaureate
Nursing

Students

INVESTIGATOR: Faye J. Grund, MS, APRN bc
PhD Student
Duquesne University School of Nursing
1430 Ledgewood Ct.
Mansfield, Ohio 44906
419-756-7723

DISSERTATION CHAIR: Kathleen Sekula, PhD, APRN, FAAN
Associate Professor
Duquesne University School of Nursing
523Fisher Hall
Pittsburgh, PA 15282
412.396.4865

SOURCE OF SUPPORT: This study is being performed as partial fulfillment of the
requirements for the doctoral degree in Nursing at
Duquesne University.

PURPOSE: You are being asked to participate in a research project that
seeks to investigate the predictors of health promoting
lifestyles in baccalaureate nursing students. You are being
asked to utilize the last four digits of your university
identification number on all questionnaires to allow the
researcher to match the responses on your questionnaires to
academic information listed below.

You are being asked to complete a demographic
questionnaire requesting information on age, gender,

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height, weight, tobacco and drug use, living situation, relationship status, financial resources, heath status, ethnicity, prior and current mental health diagnosis and treatment. You are also being asked to record information from your academic record onto the demographic questionnaire including total credit hours completed, current cumulative grade point average, and score results from the Assessment Technology Institute Test of Essential Academic Skills IV/V. This information will be provided to you in a sealed envelope prepared in the registrar's office. This academic information will be matched with your responses on the questionnaires. Additionally, you are being asked to complete the Health Promoting Lifestyle Profile II, the Beck Depression Inventory II, the Interpersonal Lifestyle Evaluation List College Version, and the General Self-Efficacy tool.

These questionnaires will be administered at the end of your class and will take approximately 45 minutes to complete. Once you have responded to the questionnaires, you are asked to place them inside the envelope, seal the envelope and record the last four digits of your university identification number on the outside of the envelope. The envelopes, once sealed, will be given to the researcher upon completion or placed in a designated administrator's office before the end of the day.

These are the only requests that will be made of you.

RISKS AND BENEFITS: The benefits of this research for participants include contributing to the body of knowledge related to health promoting lifestyles in baccalaureate nursing students.

Potential risks include heightened awareness of personal symptoms of depression. Should this occur, please refer to the information sheet on campus resources for counseling and support services. This information sheet is included in the packet of questionnaires.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file in the researcher's home. Your response(s) will only appear in statistical data summaries. All materials will be destroyed at the completion of the research.

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time. Additionally whether or not you agree to participate, or you choose to withdraw from the study, there will be no effect on your grades or on progression in your academic program.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Dr. Kathleen Sekula, Dissertation Chair (412.396.4865 or sekula@duq.edu) , Faye J. Grund, Investigator (419-631-2205 or grundf@duq.edu), or Dr. Joseph Kush, Chair of the Duquesne University Institutional Review Board (412-396-6326).

_____   _____
Participant's Signature   Date

_____   _____
Researcher's Signature   Date

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Appendix H

DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE:	Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students
INVESTIGATOR:	Kathleen Sekula, PhD, APRN, FAAN Associate Professor Duquesne University School of Nursing 523 Fisher Hall Pittsburgh, PA 15282 412.396.4865
CO-INVESTIGATOR:	Faye J. Grund, MS, APRN bc PhD Student Duquesne University School of Nursing 1430 Ledgewood Ct. Mansfield, Ohio 44906 419-756-7723
SOURCE OF SUPPORT:	This study is being performed as partial fulfillment of the requirements for the doctoral degree in Nursing at Duquesne University.
PURPOSE:	You are being asked to participate in a research project that seeks to investigate the predictors of health promoting lifestyles in baccalaureate nursing students. You are being asked to utilize the last four digits of your university identification number on all questionnaires to allow the researcher to match the responses on your questionnaires to academic information listed below.

You are being asked to complete a demographic questionnaire requesting information on age, gender, ethnicity, prior and current mental health diagnosis and treatment. You are also being asked to record information from your academic record onto the demographic questionnaire including total credit hours completed, current cumulative grade point average, and score results from the Assessment Technology Institute Test of Essential Academic Skills V. This information will be provided to you in a sealed envelope prepared in the registrar's office. This academic information will be matched with your responses on the questionnaires. Additionally, you are being asked to complete the Health Promoting Lifestyle Profile II, the Beck Depression Inventory II, and the Interpersonal Lifestyle Evaluation List College Version.

These questionnaires will be administered at the end of your class and will take approximately 45 minutes to complete. Once you have

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responded to the questionnaires, you are asked to place them inside the envelope, seal the envelope and record the last four digits of your university identification number on the outside of the envelope. The envelopes, once sealed, will be given to the researcher upon completion or placed in a designated administrator's office before the end of the day.

These are the only requests that will be made of you.

RISKS AND BENEFITS: The benefits of this research for participants include contributing to the body of knowledge related to health promoting lifestyles in baccalaureate nursing students.

Potential risks include heightened awareness of personal symptoms of depression. Should this occur, please refer to the information sheet on campus resources for counseling and support services. This information sheet is included in the packet of questionnaires.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file in the researcher's home. Your response(s) will only appear in statistical data summaries. All materials will be destroyed at the completion of the research.

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time. Additionally whether or not you agree to participate, or you choose to withdraw from the study, there will be no effect on your grades or on progression in your academic program.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Dr. Kathleen Sekula, Principal Investigator (412.396.4865 or sekula@duq.edu) , Faye J. Grund, Co-Investigator (419-631-2205 or grundf@duq.edu), or Dr. Joseph Kush, Chair of the Duquesne University Institutional Review Board (412-396-6326).

_____   _____
Participant's Signature   Date

_____   _____
Researcher's Signature   Date

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| TITLE: | Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students |

TITLE: Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students

INVESTIGATOR: Faye J. Grund, MS, APRN bc
PhD Student
Duquesne University School of Nursing
1430 Ledgewood Ct.
Mansfield, Ohio 44906
419-756-7723

DISSERTATION CHAIR: Kathleen Sekula, PhD, APRN, FAAN
Associate Professor
Duquesne University School of Nursing
523 Fisher Hall
Pittsburgh, PA 15282
412.396.4865

SOURCE OF SUPPORT: This study is being performed as partial fulfillment of the requirements for the doctoral degree in Nursing at Duquesne University.

Introduction

You are being asked to participate in a research project that seeks to investigate the predictors of health promoting lifestyles in baccalaureate nursing students.

What does this project involve?

You are being asked to utilize the last four digits of your university identification number on all questionnaires to allow the researcher to match the responses on your questionnaires to academic information listed below.

You are being asked to complete a demographic questionnaire requesting information on age, gender, height, weight, tobacco and drug use, living situation, relationship status, financial resources, heath status, ethnicity, prior and current mental health diagnosis and treatment. You are also being asked to grant permission for the registrar to release information on your academic record including total credit hours completed, current cumulative grade point average, nursing grade point average, and score results from the Assessment Technology Institute Test of Essential Academic Skills IV/V. This academic information will be matched with your responses on the questionnaires. Additionally, you are being asked to complete the Health Promoting Lifestyle Profile II, the Beck Depression Inventory II, the Interpersonal Lifestyle Evaluation List College Version, and the General Self-Efficacy tool.

These questionnaires will be administered at the end of your class and will take approximately 45 minutes to complete. Once you have responded to the questionnaires, you are asked to place them inside the envelope, seal the envelope and record your university identification number on the outside of the envelope. The envelopes, once sealed, will be given to the researcher upon completion or placed in a designated administrator's office before the end of the day.

Mount Carmel IRB File # 1211010-2
IRB APPROVED INFORMED CONSENT DOCUMENT
Approval date November 15 2012
THIS DOCUMENT IS NO LONGER VALID TO
ENROLL SUBJECTS AFTER November 14 2013 Page 1 of 2

These are the only requests that will be made of you.

Approximately 260 baccalaureate nursing students will participate in this research study.

What are the possible risks of this research study?

Potential risks include heightened awareness of personal symptoms of depression and the potential risk of loss of confidentiality. Should this occur, please refer to the information sheet on campus resources for counseling and support services. This information sheet is included in the packet of questionnaires.

What are the possible benefits from taking part in this research study?

The benefits of this research for participants include contributing to the body of knowledge related to health promoting lifestyles in baccalaureate nursing students.

How will my confidentiality be maintained?

Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file in the researcher's home. Your response(s) will only appear in statistical data summaries. All materials will be destroyed at the completion of the research.

Can I withdraw my consent for participation in this research study?

You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time. Additionally whether or not you agree to participate, or you choose to withdraw from the study, there will be no effect on your grades or on progression in your academic program.

How can I get more information?

A summary of the results of this research will be supplied to you, at no cost, upon request.

I understand that should I have any further questions about my participation in this study, I may call Dr. Kathleen Sekula, Dissertation Chair (412.396.4865 or sekula@duq.edu) , Faye J. Grund, Investigator (419-631-2205 or grundf@duq.edu), or The Mount Carmel Institutional Review Board (614-546-4325).

Statement of Consent

I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

_____   _____
Participant's Signature   Date

_____   _____
Researcher's Signature   Date

Version: 11/12/12
Investigator: Faye Grund, PhDc, APRN bc
Site: Mount Carmel College of Nursing   Page 2 of 2

Appendix I
Ashland University
Counseling Service Information Sheet

Study: Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students

Available student counseling services may be found on the University website:
http://www.ashland.edu/students/campus-life/support-services/counseling-services

The goal of Ashland University Counseling is to accent individual student development. As such, if we can assist with any personal, private or professional concern, please contact the office of Psychological Counseling Services. Students can be assured that personal concerns will be treated as COMPLETELY CONFIDENTIAL, within the parameters of the Family Educational Rights and Privacy Act of 1974 and the Licensure Board of the State of Ohio.

Office hours are Monday through Friday, 8:00am to 5:00pm. Office closed from 12:00pm-1:00pm for lunch daily. Students may initiate services by visiting our office, located on the second floor of the Hawkins-Conard Student Center, or by calling the administrative assistant at 419-289-5307 to schedule an appointment.

Director: Oscar McKnight Ph.D., PCC-S, LSW, NCC, DCC   **omcknigh@ashland.edu**

Counselor: Kerri Carmichael MA, PC, DCC   **kcarmich@ashland.edu**

Emergency:
Call 911
MedCentral Health System Emergency Department: 419-526-8800

Mansfield Local Resources:

The Center for Individual and Family Services: 419-756-1717

The Center for Individual and Family Services Crisis Helpline (Open: 24-7): 419-522-HELP (419-522-4357)

National Alliance on Mental Illness of Richland County (NAMI): 419-522-6264

Sandoval, Diana (HAS-SAT) <Diana.Sandoval@pearson.com>   9/24/12

to Faye,
Dannette

Faye Grund,

The "Predictor's of Health Promoting Lifestyles in Baccalaureate Nursing Students" research study has been approved to receive a 50% discount on the, Beck Depression Inventory II materials.

If you require additional materials for this study, please reference the following information on your next order: Effort Code RAP, 50% discount, account 1705603 and the name of the research study. This discount will be valid until August 31, 2013 or the $5000 (full retail value) cap is reached. Available amount is $3336 ($1664 has been subtracted from the cap amount provided in your first order).

NOTE: Please be advised materials ordered for research cannot be returned. See paragraph 10 in the RAP Terms and Conditions.

http://psychcorp.pearsonassessments.com/pai/ca/support/rap/ResearchAssistanceProgram.htm

Thank you,
Diane Sandoval
Inbound Sales & Customer Support
Clinical Assessment
Pearson

19500 Bulverde Road
San Antonio, TX 7825

Dr. Cohen's Scales:

We welcome copies (e-mail is OK) of any in press or published papers using any of Dr. Cohen's scales that you are willing to share with us, and thank you in advance for your generosity. They will not be redistributed or linked without your permission.

Permissions: Permission for use of scales is not necessary when use is for nonprofit academic research or nonprofit educational purposes. For other uses, please contact Ellen Conser at conser@andrew.cmu.edu for instructions.

PERCEIVED STRESS SCALE (PSS)

<u>PLEASE NOTE</u>: The Perceived Stress Scale is not a diagnostic instrument; there are no score cut-offs. There are only comparisons within your own sample. For normative data from large US samples, see articles at right.

<u>NOTE</u> about extending the recall period: We have not collected psychometrics on other time periods. Our guess is that the longer the retrospective period becomes, the less accurate the measure will be. *Shorter* time periods (e.g., daily intervals) should not be a problem.

PSS (English; 10 Item; html version)
Word (.doc) version
Self-fillable, scorable online version of the PSS 10 (Used with permission by Dr. Fern Stockdale Winder) Please note: scoring is not updated with 2009 normative US data.
Reliability and validity information for the PSS-10 can be found in papers (1) and (3), at right.

PSS (English; 4 Item; html version)
Word (.doc) version
The 4-item version was validated. See the JHSB article (at right)

PSS (English; 14 Item; html version)
Word (.doc) version

PSS Scoring

Additional scoring and other information

PSS on Wikipedia

PSS: FREQUENTLY- ASKED QUESTIONS (Link)
The FAQ includes a list of currently available **translations**

Brief Introduction to Measures of Psychological Stress

REFERENCES to studies that examine the relationship between the Perceived Stress Scale and Biological or Verified Disease Outcomes (source: MacArthur Research Network on SES & Health). **NOTE:** This is not a comprehensive list.

PSS TRANSLATIONS

How to Acquire Permissions for Translations: To acquire permission to use a translation in your project, please attempt to contact its translator directly. If unable to contact, please reference their name and this website URL in your publications. Thank you.

Spanish PSS (10 Item)
(European Spanish; Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.)

Spanish PSS (14 Item)
Translation into European Spanish by Eduardo Remor, eduardo.remor@uam.es, and colleagues. Translation has not been pre-tested by our laboratory. For psychometrics, LINK to Drs. Remor's (2006) paper, "Psychometric Properties of a European Spanish Version of the Perceived Stress Scale (PSS)." (Thanks to Dr. Remor for granting us permission to post his work on our site.)
For more information about Dr. Remor's research:
www.uam.es/psicod/salud
www.iberohemofilia.net

Portuguese PSS (Journal Article about the 10 Item scale)
Scale Only
We would like to thank Drs. Miguel Trigo, Noélia Canudo, Danilo Silva and Fernando Branco for this translation. This translation has not been pre-tested by our laboratory. Dr. Trigo may be emailed with questions at miguel.trigo70@gmail.com

Mexican PSS (10 Item)
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Mex. Spanish PSS (10 Item)
(another version)
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.
Translation by (and thanks to) Ms. Carolina Oliva & Ms. Janet Nieves. Thanks also to Ms. Hilary Colbert (hilaryd@prodigy.net) for sending us the translation. All 3 women are with the Camden [NJ] Healthy Start Project

PAPERS ON PSS

(1.) Cohen, S., & Janicki-Deverts, D. (2012). Who's stressed? Distributions of psychological stress in the United States in probability samples from 1983, 2006 and 2009. Journal of Applied Social Psychology. This article provides **NORMATIVE DATA** for the PSS-10 from large 2006 and 2009 probability samples of the U.S.

(2.) Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385-396.
(provides **RELIABILITY** and **VALIDITY**

(3.) Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the U.S. In S. Spacapam & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on Applied Social Psychology. Newbury Park, CA: Sage.
(provides **NORMATIVE DATA** from a large U.S. sample)

PSS TRANSLATIONS

How to Acquire Permissions for Translations: To acquire permission to use a translation in your project, please attempt to contact its translator directly. If unable to contact, please reference their name and this website URL in your publications. Thank you.

French PSS (14 Item):
    French PSS (14 Item), 'General Population'
    French PSS (14 Item), 'At Work'
Translations have not been pre-tested by our laboratory; nor are we aware of their psychometric properties. Translation by - and thanks to - Dr. Jean-Pierre Rolland, Professor Emeritus, Université Paris Ouest Nanterre La Défense. Dr. Rolland may be emailed at jean-pierre.rolland@u-paris10.fr

Bulgarian PSS (14 Item)
Translation by (and thanks to) Vihra Naydenova, University of Bielefeld, Germany. Vihra's study of 709 Bulgarian college students showed very good reliability (Cronbach's alpha 0.80). For further information, contact Vihra at vihranaydenova@yahoo.com This translation has not been pre-tested by our laboratory.

Hungarian PSS (14 Item; 10 Item; 4 Item)
Translation by (and thanks to) Barna Konkoly Thege and Adrienne Stauder of the Institute of Behavioural Sciences, Semmelweis University Budapest, Hungary. For validity information, click here. For the abstract of the journal article in which the translation appears, click here.
Dr. Konkoly Thege may be emailed with questions at konkoly.thege.barna@gmail.com

Korean PSS (14 Item; 10 Item; 4 Item)
Translations by (and our thanks go out to) Dr. Eun-Hyun Lee, Ajou University, South Korea, who may be emailed with questions at ehlee@ajou.ac.kr
Dr. Lee is currently performing a validation study on the translations with Korean patients with chronic disease, and has agreed to share those results with us when completed.

Korean PSS (10 Item)
Translation by (and thanks to) Juno Park, Doctoral Student in the Counseling Psychology Program, Ball State University. This translation has not been pre-tested by our laboratory. Juno Park may be emailed with questions at shinjizzang@hotmail.com

Korean PSS (10 Item; another version)
We would like to thank Dr. Gwi-Ryung Son Hong of Hanyang University, South Korea, for this translation. Dr. Gwi-Ryung Son Hong may be contacted to request factor analysis data and other information about the translation at grson@hanyang.ac.kr
The translation was tested on 552 adults and elderly, and demonstrated acceptable psychometric properties.

KOREAN PSS – For additional information, see: Park, J. N. & Seo, Y. S. (2010). Validation of the Perceived Stress Scale on samples of Korean university students. Korean Journal of Psychology: General, 29(3). 611-629.

Chinese PSS (14 Item)
(Traditional Chinese) Translation by (and thanks to) Professor Li-Chuan Chu, Dept. of Health Services Administration, Chung-Shan Medical University. Translation has not been pre-tested by our laboratory; its psychometric properties are available in the reference cited in the link.

Taiwanese Chinese PSS (10 Item)
(Traditional Chinese) Translation by and thanks to Dr. I-Fen Lin. Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties. For additional information, contact Dr. Dana Glei at danaglei@sonic.net or http://danaglei.users.sonic.net

Chinese PSS (10 Item) pdf file MS Word file (Simplified Chinese)
Article with this translation's psychometrics in a sample of adult Chinese policewomen Translation has not been pre-tested by our laboratory; Thanks to Dr. Zhen Wang, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai, P.R. China, who is glad to receive any questions at this email: wangzhen@smhc.org.cn

Thai PSS (14 Item)
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Mex. Spanish PSS (10 Item)
(another version)
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.
Thanks to Céline Perriolat of the MAPI Research Institute (cperriolat@mapi.fr) for sending us the translation.

Mex. Spanish PSS (14 Item)
Translation by (and thanks to) Drs. Mónica Teresa González Ramírez and Rene Landero Hernandez. Their 2007 article contains psychometric information. Their 2008 article used the translation to study an explanatory model of stress and psychosomatic symptoms. Dra. González Ramírez may be contacted at: monygrz77@yahoo.com
Her website is http://www.monica-gonzalez.com/

South American (Chile) Spanish PSS (14 Item)
Translation by, and thanks to, Dr. Carlos Cruz Marín and colleagues. Their 2008 article (go to pages 116-117) provides validity and other data about the translation and its use with a sample of 117 adult students. Dr. Cruz Marín may be contacted at carloscruzmar@hotmail.com
This translation has not been pre-tested by our laboratory.
More information about Chilean Spanish translations:
Another version of the PSS-14 (South American [Chilean] Spanish)...SEE ALSO:
Article with validity and other data about Erik Marín's translation of the Chilean Spanish PSS-14;
Article with reliability data about Erik Marín's translation of the Chilean Spanish PSS-14;
Both articles collected data from 584 adults in the Santiago metropolitan area, and are courtesy of Dr. Erik Marín of the Universidad Santo Tomas. Reach him via email at erikmarincuevas@gmail.com

Spanish PSS (10 Item; translator from Puerto Rico)
Thanks to Dr. María del C. Fernández Rodríguez, who may be contacted at mfernandez@cayey.upr.edu
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Danish PSS (10 Item)
This is a consensus Danish translation, created by a collaboration of researchers: Drs. Anders Joergensen, Robert Zachariae, Lis Raabaek Olsen, Anita Eskildsen, Kent Nielsen, David Christiansen and Johan Hviid Andersen. We thank the collaborators for their efforts. Inquiries may be directed to Dr. Eskildsen at animorte@rm.dk
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Norwegian PSS (14 Item)
Thank you to Hanne Alfheim, Oslo University Hospital – Ullevål, Norway, and colleagues for sharing this translation with us. Hanne may be emailed at halfheim@ous-hf.no
The translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Swedish PSS (14 Item)
We thank Dr. Ingibjörg Jonsdottir and the translators for sharing this translation. The translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties. For more information contact Dr. Jonsdottir at ingibjorg.jonsdottir@vgregion.se or visit the Institutet för Stressmedicin website, http://www.vgregion.se/stressmedicin

To obtain another version of the Swedish PSS-14, see its source article: Eskin M, Parr D (1996). Introducing a Swedish version of an instrument measuring mental stress. Reports from the Department of Psychology, the University of Stockholm [Sweden], no. 813. Or you may request it from the translator by visiting Dr. Eskin's website.

Hebrew PSS (10 Item)
Translation by (and thanks to) Oren Lahak, Meir General Hospital, Kfar Saba, Israel (e-mail: Olahak@012.net.il). This translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Greek PSS (14 item)
Translation courtesy of (and thanks to) Eleni Andreou, who may be contacted at eandeou@gmail.com
The scale was administered to 941 healthy Greek adults, and was culturally adapted during pre-testing. Cronbach alpha was estimated at 0.79, which was interpreted as good internal consistency. Based on Pearson correlation analysis, PSS strongly correlated with the subscales of DSS 21 for stress (0,644), depression (0,606), and anxiety (0,542), while the correlation was moderate with the scale of physical stress symptoms.

Greek PSS (14 item; another version)
Translation courtesy of (and thanks to) Drs. Alexia Katsarou and Demosthenes Panagiotakos, of (respectively) University of Thessaly and Harokopio University, Greece. Dr. Katsarou may be contacted at katsaroualexia@gmail.com
The scale was administered to 100 employed Greek adults. Very good internal consistency was confirmed for the overall sample (Cronbach alpha = 0.84).

Greek PSS (10 item)
Translation by (and thanks to) Dr. Marios Adonis, University of Nicosia, Cyprus. Dr. Adonis may be reached at adonis.m@unic.ac.cy
This translation has not been pre-tested by our laboratory.

Italian PSS (10 item)
Translation by (and thanks to) Andrea Fossati, Vita-Salute San Raffaele University of Milano, who may be contacted at fossati.andrea@hsr.it
This translation has not been pre-tested by our laboratory.

German PSS (10 item)
Translation courtesy of (and thanks to) Univ.-Prof. Dr. med. Arndt Büssing, Universität Witten/Herdecke, Germany, who may be contacted at Arndt.Buessing@uni-wh.de
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

German PSS (4 item)
Translation courtesy of (and thanks to) Jan Engling, GfK SE, Nuremberg, Germany, who may be contacted at jan.engling@gfk.com
This translation has not been pre-tested by our laboratory.

German PSS (4 item [Another version])
Translation courtesy of (and thanks to) Dr. Eva Schwarz, Marketing Heel Deutschland;
e-mail: eva.schwarz@heel.de, Germany
This translation has not been pre-tested by our laboratory.

Thai PSS (10 Item)
Translation has not been pre-tested by our laboratory. Some psychometric data are available (click link).
Translation by (and thanks to) Ms. Chalalai Dongpachit. E-mail her at: chalalaid@hotmail.com
LINK to Ms. Dongpachit's dissertation abstract (Word file)

Thai PSS (10 Item, another translation)
Translation by (and thanks to) Dr. Nahathai Wongpakaran, Chiang Mai University, Thailand. E-mail: nkuntawo@med.cmu.ac.th
Translation has not been pre-tested by our laboratory.

Malayalam PSS (10 Item)
Thank you to Dr. Anisha Janardhanan, Government Medical College, Kozhikode, Kerala, India for sharing this translation with our lab. Dr. Janardhanan may be emailed at anisha_janardhanan@yahoo.com
This translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Tamil PSS (10 item)
Translation courtesy of (and thanks to) Mr. Santhalingam Sathees, University of Jaffna, Sri Lanka; email: crazyken1984@gmail.com This translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Polish PSS (14 Item)
Translation by (and thanks to) Dr. Rafael Mikolajczyk, University of Bielefeld, Germany. The scale was used in a study of 591 Polish university students and showed very good reliability (Cronbach's alpha 0.81). For further information, contact Dr. Mikolajczyk at rmikolajczyk@uni-bielefeld.de
This translation has not been pre-tested by our laboratory.

Polish PSS (10 Item)
Translation by (and thanks to) Zygfryd Juczynski and Nina Oginska-Bulik. Thanks also to Joanna Stanczak, Psychological Test Laboratory / Pracownia Testow Psychologicznych. For further information, contact Ms. Stanczak at pracownia@practest.com.pl
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Lithuanian PSS (14 Item)
We thank Simona Katauskytė for sharing her translation with our lab. She may be contacted at Simona.Katauskyte@fsf.stud.vu.lt
This translation has not been pre-tested by our laboratory.

Turkish PSS (14 Item) and preliminary psychometrics data
Translation by (and thanks to) Dr. E. Ercument Yerlikaya, University of Cukurova, Turkey. The scale was tested on 246 undergraduate university students. For further information, contact Dr. Yerlikaya at yerlikaya@cu.edu.tr
This translation has not been pre-tested by our laboratory.

Turkish PSS (10 item), psychometrics data, and an unpublished manuscript
Translation courtesy of (and thanks to) Dr. Melek Saygın, psychiatrist in private practice, who may be contacted at msaygin4@hotmail.com

Russian PSS (14 Item)
Translation by (and thanks to) Dr. Martin Egan on behalf of O.A.T.H. Research, who may be contacted at m_egan@btinternet.com
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

Urdu PSS (10 Item)
Translation courtesy of (and thanks to) Aneeqa Mariam, Asra Sarwar, Rashida Maqsood, Anum Bashir, and Kiran Aamir, and project supervisor Mamoona Ismail Luna, all of International Islamic University, Islamabad, Pakistan. For questions or to request permission for its use, please contact Aneeqa Mariam at bsp_aneeqa@yahoo.com
This translation has not been pre-tested by our laboratory.

COHEN-HOBERMAN INVENTORY of PHYSICAL SYMPTOMS (CHIPS)

Cohen, S., & Hoberman, H. (1983). Positive events and social supports as buffers of life change stress. Journal of Applied Social Psychology, 13, 99-125.

CHIPS

LIFE EVENTS CHECKLIST (LEL)

Scoring information

Source article: Cohen, S., Tyrrell, D. A. J., & Smith, A. P. (1991). Psychological stress and susceptibility to the common cold. New England Journal of Medicine, 325, 606-612.

Related articles:
Cohen, S., & Williamson, G. (1991). Stress and infectious disease in humans.

CHIPS Scoring

Psychological Bulletin,109, 5-24.

Cohen, S., Tyrrell, D. A. J., & Smith, A. P. (1993). Negative life events, perceived stress, negative affect and susceptibility to the common cold. Journal of Personality and Social Psychology, 64, 131-140.

SOCIAL NETWORK INDEX (SNI)

Social Network Index (SNI; English)
Social Network Index Scoring

Source article: Cohen, S., Doyle, W. J., Skoner, D. P., Rabin, B. S., and Gwaltney, J. M., Jr. (1997). Social ties and susceptibility to the common cold. Journal of the American Medical Association, 277, 1940-1944.

Related articles:
(1.) Bickart, K. C., et al (2011). Amygdala volume and social network size in humans. Nature Neuroscience, 14, 163-164.

(2.) Bickart, K. C., et al (2012). Intrinsic amygdala–cortical functional connectivity predicts social network size in humans. Journal of Neuroscience, 32, 14729-14741.

Portuguese Social Network Index (adapted for individuals with hearing impairments). Translation by (and thanks to) Eunice Costa at ec.nice@gmail.com Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

SC RETROSPECTIVE MEASURES OF CHILDHOOD

SC Childhood Interview (MS Word)

SC Adulthood Interview (MS Word)

Parent Social Participation (PSP) Measure (MS Word)

SC Places You've Lived Interview (MS Word)

PERMISSIONS & USAGE: SC Retrospective Measures of Childhood

INTERPERSONAL SUPPORT EVALUATION LIST (ISEL)

(links at right and below)

ISEL- General Population version
ISEL-Scoring

ISEL- College student version
ISEL-College scoring
For validity and reliability information on the College student ISEL, click here

Additional scoring and other information for the ISEL

The ISEL was designed to measure perceptions of social support among individuals in the general population. As it is **not a diagnostic scale**, absolute scores on the ISEL (or its component subscales) have no intrinsic meaning. Accordingly, ISEL item response options are valid **whether scaled as 0-3 or 1-4**, and relations of ISEL total scores (and subscale scores) to other variables of interest can be interpreted in the same way irrespective of which response scale is used. That said, if making comparisons across 2 or more sets of ISEL data, the investigator should first ensure that all ISEL variables are scaled identically prior to conducting analyses.

PSYCHOMETRICS FOR ISEL (General Population) **& SUBSCALES:**
Refer to: Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), Social support: Theory, research and application (pp. 73-94). The Hague, The Netherlands: Martinus Nijhoff.

NOTE SLIGHT DIFFERENCES IN VERSIONS: Some of the items in the version linked above differ a little bit from the original published version in terms of wording, but not in terms of the constructs they assess. Accordingly, the *scoring is the same* as for the original, with the numbers of the reversed items also being the same.

WHEN DATA IS MISSING: When computing scale (and subscale) scores, we usually require that participants have at least 75% to 85% of the data for that scale. For example, if a scale has 12 items, we require that participants be missing data on no more than 3 items in order to be included in the analysis. When computing the total scale score, we take the mean of all nonmissing items and then multiply by the number of items in the scale. Here is an example using SPSS syntax language:

scale = mean.9(item1, item2, item3,....item10, item11, item12)*12.

Computing the score in this way permits the incorporation of persons with a reasonable amount of missing data, while maintaining the scale's original metric.

ISEL-12 item version

ISEL-12 scoring

Basic psychometrics for ISEL-12 (*Word file*)

Several investigators have used short versions of the ISEL, including a 16-item and 6-item version. We were not involved in creating these scales,

ISEL TRANSLATIONS

How to Acquire Permissions for Translations: To acquire permission to use a translation in your project, please attempt to contact its translator directly. If unable to contact, please reference their name and this website URL in your publications. Thank you.

ISEL-40 item version (Spanish)
(European Spanish) Translation by Eduardo Remor, eduardo.remor@uam.es; thanks also to Amy Mayhew, amymayhew@hotmail.com.
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

and cannot provide any psychometric information about them. Below are two citations for studies that used a **16-item ISEL version** (they used the self-esteem subscale). Unfortunately, none of the articles display actual items, so we can only assume that the two studies below used the same 12 items -- from the appraisal, belonging, and tangible subscales -- that are listed on our website:

Brummett BH, Babyak MA, Siegler IC, Vitaliano PP, Ballard EL, Gwyther LP, & Williams RB (2006). Associations among perceptions of social support, negative affect, and quality of sleep in caregivers and noncaregivers. Health Psychology, 25(2), 220-225.

Brummett BH, Babyak MA; Barefoot JC; Bosworth HB; Clapp-Channing NE; Siegler IC; Williams RB Jr; & Mark DB (1998). Social support and hostility as predictors of depressive symptoms in cardiac patients one month after hospitalization: A prospective study. Psychosomatic Medicine, 60(6), 707-713.

And below is a citation for an article that used a **6-item ISEL version**, administered in the Cardiovascular Health Study:

Martire LM; Schulz R; Mittelmark MB; & Newsom JT (1999). Stability and change in older adults' social contact and social support: The Cardiovascular Health Study. Journals of Gerontology: Series B: Psychological Sciences and Social Sciences., 54B(5), S302-S311.

ISEL-40 item version (Japanese) (MS Excel file)
Translation by (and thanks to) Naomi Ueyama, Kansai University of Nursing and Health Science, who may be contacted at n.ueyama@kki.ac.jp
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

ISEL-40 item version (Polish)
Translation by (and thanks to) Dr. Danuta Zarzycka, Skubiszewski Medical University, who may be e-mailed at danuta.zarzycka@am.lublin.pl
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties, other than those reported by Dr. Zarzycka from a sample of 172 university students:
Reliabilities (Cronbach's alpha) for the total ISEL: 0.91
Each subscale: Tangible: 0.83; Belonging: 0.84; Appraisal: 0.81; and Self-esteem: 0.71.

ISEL-48 item College student version (Polish)
Translation by (and thanks to) Dr. Danuta Zarzycka, Medical University of Lublin, who may be e-mailed at danuta.zarzycka@am.lublin.pl
Psychometric properties as reported by Dr. Zarzycka from a sample of 167 college students: reliabilities (Cronbach's alpha) for the total ISEL 0.88 and for each subscale: tangible 0.54; belonging 0.75, appraisal 0.82, self-esteem 0.69.
For additional information: D. Zarzycka, B.S'gila, I Wron'ska, Makara-Studzin'ska M.: Analiza walidacyjna wybranych aspektów Skali Wsparcia Spoecznego Interpersonal Support Evaluation List 40v. General Population (ISEL-40v:GP). Psychiatria 2010; 7(3):83-94. **URL:**
http://www.psychiatria.viamedica.pl/ (Validation analysis of selected aspects of the scale for the assessment of social support - Interpersonal Support Evaluaton List - 40V. General Population (ISEL-40v:GP). Psychiatry 2010; Volume 7, No. 3: 83-94)

ISEL-40 item version (Swedish)
Translation by (and thanks to) Dr. Bruno Hagglof, University of Umeå, who may be contacted at bruno.hagglof@psychiat.umu.se
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

ISEL-40 item version (Danish)
Translation courtesy of (and thanks to) Drs. Runa Andersen and Kate Andreassoa, Region Zealand, Psychiatric Research Unit, Denmark. They may be contacted at runan@regionsjaelland.dk and kateandreasson@gmail.com
Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

ISEL-40 item version (Dutch)
Translation by (and thanks to) Jo Renty, Ghent University, Belgium, who may be contacted at Jo.Renty@skynet.be Translation has not been pre-tested by our laboratory; nor are we aware of its psychometric properties.

ISEL-40 item version (Greek)
Translation by (and thanks to) Dr. Marios Adonis, University of Nicosia, Cyprus. Dr. Adonis may be reached at adonis.m@unic.ac.cy
This translation has not been pre-tested by our laboratory.

ISEL-College student version (Greek)
Translation by: Ms. Evagelia Delistamatis, Ms. Maria Samakouri, & Dr. Miltos Livaditis. Direct inquiries to Dr. Livaditis at: vpapadop@med.duth.gr
Translation has not been pre-tested by our laboratory, nor are we aware of its psychometric properties.

PARTNER INTERACTION QUESTIONNAIRE (PIQ)

Partner Interaction Questionnaire
The PIQ inquires about the support for cuitting provided by a spouse or living partner. For our study, we developed a 20-item version of the PIQ that included 10 positive and 10 negative behaviors a partner might perform. See the source article, below, for additional details about the scale.

Source: Cohen, S., & Lichtenstein, E. (1990). Partner behaviors that support quitting smoking. Journal of Consulting and Clirical Psychology, 58, 304-309. PMID: 2365893.

DUQUESNE UNIVERSITY

Office of Research

301 ADMINISTRATION BUILDING ♦ PITTSBURGH, PA 15282-0202

Dr. Joseph C. Kush
Chair, IRB-Human Subjects
Office of Research
Phone (412) 396-6326 Fax (412) 396-5176
E-mail: kush@duq.edu

October 9, 2012

Re: Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students – (PROTOCOL # 12-15)

Dr. Kathleen Sekula
School of Nursing
Duquesne University
Pittsburgh PA 15282

Dear Dr. Sekula,

Thank you for submitting the amendment to Protocol #12-15 to the Institutional Review Board at Duquesne University.

You propose to make minor changes with regard to several aspects of your study: revising one of your research instruments, adding two additional instruments, and clarifying the language in the Consent Form and Cover Letter to the participants. The changes are consonant with procedures and documents originally approved by the IRB and pose no foreseeable risks to subjects or potential subjects.

The research remains subject to all stipulations put forth in this IRB's original approval letter and annual review remains on the cycle determined by the original approval.   The protocol number is shown above. Please use it in correspondence with our office.

The amended consent form is attached, stamped with current approval date but original expiration date. You should use the amended stamped form as original for copies that he distributes or displays.

Sincerely yours,

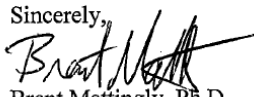Joseph C. Kush, Ph.D.

C: Dr. Linda Goodfellow
IRB Records

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ASHLAND
UNIVERSITY

TO: Faye Grund and Kathy Sekula
FROM: Brent Mattingly, HSRB Acting Chair
DATE: October 31, 2012
SUBJECT: Human Subjects Review Board Approval
PROJECT TITLE: Predictors of Health Promoting Lifestyles in
                           Baccalaureate Nursing Students
HSRB APPROVAL CODE: 10-25-12-#053

    The Human Subjects Review Board has approved the research proposal you submitted. You may proceed with the project.

    The primary function of the HSRB is to ensure protection of human research subjects. As a result of this mandate, we ask that you pay close attention to the fundamental ethical principles of autonomy, justice, and beneficence when establishing your research proposal. These ethical principles pertain specifically to the issues of informed consent, fair selection of subjects, and risk/benefit considerations.

    If you have any questions, please contact me.

Sincerely,

Brent Mattingly, Ph.D.
Phone: 419-289-5342
E-mail: bmatting@ashland.edu

LOURDES
U N I V E R S I T Y

Faye Grund
Duquesne University, School of Nursing
523 Fisher Hall
Pittsburgh, PA 15282

Re: IRB #12-55
Investigator: Grund, Faye, "Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students", Advisor: Kathleen Sekula, Ph.D.

June 12, 2013

Dear Ms. Grund,

Congratulations! Your research proposal, "Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students" was approved effective 1/23/2013. The IRB determined that your research presents no more than minimal risk to subjects and involves only procedures listed in Expedited Review Category (7): Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies (45 CFR 46.110, Category 7).

The IRB has received a signed, hard copy of the final protocol. The approval period will end on 1/22/2014. If you plan to continue research beyond the initial approval period, you must submit an application to the IRB for continuing review.

Please note that if you wish to make changes or alterations to your protocol, you must submit the proposed changes for IRB consideration. When you have completed your project, please complete a Project Closure Form, available on the IRB website. The IRB would also welcome a brief summary of your research results and conclusions. Upon completion of study, data should be kept for 3 years.

Respectfully,

Patrice McClellan, Ed.D
Chair, Institutional Review Board
Lourdes University

cc: Kathleen Sekula, Ph.D.; Faculty Advisor

MOUNT CARMEL

A MEMBER OF ⊕ TRINITY HEALTH

Institutional Review Board, Office of Research Affairs
6150 East Broad Street • Columbus, Ohio 43213-1574
mountcarmelhealth.com/research

November 19, 2012

Faye Grund, MS, APRN bc
1430 Ledgewood Court
Mansfield, Ohio 44906

Re: Predictors of Health Promoting Lifestyles in Baccalaureate Nursing Students
IRB Study #121106-2

Dear Ms. Grund:

The above titled research protocol has been approved by expedited review. The IRB was able to provide expedited approval under 45 CFR 46.110 (7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Items receiving expedited review and approval:
- Protocol
- Informed Consent Version 11/12/12
- Student Letter
- Participant Letter
- Questionnaires (2)
- Evaluation List
- Self-Efficacy
- Lifestyle Profile
- Counseling Information Sheet

The research site approved for this research protocol:

- Mount Carmel College of Nursing

This approval will appear on the agenda at the next convened meeting of the IRB. If any issues are raised, you will be notified in writing.

Date of Initial approval: 11/15/12   **Date of Expiration:**   11/14/13

This approval period is for one year. A continuing review must be accomplished before this study can proceed beyond the date of expiration. As part of our continuing review process, we may randomly audit your study to ensure compliance with regulations.

v. 8/31/07

RESPECT, COMPASSION, EXCELLENCE, CARE OF THE POOR AND UNDERSERVED, SOCIAL JUSTICE

All correspondence regarding this study must be identified by protocol title and the assigned IRB number, **121106-2**. Upon completion of the study, you will be required to submit a protocol termination report.

As Principal Investigator, your responsibilities with regard to this research protocol are:

- to conduct the research study in an ethical manner,
- to obtain prior review from the IRB before implementing any protocol amendments and changes to approved research except where necessary to eliminate apparent immediate hazards to the study subjects,
- to immediately report to the IRB any serious adverse reactions and/or unanticipated effects on subjects which may have occurred as a result of this study,
- to report any significant changes to the study site and significant deviations from the research protocol,
- to report all deaths of enrolled subjects at the approved site,
- to submit a termination report upon completion,
- to train study personnel in the proper conduct of human subject research and the protection of human subjects,
- to prepare and maintain adequate and accurate case histories that record all observations and other data pertinent to the investigation on each individual administered the investigational drug/device or employed as a control in the investigation. Case histories include the case report forms and supporting data/source documents (e.g., signed and dated consent forms and medical records, progress notes of the physician, the individual's hospital chart(s), and the nurses' notes). The case history for each individual shall document that informed consent was obtained prior to participation in the study.

The Mount Carmel Institutional Review Board is duly constituted fulfilling FDA requirements for diversity. Only those IRB/IEC members who are independent of the investigator and the sponsor of the trial are allowed to vote/provide opinion on the trial. The IRB has written procedures for initial and continuing review of clinical trials, prepares written minutes of convened meetings, and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR (Code of Federal Regulations) Parts 50, 56 and ICH (International Conference on Harmonization) guidance relating to GCPs (Good Clinical Practice).

If you have any questions regarding your protocol or this letter, please contact the IRB office at 614/546-4325 or e-mail irb@mchs.com.

Sincerely,

James M. Sinard, M.D.
Chairman
Mount Carmel Institutional Review Board

cc: IRB File