

AN INVESTIGATION OF THE RELATIONSHIP AMONG
SOCIAL SUPPORT, MOTIVATION, PERCEIVED COMPETENCE, AND
PURSUIT OF A BACCALAUREATE DEGREE
AMONG ASSOCIATE DEGREE NURSE GRADUATES

by

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A dissertation submitted to the Graduate Faculty in Nursing Science in partial
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ABSTRACT

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Advisor: Professor Keville Frederickson

The Institute of Medicine Reports of the last ten years highlight the increased complexity of health care and the need for new ways for health providers to respond. While other professional programs have adapted to the growing complexity of the healthcare system and implemented increased educational requirements for entry to practice, notably pharmacy and physical therapy, nursing has not, and remains the least educated among health professionals. The growing trend towards a two year Associate Degree as the initial nursing education degree is increasing at the same time that patient needs are becoming more complicated and health care is becoming more complex. The changing environment of the healthcare system requires an adaptive response from nursing. There is a need to explore those factors that influence educational mobility towards pursuit of a baccalaureate degree among associate degree nurse graduates, the largest segment of the nursing workforce. This quantitative, non-experimental, cross-sectional descriptive study explored the relationship among social support, motivation, competence and the pursuit of a baccalaureate degree among associate degree nurse graduates. The Roy Adaptation Model was used to guide the research design and Self-Determination Theory was used in the interpretation. A sample of 267 associate degree nurses who graduated from the City University of New York between 1997 and 2007 participated in a computer assisted telephone survey. Questionnaires included the Medical Outcomes Social Support Survey, adapted versions of the Self-Regulation

for Learning and Perceived Competence Questionnaires as well as some selected demographic questions. Significant predictors for pursuit of a baccalaureate in nursing degree among this population included younger age, non-Hispanic Black race, income range of \$104K to \$145K and autonomous regulation of learning. Significant differences were found in autonomous regulation and perceived competence between those who did and those who did not pursue a BS. Social support was not a predictor, although it correctly classified 87% of those who pursued a baccalaureate degree.

DEDICATION

This dissertation is dedicated to my parents, Peggy and Gene Joyce who instilled in me a love for books and learning; to my husband, Marty, who always believed in me; and to my children Martin, Elizabeth, Kate, Anne and Tim who each contributed in their own unique way to this journey.

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CHAPTER 1 The Research Objective

Introduction

Nursing education has mirrored that of other health profession programs in many ways including expansion of knowledge, standardization of licensure requirements and advancement of specialization (Joel, 2002). There are some unique differences, however. While other professional programs have adapted to the growing complexity of the healthcare system and implemented increased educational requirements for entry to practice, notably pharmacy and physical therapy, nursing has not, and remains the least educated among health professionals (Nelson, 2002). It is an emerging belief that this lack of education is negatively impacting the safety of patient care as well as nursing's ability to adapt and effectively participate in an increasingly complex health care system (Aiken, Clarke, Cheung, Sloane & Silber, 2003; Benner, Sutphin, Leonard, Day, 2009; Estabrooks, Midodzi, Cummings, Ricker, Giovannetti, 2005; Friese, Lake, Aiken, Silber, & Sochalski, 2008; Institute of Medicine [IOM], 2010; Kendall-Gallagher, Aiken, Sloane, Cimiotti, 2011; Tourangeau, Doran, Hall, Pallas, Pringle, Tu & Cranley, 2006). This concern has provoked discussion and debate over the basic educational level of nurses.

The American Nurses Association (ANA) has recommended that the baccalaureate degree be the entry level educational requirement for nursing practice since 1965 (ANA, 1965). For the past forty-five years, this recommendation has not been realized, and education for entry level nursing practice can still be achieved via three different routes: a hospital-based diploma program, an associate degree (AD), or a baccalaureate degree (BS). The recently published quadrennial report, the 2008 National Sample Survey of Registered Nurses (NSSRN) indicates that the most commonly reported route for initial nursing education in the U.S. continues to be

the associate degree (AD) (United States Department of Health and Human Resources [USDHHS], 2010). Hospital-based diploma programs were responsible for the education of approximately 80% of nurses prior to 1965 (Judd, Sitzman & Davis, 2010; Nelson, 2002; Orsolini-Hain & Waters, 2009). Among recent nurse graduates, defined as those RNs who completed their initial nursing education after 2000 (from 2001 to 2008), only three percent had a diploma nursing education (USDHHS, 2010). Nearly 60% of recent nurse graduates, however, earned their initial nursing education at the AD level while 39% entered the profession with a BS (USDHHS, 2010).

The continued growth in the trend towards an AD as the initial nursing education degree is increasing at the same time that patient needs are becoming more complicated and health care is becoming more complex (IOM, 2010; USDHHS, 2010). Among AD nurse graduates, 80% do not return to school (National Advisory Council on Nurse Education and Practice [NACNEP], 2010; USDHHS, 2010). The increased complexity and changing needs of patients have sparked renewed recommendations by nursing leaders and organizations for a nursing workforce with higher levels of education to adapt to the increasing demands of healthcare delivery and management of care (American Association of Colleges of Nursing [AACN], 2010; Benner, Sutphin, Leonard, & Day, 2009; IOM, 2010; NACNEP, 2010). The growing disparity between the current basic educational level of nurses and the anticipated need to prepare greater numbers of nurses at a higher educational level has serious implications for the nursing workforce that warrant investigation. The changing environment of the healthcare system requires an adaptive response from nursing. Adaptation is the ability to respond positively to change and is influenced by the demands of the situation as well as the internal resources (Roy, 2009). As such, individuals and the groups they form, are naturally active, growth oriented, adaptive organisms

that tend towards integration of a unified sense of self and integration into larger social structures (Deci & Ryan, 2000; Roy, 2009). This ability to move towards growth, integration and well-being is the basis of human action or motivation (Deci & Ryan, 2000; Roy, 2009)

Motivation focuses on factors that propel people to act (Deci & Ryan, 2000/2008). Motivational processes reflect the individual's inherent growth and satisfaction of psychological needs for autonomy, competence and relatedness as well as the influence of the socio-cultural conditions that nurture or hinder these resources (Reeve, Deci & Ryan, in McInerney & Van Etten, 2004). Academic attitudes and behaviors are strongly influenced by the social context that conveys support for feelings of autonomy, competence and relatedness (Deci & Ryan, 2000/2008; Fortier, Vallerand, Guay, 1995; Legault, Green-Demers, Pelletier, 2006). The social context is comprised of contextual environmental stimuli including key providers of social support such as family, friends, co-workers, teachers, and/or significant others (Cohen & Syme, 1985; Cohen, Underwood, & Gottlieb, 2000; Legault, Green-Demers, Pelletier, 2006; Roy, 2009). A growing body of research in educational and psychosocial literature suggests that perceived social support may influence academic achievement through motivational and affective mechanisms such as perceived competence (Ahmed, Minnaert, van der Werf, & Kuyper, 2010; Eccles, 2007; Wentzel, 1998; Wentzel, Battle, Russell, & Looney, 2010).

Social support has been identified as an important factor for retention of pre-licensure student nurses as well as for retention of nurses who return to school (Jeffries, 2004; Kalman, Wells, & Gavan, 2009; Lillibridge & Fox, 2005) and warrants further exploration of its relationship to motivation on the decision to pursue a higher degree among associate degree nurses. Eighty percent of associate degree nurse graduates do not pursue further formal education

(NACNEP, 2010; USDHHS, 2010). The recent IOM report on the Future of Nursing affirms the need for a nursing workforce with increased levels of education (2010).

There is a need to explore those factors that influence educational mobility towards the pursuit of a baccalaureate degree among associate degree nurse graduates, the largest segment of the nursing workforce. The American Association of Colleges of Nursing (AACN) defines educational mobility as “ a process by which individuals complete formal and/or informal educational offerings to acquire additional knowledge and skills” (1998, para 4). Exploring the motivational processes of adaptation to health care delivery and management of care through educational mobility, specifically, progressing from an associate degree to a baccalaureate nursing degree will add to existing knowledge about nursing education. In addition, this knowledge has the potential for the development of educational strategies that will advance the profession and improve the quality of patient care delivery.

Purpose of the Study

The purpose of this quantitative, non-experimental, cross-sectional descriptive study was to explore the relationship among social support, motivation, competence and the pursuit of a baccalaureate degree among associate degree nurse graduates. Scores for social support, motivation, perceived competence and selected demographic variables were analyzed with the outcome of pursuit of a baccalaureate degree in nursing. The specific population targeted for study was associate degree nurses from the City University of New York who graduated during the period 1997 to 2007.

Problem Statement

What are the relationships among perceived social support, motivation, perceived competence and the pursuit of a baccalaureate degree among associate degree nurse graduates?

Definitions

Perceived Social Support

For this study, perceived social support refers to the social resources that persons perceive to be available in helping relationships. The conceptual basis for social support is derived from the perceived availability of functional support as recommended by Cohen & Syme (1985), Cohen & Wills (1985), and House and Kahn (1985). It is characterized by House (1981) who proposed that social support is “an interpersonal transaction involving one or more of the following: emotional concern, instrumental aid, information or appraisal support” (p 39). Social support was operationalized with the use of the Medical Outcomes Study Social Support Survey (MOS-SSS) (Sherbourne & Stewart, 1991). This survey has been used in a variety of settings to assess social support and was created for use by telephone survey which is the method that was used in this study.

Motivation

For this study, the conceptual basis for human motivation was derived from Deci & Ryan’s Self-Determination Theory (SDT) of change (1985/2000/2008) which proposes that “it is part of the adaptive design of the human organism to engage in interesting activities, to exercise capacities, to pursue connectedness in social groups, and to integrate intrapsychic and interpersonal experiences into a relative unity” (Deci & Ryan, 2000, p229). Satisfaction of three psychological needs for autonomy, competence and relatedness influence the motivational processes that direct the individual’s adaptation to goal pursuits (Deci & Ryan, 2000). Motivation is on a continuum from extrinsic to intrinsic regulation. Extrinsically motivated or regulated behavior, is controlled by factors outside of the self, while intrinsically motivated behavior is self-determined and autonomously regulated (Deci & Ryan, 1985/2000). Motivation

orientation was operationalized with the use of a modified version of the Learning Self-Regulated Questionnaire (SRQ-L) (Black & Deci, 2000; Ryan & Connell, 1989; Williams & Deci, 1996). Use of the questionnaire determines if motivation is expressed as more autonomous (intrinsic) regulation or more controlled (extrinsic) regulation (Black & Deci, 2000).

Perceived Competence

For this study, perceived competence was viewed as a basic psychological need that enhances autonomous self-regulation (intrinsic motivation) as derived from Deci & Ryan's Self-Determination Theory (SDT) of change (1985/2000/2008). The Perceived Competence Scale (PCS) is designed to assess the construct of perceived competence specific for the relevant behavior or domain being studied and is derived from the Self-Determination Theory (Williams & Deci, 1996; Williams, Freedman, Deci, 1998). An adapted version for nurses will be used, in conjunction with the adapted version of the Learning Self-Regulated Questionnaire (SRQ-L). The authors of SDT, Deci and Ryan, affirm that new research questions may require slight adaptations of the existing questionnaire.

“The important point is to remain true to the concept and to validate the adaptations fully. We are in agreement with Loevinger (1957) that psychological tests and surveys should serve as an aid in theoretical development, so any construct is in need of continual “bootstrapping.” Scales may be in need of adaptation as the research question changes.” (http://www.psych.rochester.edu/SDT/measures/SRQ_text.php , para 5)

Associate Degree Nurse Graduate

For this study, associate degree nurse graduate was identified as an individual that obtained an associate degree in applied science in nursing from a college accredited by the state board of education to award a degree.

Assumptions

1. Humans are naturally active, adaptive beings with natural tendencies toward growth and development via adaptation and are inclined to integration of self and integration of themselves into the larger social structures of the environment (Deci & Ryan, 1985/2000; Roy & Andrews, 1999; Roy, 2009).
2. Social support refers to any process through which social relationships might promote health and well-being (Cohen, Underwood & Gottlieb, 2000)
3. Perceived Social Support is the perceived availability of interpersonal transactions that can be assigned as emotional, informational, instrumental and appraisal support. (Barrera, 1986; Cohen, Mermelstein, Kamarck, Hoberman, 1985; Cohen & Syme, 1985; Cohen & Wills, 1985; House, 1981; House & Kahn, 1985; Tilden & Weinart, 1987)
4. Self-report is an accurate measure of perceived social support, motivational orientation and perceived competence (Sarason, Shearin, Pierce, & Sarason, 1987).

Limitations

The limitations of the study include a sample drawn from associate degree nurse graduates of an urban, public university in the Northeastern United States between 1997 and 2007, therefore the results may not be generalizable to associate degree nurse graduates of other schools or areas of the US.

Conceptual and Theoretical Framework

The conceptual framework for linking the pursuit of a baccalaureate degree with motivation, perceived competence and social support was derived from Roy's Adaptation Model (RAM) (Roy, 1970/1984/2009; Roy & Andrews, 1991/1999), and Deci and Ryan's Self-Determination Theory (SDT) of behavioral change from educational psychology (1985/2000/2008). In this

study, the conceptual model was used as a guide to design the study, assist with data analysis and was utilized to explain results. The self-determination theory of change was used as an approach to operationalize the RAM concept of the cognator coping process

Roy Adaptation Model

The Roy Adaptation Model (RAM) views people as bio-psycho-social beings in constant interaction with a dynamic environment (Andrews & Roy, 1991; Roy, 1999/2009). People are defined individually as well as within groups, as human adaptive systems with the capacity to change in order to adapt to environmental stimuli, as well as promote individual and environmental transformations.

Cognator and regulator coping processes of individuals act to respond to and influence the changing environment (Roy, 2009). While the regulator sub-system acts through neural, chemical and endocrine processes, to respond to stimuli, the cognator sub-system responds through cognitive-emotional processes including: perceptual and information processing, learning, judgment and emotion (Roy, 2009). For this study, the cognator as the processor of perception, and decision making, through information processing, was expressed through the modes as pursuit (or not) of the baccalaureate degree.

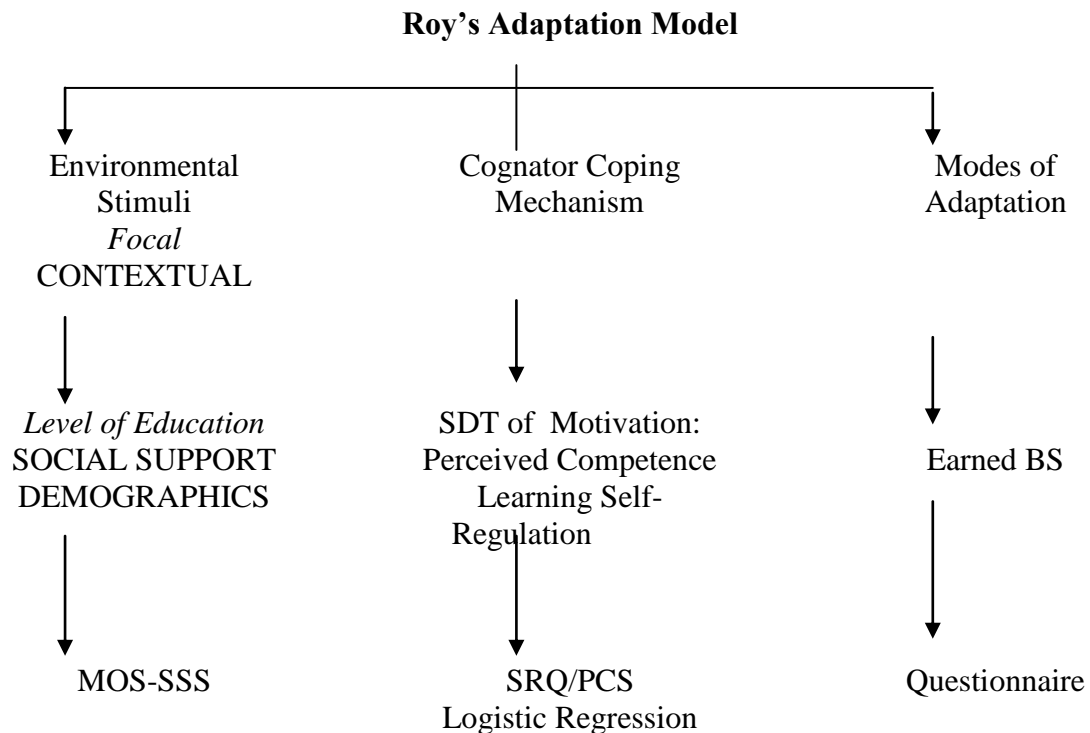
Roy conceptualizes four response modes: physiological, self-concept, role function and interdependence (Roy, 2009). The physiologic mode focuses on maintaining integrity by meeting the needs for oxygenation, nutrition, elimination, activity and rest and protection through processes involving the senses, fluid, electrolyte and acid-base balance, neurologic function, and endocrine function (Roy, 2009). The self-concept mode refers to the individual's perception of self, and adaptation responses attempt to meet the needs for psychic and spiritual integrity (Roy, 2009). The role function mode addresses the need for social integrity and encompasses

development, performance and mastery of the individual's primary, secondary and tertiary roles within society (Roy, 2009). The interdependence mode focuses on the need for relational integrity and responses address the development and maintenance of relationships where the individual feels valued and supported (Roy, 2009).

For this study, the modes were viewed as the continuation of formal education. Continuation of formal education represents components of the modes pertaining to self-concept, role, as well as the relationship one has with significant others (interdependence). The modes are interdependent and a given stimulus can affect more than one mode while a response can indicate adaptation in more than one mode (Roy, 2009). Therefore, returning to school for a baccalaureate degree involves a complex interaction among the self-concept, role function and interdependent relationships.

Stimuli are categorized as focal or of immediate concern, contextual or present in the environment, and residual or those remnants from past experience that are undefined but may continue to influence behavior (Roy 2009). As humans grow and adapt, perspective changes and the focal stimuli may shift as the context of stimuli change and the residual may become apparent (Roy, 2009). (Figure 1)

Figure 1: Proposed conceptual model of social support, motivation and pursuit of baccalaureate degree



Self-Determination Theory

Self-determination theory (SDT) is a theory of change that highlights the importance of humans' evolved inner resources for personality development and behavioral self-regulation (Ryan, Kuhl & Deci, 1997). It proposes that humans are adaptive organisms inclined to growth and integration of self and the larger social structures of the environment (Ryan & Deci, 2000).

People are moved to act by different factors that are internal or external to the self (Ryan & Deci, 2000). Internal or intrinsic motivation is considered more autonomous and self-determined, while extrinsic motivation is considered to be controlled by external factors outside of the self (Deci & Ryan, 2000/2008). There are different degrees of extrinsic regulation along a continuum, and in a supportive social context, the social values and external motivating factors can be integrated as a form of intrinsic motivation (Ryan & Deci, 2000). This supportive social

context must satisfy the individual's basic needs for autonomy, competence and relatedness in order for this adaptation to occur (Deci & Ryan, 2000/2008).

A basic need is an energizing state that moves the individual toward health and well being if satisfied (Ryan & Deci, 2000). People are motivated to pursue goals, domains and relationships that allow or support the satisfaction of their basic needs for autonomy, competence and relatedness (Deci & Ryan, 2000). The quality of the person's motivation (autonomous vs controlled) is more important than the total amount for predicting outcomes such as psychological health and well-being, effective performance, and conceptual learning (Deci & Ryan, 2000). The more autonomous the self-regulation of behavior, the more intrinsically motivated, and the more integrated is the self-concept. Autonomous regulation is associated with enhanced academic performance and persistence (Deci & Ryan, 1991; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), self-esteem (Deci & Ryan, 1995) and well-being (Ryan, Deci & Grolnick, 1995).

The Continuum of Motivation

There are four types of extrinsic motivation that exist on a continuum: external regulation, introjection, identification and internalization (Deci & Ryan, 2000). External regulation can direct behavior but the locus of causality is external to the self, such as fear of punishment (Deci & Ryan, 2008). Introjected regulation governs behavior through self-imposed consequences such as guilt, shame or pride that are external to the innate, self-determined regulation of behavior (Deci & Ryan, 2008). Identification as regulation occurs when the individual identifies and accepts the underlying value of a behavior, thus making it partly self-determined, although does not fully internalize it as their own (Deci & Ryan, 2000). An example would be exercising for health, not innate pleasure. Integration is the process of fully accepting

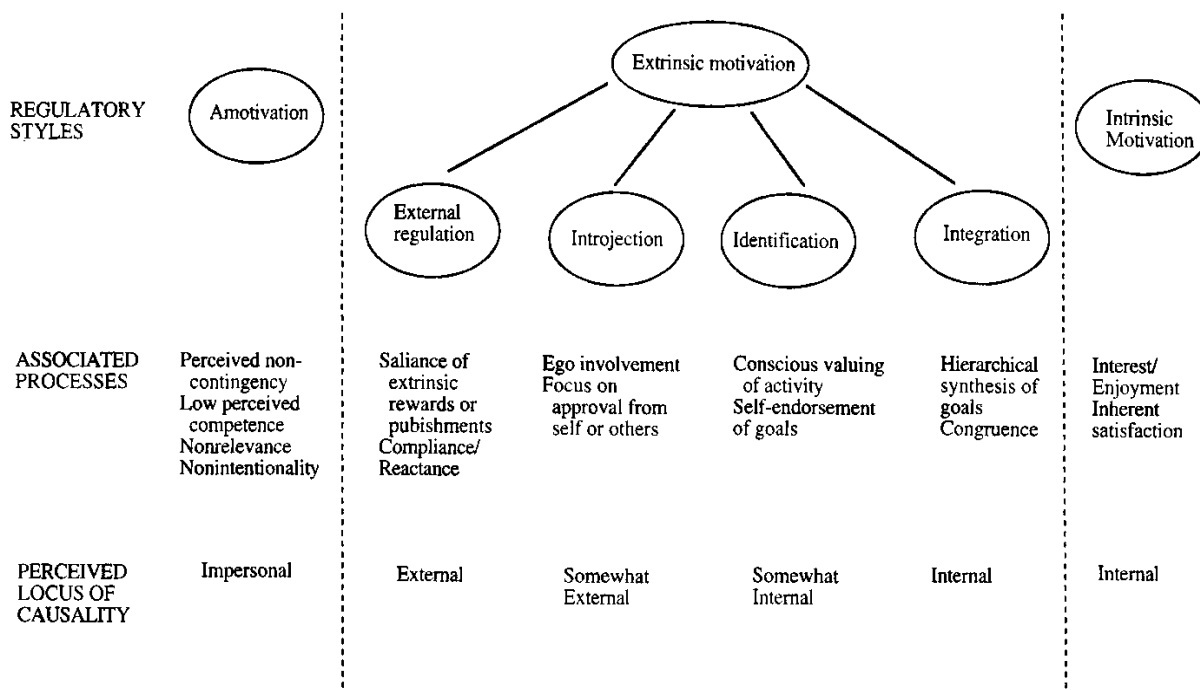
and assimilating the motivation into the identity of self, resulting in a self-determined though extrinsic regulation (Deci & Ryan, 2000). Integrated regulation approximates intrinsic motivation in its degree of self-determination but differs in that the integrated regulation is based on the individual's internalization of adopted values and goals, while intrinsic motivation is engaged in freely, out of interest by the individual (Deci & Ryan, 2000).

Individuals acquire, internalize and integrate external motivation processes. In other words, people are inclined to internalize the social values and external motivations of their environment and progressively transform them into personal values and self-determined motivations when the context satisfies the needs for autonomy, competence and relatedness (Deci & Ryan, 2000). This conception of internalization has shifted the differentiation of motivation from a focus on intrinsic versus extrinsic to a focus on autonomous versus controlled regulation of behavior (Deci & Ryan, 2008).

Within SDT there is also a concept of Amotivation, which means to be neither intrinsically nor extrinsically motivated—i.e. the individual lacks intention or motivation for a particular behavior (Deci & Ryan, 2000). The perceived locus of causality is impersonal. (Figure 2).

Figure 2 Taxonomy of Human Motivation

The Self-Determination continuum showing types of motivation with their regulatory styles, loci of causality, and corresponding processes



Ryan, R. & Deci, E. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55 (1), 68-78. DOI: 10.1037//0003-066X.55.1.68. p 72
(Copyright APA, 2000, reproduced with permission [Appendix E & F])

Integration of Conceptual and Theoretical

The structure of this study was based on the utilization of the conceptual constructs of the Roy Adaptation Model (RAM). The Self-Determination Theory (SDT) is used at the theoretical level to operationalize the cognator. By integrating SDT with the RAM, the constructs of motivation and the pursuit of a baccalaureate degree among associate degree nurse graduates have conceptual and theoretical support. Within the RAM, the level of nursing education could be viewed as focal stimuli. Contextual stimuli are the types of social support that the associate degree nurse has in place to support adaptation. Residual stimuli or those that are unknown may

include past and present messages from family, friends, faculty, and managers regarding baccalaureate education for nurses, as well as past experiences while in the AD nursing education program.

The cognator is a coping process subsystem that responds through four channels: perceptual and information processing, learning, judgment and emotion (Roy, 2009). The cognator receives the input of the motivation orientation, the perceptions of competence, and the perceived social support influence. The cognator will process this information and a decision will be made via the judgment component. For this study, indicators for the perceptual and information processing and the judgment components of the cognator coping process were considered.

Self-Determination Theory (Deci & Ryan, 2009) proposes that satisfaction of three psychological needs for autonomy, competence and relatedness enhance the behavioral regulatory process toward intrinsic motivation and well-being. Socially supportive systems enhance the satisfaction of these needs through transactions that are classified as emotional, instrumental, informational, and affirmational support (Cohen, Underwood, & Gottlieb, 2000). This is consistent with Roy's description of the mutuality of the relationships in the interdependent mode (2009).

The SDT theory suggests that the more autonomous or intrinsically motivated the individual, the more likely they are to engage in behaviors that are adaptive and that promote well-being and personal integration (Deci & Ryan, 2000). One example of such adaptive behaviors within the RAM would be continuation of formal education, an adaptation response that would promote the integrity of the human system in terms of growth, mastery and human transformation which in turn contributes to higher levels of adaptation (Roy, 2009, p 39).

At the theoretical level, the conceptual framework of the RAM proposes that autonomously regulated motivation towards academics and perceived competence for academics can positively influence the decision to pursue a baccalaureate degree among associate degree nurse graduates. Social support can influence the development of intrinsic motivation through satisfaction of the needs for autonomy, competence and relatedness. The decision to pursue a baccalaureate degree among AD nurses can be viewed as an adaptation within the self-concept and role modes which can be supported through the social support network of the interdependent mode.

Research Questions

1. Is there a relationship between social support and motivation among Associate Degree Nurse Graduates?

2. Is there a relationship between social support and perceived competence among Associate Degree Nurse Graduates?

3. Is there a relationship between social support and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?

4. Is there a relationship among motivation, perceived competence and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?

5. Is there a relationship among social support, motivation, perceived competence and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?

Need for the Study

In 1999, the Institute of Medicine (IOM) published a shocking report entitled *To Err is Human*, and reported that as many as 98,000 people die each year due to preventable errors by healthcare providers. This launched a broad scale initiative to initiate changes to promote patient safety, including support for increased nursing education and the number of nurses in the

workforce. In light of this, it was deemed important that programs that educate nurses be strengthened and enhanced in order to meet the healthcare needs of the nation. This recommendation was further and more emphatically supported in the 2003 report on *Health Professions Education* as well as the most recent report from the IOM on the *Future of Nursing* (IOM, 1999/2003/2010).

The issue of the educational level of nurses was resurrected by Aiken's (2003) landmark study on surgical patient mortality and educational levels of hospital nurses. In this study, Aiken contends that for every ten percent increase in the proportion of nurses with bachelor's degrees or higher, there was a five percent decrease in surgical patients' 30 day mortality rate. Subsequent studies have supported the finding that improved patient outcomes are associated with increased proportions of baccalaureate prepared nurses on staff (Estabrooks, Midozi, Cummings, Ricker, & Giovannetti, 2005; Tourangeau, Doran, Hall, Pallas, Pringle, Tu, & Cranley, 2006; Friese, Lake, Aiken, Silber, & Sochalski, 2008; Kendall-Gallagher, Aiken, Sloane & Cimiotti, 2011; Van Den Heede, Lasaffre, Diya, Vleugels, Clarke, Aiken & Sermeus, 2009).

In 2008, only 34 percent of nurses reported their initial nursing education to be a baccalaureate degree while over 60 percent reported the AD or diploma as their initial nursing education degree (USDHHS, 2010). The current infrastructure of baccalaureate nursing education programs is not adequate to meet the latest recommendations from the IOM (2010) and NACNEP (2010) as well as those of nursing organizations and nurse leaders (AACN, 2000; Benner, Sutphin, Leonard & Day, 2009), to increase the numbers of baccalaureate prepared nurses to 80% of the nursing workforce.

Motivating the AD nursing workforce to return to school could assist in meeting this recommendation. However, despite many concerted efforts on the part of institutions, academia and government to make achieving a BS accessible to nurses in the workforce, on average, only 20% of nurses with less than a 4 year degree return to school for a baccalaureate degree or higher (Bevill, Cleary, Lacey, & Nooney, 2007; Ebenstein, Weinberg, Dale, & Croke, 2009; USDHHS, 2010). Accessibility does not appear to be sufficient motivation for many AD nurses to return to school to pursue a baccalaureate or higher degree. In spite of the emergence of increased flexibility, accessibility and financial support for continued formal education, the percentage of associate degree nurses returning to school for a baccalaureate degree has remained static for the last ten years (Lillibridge & Fox, 2005; Delaney & Piscopo, 2007; USDHHS, 2010). This has remained the pattern even as the percentage of nurses that graduate at the AD level continues to grow (USDHHS, 2010).

While there have been some suggestions as to why associate degree nurses do not pursue a baccalaureate degree in greater numbers, there is limited research that examines the current factors affecting the progression to a BS degree among this category of nurses. The focus of most of these studies is on those RNs who have already returned to school (Cangelosi, 2006; Delaney & Piscopo, 2004; Graf, 2006; Kalmon, Wells & Gavon, 2009; Lillibridge & Fox, 2005; Megginson 2008; Norman, Buerhaus, Donelan, McCluskey & Dittus, 2005; Warren & Mills, 2009), rather than on those who have not and what drives the decision.

There is both overt and covert division over claims that the baccalaureate degree enhances practice versus contentions that it adds nothing. This contextual climate can impact decisions by registered nurses not to continue formal professional education and have serious implications for the future of the nursing workforce (Lillibridge & Fox, 2005). One argument

contends that continuing education via certification and clinical courses provides sufficient if not more relevant education for nurses in the workforce (Orsolini-Hain, 2011). A recent secondary analysis of surgical inpatients (n = 1,283,241) from 652 hospitals by Kendall-Gallagher, Aiken, Sloane & Cimiotti (2011) brings that argument into question. In this study, certification was significantly related to reduced 30 day mortality for surgical patients only if the nurse also had a baccalaureate degree. A 10% increase in hospital proportion of baccalaureate and certified baccalaureate staff nurses, decreased the odds of adjusted inpatient 30-day mortality by 5% ($p < .001$) and 2% ($p < .01$) respectively. The decreased odds for failure to rescue by baccalaureate prepared and certified baccalaureate RNs were the same (5% and 2% respectively). Reduced 30 day mortality or failure to rescue for surgical patients did not hold for AD nurses with experience and/or certification. In light of these factors, it seemed prudent to explore what might influence the motivation to pursue a baccalaureate degree among the largest population of nurses, AD graduates.

Summary

The recent report on *The Future of Nursing* from the Institute of Medicine as well as a growing body of research linking the education level of nurses to patient outcomes has resurrected the discussion about the basic education level of registered nurses. This is occurring at a time when there is continued growth in the trend towards earning an associate degree as the initial nursing education degree. Associate degree nurse graduates represent the largest component of the nursing workforce yet 80% do not return to school to pursue a baccalaureate degree. The changes in healthcare delivery and increasing complexity of patient needs require a well educated healthcare workforce. There is a need to explore those factors that might influence the associate degree nurse graduates to return to school. This research study examined the

relationship of social support, motivation, perceived competence and the pursuit of a baccalaureate degree among associate degree nurse graduates. The Roy Adaptation Model provided the conceptual constructs while the Theory of Self-Determination was used at the theoretical level to operationalize the cognator. Through the integration of the SDT and the RAM, the constructs of motivation and the pursuit of a baccalaureate degree among the sample group of associate degree nurse graduates has conceptual and theoretical support.

CHAPTER 2 Review of the Literature

National Trends

The 1999 the Institute of Medicine (IOM) report *To Err is Human* revealed that as many as 98,000 people die each year due to preventable errors by healthcare providers. These findings led to several innovations and changes to promote patient safety, one of which advocated for increased nursing education and more nurses in the workforce (IOM, 1999). The 2003 IOM report on *Health Professions Education* viewed education of the healthcare workforce as essential in order to bridge the quality chasm (IOM, 2003). The 2010 Institute of Medicine (IOM) report on *The Future of Nursing* formulated four key messages, one of which was the recommendation that nurses should achieve higher levels of education in order to respond to the demands of an evolving health care system and increased complexity of patient care delivery (2010).

In the ten years that span these IOM reports, there has not been a significant change in the basic education level of nurses. From 2000 to 2008, the percentage of all nurses that reported their initial nursing education as the associate degree level rose from 40.4% to 45.4% while the percentage of those initially prepared at the baccalaureate degree level rose from 29.9% to 34.2% (USDHHS, 2010). According to the 2008 National Sample Survey of Registered Nurses (NSSRN) the associate degree continues to remain the most commonly reported initial nursing education route (USDHHS, 2010).

The National Sample Survey of Registered Nurses (NSSRN) has been conducted by the Department of Health and Human Services every four years since 1977 to assess the capacity of the nursing workforce to provide health services (USDHHS). It gathers information and analyzes trends in education, skills, diversity and other factors that impact the future supply of registered

nurses in the US. According to the report of the 2008 NSSRN, the percentage of pre-licensure nursing students initially prepared in AD programs continues to be the pre-dominant pathway for initial nursing education and it is growing at faster pace than that of baccalaureate degree programs (USDHHS, 2007/2010). This is occurring at a time when increased complexity in healthcare has prompted renewed recommendations from nurse leaders and professional organizations to move towards baccalaureate education as the required basic educational level of practice for all nurses (AACN, 2000; Benner, Sutphin, Leonard & Day, 2009; IOM, 2010; NACNEP, 2010). Associate Degree nurse graduates represent the largest portion of the nursing workforce (USDHHS, 2010). Among nurses educated at the associate degree level, 80% do not go on to pursue baccalaureate or higher education – a statistic that has not changed from the 2000 NSSRN (USDHHS, 2007/2010).

The U.S. Bureau of Labor Statistics (USBLS) identifies the associate degree as the most significant source of postsecondary education to meet the need for the 22.2% projected growth in the nursing profession through 2018 (2010). Yet, health care trends of the 21st century suggest a greater need for a more highly educated nurse (Aiken, Clarke, Cheung, Sloane & Silber, 2003; Benner, Sutphin, Leonard, Day, 2009; Estabrooks, Midodzi, Cummings, Ricker, Giovannetti, 2005; Friese, Lake, Aiken, Silber, & Sochalski, 2008; IOM, 2010; Kendall-Gallagher, Aiken, Sloane & Cimiotti, 2011; NACNEP, 2010).

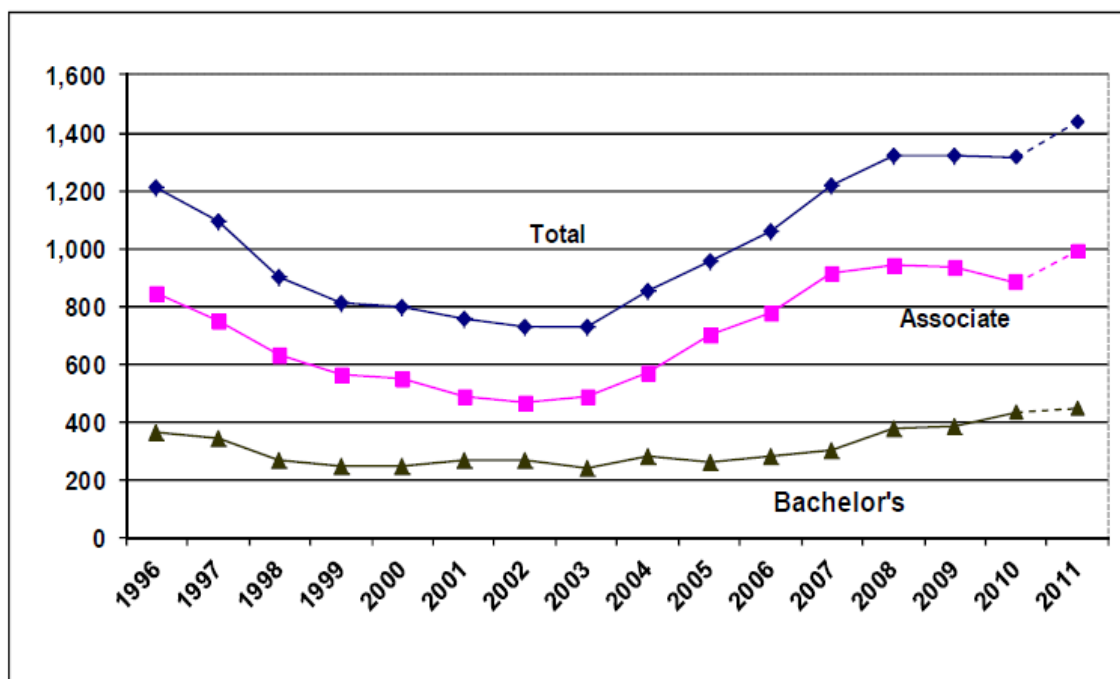
Regional trends

The 2008 National Sample Survey of Registered Nurses (NSSRN) reports that 45.4 percent of all RNs report they received their initial nursing education in an associate degree program, an increase from 42.2 percent in 2004 and from 40.4% in 2000 in the NSSRN (USDHHS, 2007/2010). Whereas, those who completed their initial preparation at the

baccalaureate level comprised 34.2 percent (up from 31 percent in 2004 and 29.9% in 2000) of the registered nurse population in the 2008 NSSRN while 20.4 percent were diploma graduates, continuing a downward trend in the diploma degree as the initial education among all nurses (USDHHS, 2010). However, when examining the graduates of nursing programs since 2001, the percentage of recent RN graduates prepared at the AD level is approaching 60% (USDHHS, 2010).

In 2009, nearly 75% of all RN graduations in New York State were from state funded associate degree programs in community colleges (Martiniano & Moore, 2010). The Center for Health workforce Studies in Albany, NY estimated that in 2010 there were more than 9,500 graduates from RN education programs in New York. This was the eighth successive year that RN graduations have increased with total graduations in 2010 represented an 86% increase in RN graduations since 2002, when RN graduations first started rising, following six consecutive years of declines in RN graduations (Figure 3). Almost 99% of the increase in RN graduations in 2010 compared to 2009 were existing RNs completing BSNs. (CHWS, 2011, p4).

Figure 3: New York RN Graduations by Degree Type, 1996--2011



The Center for Health Workforce Studies (2001, July). Trends in New York Registered Nursing Graduations, 1996-2011. Center for HealthWorkforce Studies: Albany, NY. p 5

Nursing graduations from City University of New York (CUNY) associate degree programs nearly doubled to approximately 900 per year in the period 2002-2010 (Figure 4) while nursing graduations from CUNY generic BS in nursing (BSN) programs have remained slower in growth and numbers from 85 to 123 per year (Figure 5) in the same time period (Ebenstein & Dale, 2011). In examining all BSN degrees awarded by CUNY for the period 2002-2010, a 50% growth in RN to BSN completion degrees is noted from approximately 150 to 300 per year. Thus, more than 50% of all BSN degrees are awarded in CUNY as RN to BSN completion degrees, with a noted increase to over 70% of all BSN degrees in 2009-2010 (Ebenstein & Dale, 2011; Center for Health Workforce Studies, 2011).

Figure 4: Trends in CUNY AAS degrees (Associate Degrees) in Nursing, 2002-03 to 2009-10

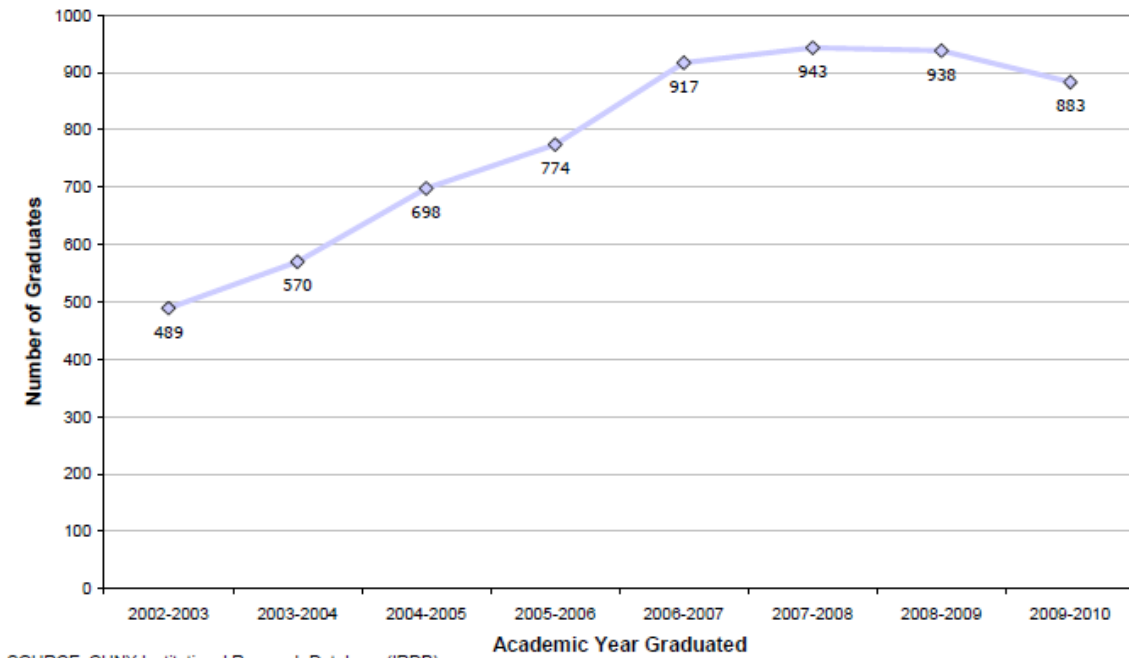
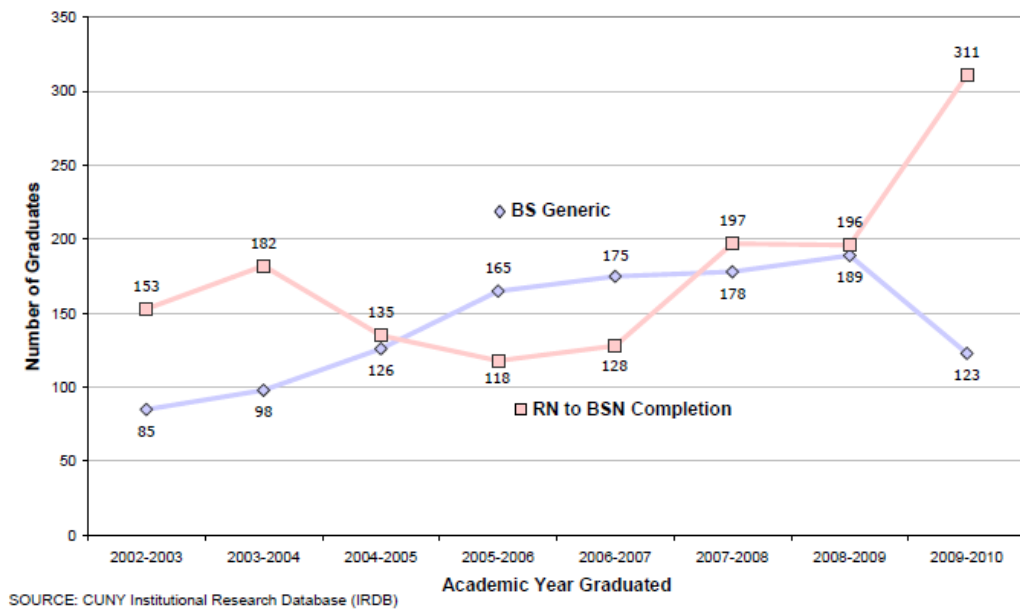


Figure 5: Trends in CUNY BS Degrees (Baccalaureate Degrees) in Nursing by Program, 2002-03 to 2009-10



A regional analysis of the NSSRN data for NYS indicated that of the 82.7% of 2008 NYS RN graduates who passed the NCLEX, 29.8% were from baccalaureate programs while 70.2% were from AD programs and five graduates were from a diploma program (Brewer & Watkins, 2011). These patterns are consistent with the 2008 NSSRN and suggest a continued strong trend toward obtaining initial nursing education at the associate degree level both locally and nationally.

Nursing Education Pathways

In the United States, nursing education is unique among health professions in that there are currently three educational pathways for pre-licensure nursing: a hospital based 3 year diploma program, an associate degree program offered by community/junior colleges over 2.5 – 3 years and a 4 year baccalaureate degree offered by colleges/universities. All paths lead to eligibility to sit for the same licensing exam and offer access to the same entry-level nursing staff positions. Diploma programs, first established in 1865 and modeled on Florence Nightingale's nurse training schools in England, were the major source for the education of nurses for over 100 years, providing the education for 80% of nurses prior to 1965 (Judd, Sitzman & Davis, 2010; Nelson, 2002; Orsolini-Hain & Waters, 2009).

After World War II, nurse leaders and organizations supported the movement of nursing education more emphatically into university settings (Judd, Sitzman & Davis, 2010; Nelson, 2002; Orsolini-Hain & Waters, 2009). It was not until the development of the community college initiative and the associate degree nurse experiment that the trend towards the education of nurses in an academic setting began to change significantly (Judd, Sitzman & Davis, 2010; Nelson, 2002; Orsolini-Hain & Waters, 2009). Originally envisioned as a technical degree for a tiered level of nursing practice, the proposed differentiated practice role of the associate degree

nurse graduate was soon merged with that of diploma graduates and baccalaureate graduates, as work roles in practice were not determined by education level (Orsolini-Hain & Waters, 2009). Advocacy by associate degree educators and community college administrators who found nursing programs to be an important source of growth, also contributed to the one role for all RNs (Nelson, 2002).

Workforce Needs

Among recent graduates (RNs who completed their initial education from 2001-2008), associate degree graduates comprise nearly 60% of all recent nurse graduates, while 39% entered nursing as baccalaureate prepared graduates and only three percent were diploma graduates for the same period (USDHHS, 2010). There is a projected need for 581,500 new nursing positions by 2018, which are predicted to require higher levels of education to meet the demands of a complex health care system (IOM, 2010; USBLS, 2010). Current rates of graduation from baccalaureate programs are not adequate to meet this projected growth. Associate degree nurse graduates are a potential source to meet this projected demand if more than the current 20% can be motivated to return to school for additional formal education. To meet the IOM (2010) recommendation to increase the percentage of baccalaureate prepared nurses to 80% by 2020 would require that 80% of nurses currently prepared at the AD level in the existing workforce attain a baccalaureate degree (Brewer & Watkins, 2011).

The U.S. Bureau of Labor Statistics (USBLS) projects a 22% increase in the need for nurses through 2018 (2010). In addition to the increased need for nurses, new models of care delivery will require nurses to be educated at a higher level to practice within inter-professional teams across healthcare settings with competencies in leadership, health policy, system improvement, research and evidence-based practice, health promotion and disease prevention

(IOM, 2010; NACNAP, 2010). Shortages of nurses with advanced degrees to fill positions as primary care providers, researchers and faculty are projected (AACN, 2010; Buerhaus, Staiger, Auerbach, 2009; IOM, 2010; NACNAP, 2010). The masters' and doctoral levels of education are the source for the educators needed for all levels of nursing education, pre-licensure and graduate.

Nursing faculty shortage

In addition to the influence on the delivery of quality and safe patient care, the educational level of registered nurses has an impact on the impending nurse faculty shortage. The nursing faculty shortage is looming as a major factor in turning away qualified applicants to pre-licensure nursing programs and subsequently will impact on the nursing workforce (AACN, 2010; National League for Nursing [NLN], 2010). The lack of nurses educationally prepared to transition to a faculty role, may be directly related to the large number of nurses obtaining their initial nursing education at the associate degree level. Comprising nearly 60% of new nurse graduates yet returning to school for baccalaureate or higher education at a rate of only 20.8%, one recent longitudinal workforce study in North Carolina indicated that associate degree nurse graduates in that state were more likely to pursue only one additional degree (Bevill, Cleary, Lacey, Nooney, 2007).

National data for AD nurse graduates that do return for a baccalaureate degree, reveals that the average time to completion is 7.5 years (USDDHS, 2010). Of the even smaller group that pursues further education beyond the baccalaureate, the average time frame from initial entry education to a master's degree is 11.5 years and 12.4 years for a doctorate (USDHHS, 2010). Currently, only 13.2% of nurses have graduate degrees - a statistic unchanged from the 2004 NSSRN, and doctorally prepared nurses comprise barely one percent of the nurse

population (USDHHS, 2010). As the master and doctoral levels provide the educators needed for all levels of nursing, the gaps in educational mobility greatly impact the pipeline for nurse educators and thus future nurses for the workforce as well.

The shortage of nursing faculty, due in part to lack of academic credentials, has been identified as a factor in turning away over 100,000 qualified applicants from all pre-licensure nursing programs in 2008 (AACN, 2010; NLN, 2010). The lack of nurses educationally prepared to transition to a faculty role, may be directly related to the large number of nurses obtaining their initial nursing education at the associate degree level, and who are less likely to pursue higher education degrees (Bevill, Cleary, Lacey, & Nooney, 2007; Cleary, McBride, McClure, 2009; USDHHS, 2010).

Currently numbering about 32,000, fully one half of today's nurse faculty report that they expect to retire within the next 10 years (Kaufman, 2007). The nurse faculty population is distinguished markedly from the rest of the academic workforce by age. Whereas, only 35 percent of US academics, and only 29 percent of health science faculty, are over the age of 54, fully 48 percent of nurse educators are age 55 and over. (Kaufman, 2007) This finding is raising alarms as the current nurse faculty shortage can be expected to intensify dramatically as the existing nurse educator workforce reaches retirement age. Nurse educators hold doctoral degrees at only half the rate of their counterparts across other academic disciplines. Only one of every three nurse educators has an earned doctorate, compared with 60 percent of all US postsecondary-level faculty (Kaufman, 2007). The relative scarcity of doctoral preparation — although most dramatic in community college-based nursing programs, where only one in 10 faculty have doctorates — in reality, affects schools of nursing across all types of educational institutions (Kaufman, 2007).

Aging Workforce

The average age of the registered nurse currently working in a health care setting is 46 years. Registered nurses age 50 years or older constitute an “older RN” as defined by the NSSRN (USDHHS, 2010). As such, older RNs comprised 44.7 percent of the total RN population in 2008, an increase from 41.1 percent in 2004 and 33.4 percent in 2000 (USDHHS, 2010). Additionally, the percentage of RNs who were 60 years and older increased from 13.6 percent in 2004 to 15.5 percent in 2008 (USDHHS, 2020). Nearly two thirds of the recent growth in nurse employment was supplied by RNs over the age of 50 re-entering the workforce (Buerhaus, Staiger, Auerbach, 2009). There is some evidence that the economic downturn that began in 2008 likely influenced decisions to refrain from retirement due to wage incentives or economic necessity (Brewer & Watkins, 2011; Buerhaus, Auerbach, & Staiger 2009). As the economy stabilizes, and the workforce continues to age, the looming exodus of a large percentage of older nurses through retirement represents an enormous potential “brain drain” in experience, judgment, and expertise for the profession (Orsolini-Hain, 2009). This phenomenon will increase the ratio of older, experienced nurses to younger, less experienced ones, with implications for possible negative effects on the quality and safety of patient care. The potential loss of the rich resource of experienced older nurses means an alternative method for enhancing nursing knowledge needs to be identified. One such approach may be to increase the basic educational level of nurses. This growing phenomenon contributes to the need to explore factors that influence pursuit of formal education among associate degree graduates, the largest population of nurses.

Graduate Prepared Nurse Shortage

Critical shortages of advanced practice nurses that require a master or doctoral degree such as nurse practitioners, clinical nurse specialists and nurse researchers are predicted in the

next ten years as well. (Aiken, Cheung, Olds, 2009; IOM, 2010; Lillibridge & Fox, 2005). Care within the hospital and community settings has increased in complexity and will continue to evolve in complexity (IOM, 2010). Nurses prepared at the master's and doctoral level will be needed to respond to the demands for enhanced primary care provision, coordination and collaboration of care with a variety of health professionals. Additionally, more highly educated nurses will be needed to develop leadership capacity to achieve transformation of the health care system and practice environment (IOM, 2010; NACNEP, 2010).

The primary step toward master's and doctoral degrees is first to earn the baccalaureate degree. The large number of associate degree nurse graduates represents an untapped resource for meeting projected needs for nurses with baccalaureate and higher degrees (Lillibridge & Fox, 2005). However, the perspective that advanced nursing education is valuable, while predominant in the professional nursing literature is not necessarily valued highly in the work environment (Lillibridge & Fox, 2005; Orsolini-Hain, 2009/2011).

Associate Degree Nursing Programs

Throughout the country, there are significantly more nursing programs offering associate degrees in nursing (n=1023) versus baccalaureate programs (n=681) (NLN, 2010; Phillippe & Sullivan 2005). The mean number of graduates from associate degree programs is n=63 compared to n=57 for baccalaureate programs yielding a greater number of nurse graduates for the workforce from associate degree programs (NLN, 2010; Phillippe & Sullivan, 2005). In the period, 2007-2008, associate degree programs annually produced 61 percent of nurse graduates compared to the 36 percent from baccalaureate programs (NLN, 2010). The majority of associate degree nursing programs are offered at community colleges with a smaller number offered through old diploma schools in partnership with local community colleges (NLN, 2010) The

exponential rise in community college education is a recent phenomenon of the last 25 years (Orsolini-Hain & Waters, 2009; Phillippe & Sullivan, 2005).

History of community colleges

Community colleges traditionally have offered lower tuition and costs than four year programs whether public or private, and provide more remedial services to students who are often first generation college students (Phillippe & Sullivan, 2005). In 1947, the President's Commission on Higher Education (the Truman Commission), suggested

"The name 'community college' to be applied to the institution designed to serve chiefly local community educational needs. It may have various forms of organization and may have curricula of various lengths. Its dominant feature is its intimate relations to the life of the community it serves" (President's Commission, p. 3).

The Carnegie Commission on Higher Education (1970) advocated for the establishment of community colleges within an easily commutable distance of every adult. These commissions, together with the Higher Education Act of 1964 promoted statewide planning and provision of higher education throughout the nation, thus enabling community colleges to rapidly meet the swelling demand for higher education among the World War II generation including their sons and daughters.

History of AD in Nursing

Introduced in 1952, the original intent of the education of the associate degree nurse was to provide a technically skilled provider, providing another level of nursing that focused on the care at the bedside (Mahaffey, 2002). However, the conversion of several factors, including federal funding to provide accessible education for the population, resulted in a proliferation of community colleges. This spurred the growth of associate degree nursing programs from a pilot group of seven to more than 1000 programs today (Mahaffey, 2002; NLN, 2010).

The rise in enrollments to associate degree nursing programs correlated with the decline in hospital based diploma nursing school enrollments (Joel, 2002; Mahaffey, 2002). Associate degree programs, primarily housed in community colleges, “represented an opportunity for nursing to break away from the apprenticeship model of education and exert greater control over the educational experiences of nursing students” (Nelson, 2002, p 2).

Modeled after Mildred Montag’s doctoral dissertation at Columbia University (Montag & Gotkin, 1959), on strategies to address the post world war nursing shortage, associate degree nursing programs were initially envisioned to produce technical nurses who would have a differentiated practice from the professional nurse with the baccalaureate degree (Mahaffey, 2002; Nelson, 2002). However, graduates of 3 year hospital based diploma schools were being licensed as registered nurses in all states via the same exam used for baccalaureate graduates. It was successfully argued that this opportunity be accorded to AD nurse graduates as a method to measure outcomes and thus associate degree nurse graduates were given the same privilege and continue to sit for the same licensing exam as graduates of diploma and baccalaureate nursing programs (Mahaffey, 2002; Orsolini-Hain & Waters, 2009). The differentiation in practice roles never emerged for a variety of reasons including lack of role differentiation in the workplace and advocacy for AD nursing programs by associate degree educators and community college administrators who found nursing programs to be an important source of revenue growth (Nelson, 2002).

For over 100 years, from 1865 to 1965, most nursing education continued in the model of Nightingale’s schools. Despite position papers from Nursing organizations, such as the one in 1965 from the American Nurses Association (ANA) that advocated for the baccalaureate degree as the minimum standard for entry into nursing practice, the majority of nursing education

continued to be based in hospital run diploma programs. The emergence and phenomenal growth of associate degree programs based in community colleges was instrumental in changing the educational process for nursing education, moving it from an apprenticeship model to one based in a higher education setting (Nelson, 2002; Orsolini-Hain & Waters, 2009).

Twenty five years after the introduction of the associate degree education program for nursing in 1955, the percentage of nurses receiving their initial education from diploma schools decreased from 85% to approximately 65% in 1980, while among the very recent graduates (2005-2008) only 3.1% received their initial education at a diploma program (Marshall & Moses, 1965 in Donley & Flaherty, 2002; USDHHS, 2010). The growth in associate degree education for nurses can be viewed as an adaptation in nursing education, as it provided the mechanism for transition from an apprenticeship model to education within an institute of higher learning (Judd, Sitzman & Davis, 2010)

Educational Outcomes

The National Council of State Boards of Nursing (NCSBN) statistics demonstrate that there is no significant difference in first time pass rates for the National Council Licensing Exam (NCLEX) between AD and BS nurse graduates (NLN, 2010). What is not as clear in the literature, however, are subsequent performance outcome differences among AD and BS nurse graduates. There are a few studies that suggest that critical thinking dispositions, as measured by the California Critical Thinking Disposition Inventory, are lower in AD nurse graduates compared to BS nurse graduates (Brooks & Shepherd, 1990; Shin, 1998; Shin, Jung, Shin & Kim, 2006). However, there are other studies which suggest that there is no consistent relationship between current measures of critical thinking and clinical decision-making or clinical judgment, the latter which some suggest is a better indicator of nursing performance

(Benner, Sutphin, Leonard, Day, 2009; Kintgen-Andrews, 1991; Staib, 2003; Turner, 2005; Tanner, 2006).

Impact of Magnet Status

In an analysis of practice by newly licensed RNs, Smith (2002) examined differences in practice by educational preparation and found no differences in frequency of performance in the first six months after licensure. In another study, after six months of practice, however, baccalaureate prepared nurses were perceived by chief nursing officers to have better critical thinking skills, exhibit more professional behaviors, and have stronger leadership and patient teaching skills (Goode, Pinkerton, McCauseland, Southerd, Graham & Krsek, 2001). This may be related to the quest by institutions for American Nurses Credentialing Center (ANCC) magnet status. One of the criteria for magnet status requires institutions seeking this credential to submit a plan that describes the goals for formal education and professional certification for their nursing workforce as well as how these expectations are set and what support is provided to nurses at all levels who seek formal education (ANCC, 2011). While the Magnet program doesn't specify educational levels for nurses, institutions awarded magnet status generally have a greater percentage of nurses prepared at the baccalaureate or higher level than non-magnet institutions (59% vs 34%) (ANCC, 2011; Aiken, Havens & Sloan, 2000/2009). Effective January 1, 2013, the educational criteria specify that 100% of nurse managers and nurse leaders have a baccalaureate or graduate degree at the time of application for magnet status (ANCC, 2011). Under the category of "structural empowerment," the source of evidence for formal education specifies that organizations seeking Magnet status provide data that reflect the educational direction of the workforce. Organizations are expected to track nurse workforce data to substantiate that goals for improvement have been met. (ANCC, 2011)

Historically, nursing has affirmed that professional socialization into the role of the registered nurse occurs during professional education at the baccalaureate level. Fetzter (2003) examined the development of professionalism in AD graduates, after reviewing findings that experienced AD nurses returning to RN-BSN programs had a higher degree of professionalism than generic BSN students. Fetzter (2003) defined professionalism as the process of acquiring the knowledge, skills, values, attitudes and behaviors described by the profession and it was hypothesized that there was a positive relationship between self-actualization and degree of professionalism among AD nurses. High scores for measures of professionalism among AD nurse graduates correlated strongly with high scores on the Short Index for Self-Actualization. AD nurse graduates who had already returned to RN-to-BSN programs were excluded, and length and intensity of work experience explained only a very small part of professionalism measures. The findings indicated that self-actualization is a stronger predictor of professionalism measures (Fetzter, 2003).

Education Level and Patient Outcomes

Aiken et al (2003) published a study that suggested that the level of nursing education was related to patient mortality. Her study indicated that in hospitals with greater than 70 percent BS prepared RNs, there were lower rates of 30 day mortality and failure to rescue among surgical patients than in hospitals with less than 10 percent BS prepared RNs. Some criticized and questioned the facts that BS and Master's prepared RN's were grouped as one, years of nursing experience was not reported to be a factor, hospitals with less than 10 percent BS RNs were also more likely to have fewer resources, and the greater impact on patient mortality by the ratio of board certified surgeons was minimized (Atkins & Nygard, 2004; Boggs, 2004; Broome, 2004; Burger, 2004; Crook, Comeau & Hirsch, 2004). In Aiken's response to these criticisms of

the study, it was reported that nursing education was significantly related to the identified patient outcomes after controlling for more than 130 patient, hospital and physician characteristics including hospital size, teaching status, technology, and surgeon board certification as well as nursing workload and experience (Aiken, Clarke, Cheung, Sloane & Silber, 2004). To date, there is no similar published research that demonstrates that these other patient, hospital, physician, nursing workload and experience factors significantly impact the patient outcomes identified in Aiken's study when examining these factors in conjunction with nursing education levels.

Tourangeau et al (2006) reported on a 2003 study that found a significant inverse relationship between years of nursing experience and patient mortality. However, this study was conducted in Canada which has a socialized healthcare system that differs from that in the US. Sachay-Akkadechanut et al (2003) on the other hand, found no relationship between experience or education level and patient mortality in hospitals. More recently, Kendall-Gallagher et al (2011) reported neither experience nor certification was a factor in improved 30 day surgical patient mortality and failure to rescue rates unless it was also associated with BS educated nurses. The growing body of research linking BS in nursing education and patient outcomes are a powerful argument to support and promote the continued education of AD nurse graduates.

Research on ADN Return to School

A review of the literature from 1990 -2010 on the topic of Associate degree or registered nurses and return to school for a baccalaureate degree revealed 21 research studies and 17 unpublished dissertations related to the topic. The majority were qualitative in design. Most published studies examined those registered nurses that returned to school (Cangelosi, 2006; Dailey, 1994; Delaney & Piscopo, 2007; Fetzer, 2003; Kalman, Wells & Gavan, 2009; Lengacher, 1993; Leonard, 2003; Lillibridge & Fox, 2005; Megginson, 2008; Rather, 1992/1994;

Ritchie, Evans, Macneil & Miscinski, 2005; Thompson, 1992; Villaruel, Canales & Torres, 2001; Zuzelo, 2001). Few published studies explored perceptions about return to school for a baccalaureate degree among those AD nurse graduates who did not return to school (Delaney & Piscopo, 2004; Krawczyk, 1997; Warren & Mills, 2009). One study documented chief nursing officer's preference for BS prepared nurses (Goode, Pinkerton, McCausland, Southard, Graham, & Krsek, 2001). Another reported that the economic cost to achieve a BS would not be recouped by the AD nurse (Graf, 2006). Rambur, MacIntosh, Palumbo & Reiner (2005) found BS education level to be a predictor for career retention and job satisfaction.

Several doctoral studies did explore motivations and barriers among AD nurses who did not return to school (Alonzo, 2009; Altmann, 2008; Cavanaugh, 1990; Corbett, 1997; Holmes, 1992; Martin, 1992; Orsolini-Hain, 2009; Root, 1991; Warren, 2004;), while the remainder focused on AD nurses who had already returned to school (Bryant, 1997; Dean, 1997; Diaconis, 2001; Dowell, 2000; Peters, 2003; Roth-Sautter, 1997; Rush, Waldrop, Mitchell, & Dyches, 2005; Winters, 2008). Only four were conducted within the last 5 years – all of which were qualitative. No studies looked at the relationship of social support, motivation and perceived competence on the pursuit a baccalaureate degree in nursing among the AD nurse population.

In view of the implications of the IOM (2010) recommendations on enhancing the educational levels of nurses in order to adapt to the demands of 21st century healthcare; the link reported by Aiken et al (2003) between educational levels of nurses and patient safety; and the NSSRN (USDHHS, 2010) report on the education level of the nursing workforce, the evidence indicates that investigation of the motivations to pursue a baccalaureate degree among associate degree nurses is an area in need of further research

Findings

Zuzelo (2001) found that RN-to-BS students were challenged in meeting the demands of multiple roles; when necessary, they prioritized family and work over school demands.

Thompson (1992) concluded that returning RN-to-BS students who were able to maintain a balance while managing multiple roles were more likely to complete the program. Those who had increased social support and flexibility with scheduling perceived less role conflict.

Lengacher (1993) found that the characteristics of personality, stage of career development, and marital status were significantly related to role strain in RN-to-BS students returning to school.

Dailey (1994) reported that many nurses chose a distance education program over a traditional on campus program because it offered more personal control and flexibility that was needed to

juggle multiple roles. Ritchie, Evans, MacNeil, and Micsinszki (2005) studied Canadian RN nursing students in a BS program and found the overriding theme was “surviving” with three sub-themes: “the quest;” “the struggle,” which included juggling multiple roles; and “the

aftermath.” Lillibridge and Fox (2005) reported that nurses returning to school for a BS in nursing indicated a need for support: at work, in the academic setting, at home and from peers.

The need for support within one’s social network was a theme also identified by Delaney & Piscopo (2004); Kalman, Wells, & Gavan (2009), and Megginson (2008).

Megginson (2008) reported a significant difference in findings on the incentives and barriers in RN to BS nursing education from previous research that identified tangible barriers such as cost and scheduling (Krawczyk, 1997) to more intangible barriers such as time, fear and prior negative nursing school experience. Additional barriers identified from these studies included dealing with lack of confidence about returning to school; insensitivity by the educational institutions to adult learning principles as evidenced by mixing experienced RNs with generic pre-licensure nursing students; and uncertainty, which resulted in tension, when

expert nurses entered the novice role of student (Dailey, 1994; Dean, 1997; Diaconis, 2001; Lillibridge & Fox, 2005; Rather, 1994).

Motivating factors reported among those RNs who returned included: career opportunities, institutional support (financial or otherwise), and good timing in their lives (Bryant, 1997; Lillibridge & Fox, 2005; Megginson, 2008; Delaney & Piscopo, 2004; Diaconis, 2001; Peters, 2003). Major findings in those studies of AD nurses who did not return to school included a deep sense of pride in their abilities for patient care practice, a lack of organizational value for an increase in educational level, and a lack of value for what additional education would bring to their current practice (Delaney & Piscopo, 2004; Orsolini-Hain, 2009; Warren, 2004).

Health care institutional support for experience and on the job training of the staff nurse overrode support for returning for further academic education (Orsolini-Hain, 2009). Opportunities for advancement in education via continuing education or research fellowships often offered in institutions seeking magnet status meant the AD nurse saw little distinction in obtaining a baccalaureate degree and in fact identified these “practice based” learning opportunities as more meaningful (Orsolini-Hain, 2009). There was also a pervasive knowledge gap of “not knowing what they did not know” especially in terms of leadership and change agent skills (Lillibridge & Fox, 2005; Orsolini-Hain, 2009). This was exemplified by a discussion of a “work around” performed by several of the nurses in response to a flawed process rather than addressing the issue of resolving the failed process (Orsolini-Hain, 2009).

Warren & Mills (2009) reported on a cross-sectional descriptive study of 297 Maryland nurses that examined the influence of organizational incentives and rewards as motivators for return for an advanced degree among AD and diploma nurses. Logistic regression analysis

suggested low career satisfaction, high professional commitment, perceptions of enhanced job and promotional opportunities afforded by a BS in nursing and organizational incentives were predictive of nurses' willingness to return to school for an additional degree. Although older age, family and financial responsibilities are often cited in the literature as barriers for AD nurses to return for a BS degree, Warren & Mills (2009) found this was not supported. "Although nurses may state that these are potential barriers, their influence in the final decision-making process appears to be minimal, suggesting that other factors may be more important in preventing them from returning to school" (Warren & Mills, 2009, p 204).

Societal Support

Baccalaureate degree nursing programs produce 36 percent of nursing graduates compared to associate degree programs which produce nearly 60 percent of nurse graduates, with diploma schools currently producing three percent. Associate Degree nurse graduates currently represent the largest contingent of the nursing work force (NLN, 2010). Current efforts to meet the recommendations for increasing the educational level of nurses for basic practice have not been effective. Reported barriers and motivations for return to school for baccalaureate degree and higher among associate degree nurse graduates have not adequately explained the lack of educational mobility among this group (Delaney & Piscopo, 2004; Lillibridge & Fox, 2005; Megginson, 2008;).

Proposed legislation has been re-introduced in New York for the eight consecutive year (A1977B/S1223) to require licensed AD nurse graduates to obtain their BS degree within ten years of initial licensure. Although versions of the bill had been approved by the Higher Education Committees it did not make it out of Committee for a vote in the 2010 legislative session (Zimmermann, Miner, & Zittel, 2010). This proposed change to the New York State

Nurse Practice Act has faced opposition from the Association of Community College Presidents, Union Organizations such as Service Employees International Union (SEIU) and Public Employees Federation (PEF), as well as the some healthcare administrators (Zimmermann, Miner & Zittel, 2010). Currently, there is similar legislation pending in 18 states, but the mandate would only apply to students who enroll in schools after legislation passes and would not be applied to those already in the workforce (Kolowich, 2010).

Despite the inability to achieve legislative passage of this bill, some healthcare institutions are taking the initiative to implement hiring requirements related to attainment of the BS by AD graduates. Notably in the New York area, North Shore/ Long Island Jewish Health System, a consortium of 15 facilities that is the nation's second-largest non-secular healthcare system (based on number of beds), announced its plan in July 2010 to require all new hire RNs to have a baccalaureate degree or attain one within five years (Boyd, 2011). Other major health systems may follow suit.

The economic incentive for pursuit of formal education by nurses is minimal, as most institutions offer little differential in pay for a baccalaureate degree, preferring instead to reward experience (Graf, 2006; Spetz, 2002). The costs of a BS, on average exceed the increased earnings over the subsequent work life of the nurse (Graf, 2006; Spetz, 2002). At the current trend, the proportion of AD prepared nurses will continue to increase at a faster pace than that of the baccalaureate degree and higher prepared nurse, while the demand for more highly educated nurses continues to increase (Buerhaus, Staiger & Auerbach, 2009; Graf, 2006; IOM, 2010)

Associate degree nurse graduates represent a large potential resource pool for the upward educational mobility in nursing. They may also aid in enhancing the racial/ethnic and gender diversity of the current nursing workforce (Orsolini-Hain & Waters, 2009). The typical associate

degree student attending a community college is more likely than a baccalaureate degree student to be from a lower socioeconomic status, a member of a minority group, an English as a second language and/or a first generation college student (Aud, Hussar, Planty, Snyder, Bianco, Fox, et al, 2010; Horn, Nevill & Griffith, 2006; Provasnik & Planty, 2008; Viterio & Teich, 2002).

These non-traditional students are often older, single parents with family and job obligations that limit their ability to travel far from home to attend school and are more likely to attend school part-time (Aud, Hussar, Planty, Snyder, Bianco, Fox, et al, 2010; Horn, Nevill & Griffith, 2006; Provasnik & Planty, 2008; Viterio & Teich, 2002). They frequently benefit from the support of social networks as well as the academic and student support services available in community college to assist them in adapting to their new roles as students (Tinto, 1993; Engle & Tinto, 2008). Many first generation college students enter college without the needed academic skills to succeed. Community colleges can offer remedial support and student services not available in four year schools (Provasnik & Planty, 2008).

Social Support

Social support has been identified in the literature as having a positive relationship with health and well-being (Cohen, & Syme, 1985; Cohen, Underwood & Gottlieb, 2000; Langford, Bowsher, Maloney & Lillis, 1997; Stewart, 1993). Conceptually, it is broadly defined to include a process of social relationships which might promote health and well-being and involve assistance and protection given to others (Cohen, Gottlieb, & Underwood, 2000; Langford, Bowsher, Maloney & Lillis, 1997).

Definitions of social support refer to social embeddedness, as the interconnections among individuals; perceived support, as the cognitive assessment of the interconnections; and enacted social support, as the actual behaviors used to express support (Barrera, 1986). The most

common measure of social support evaluated is perceived social support (Cohen, Gottlieb, Underwood, 2000). The four defining attributes of social support which investigators suggest all acts of support can be assigned include: emotional, instrumental, informational and appraisal support (House, 1981; Barrera, 1986; Tilden & Weinert, 1987; Cohen & Syme, 1985).

Social support is thought to affect mental and physical health through its influence on emotions, cognitions and behaviors and is proposed to be a multi-dimensional concept (Cohen, 1988). Cohen describes two major processes through which social support is believed to act: the buffering effect and the main effect (Cohen & Wills, 1985; House, 1981). The buffering effect proposes that support is related to well-being for persons under stress by “buffering” the effects of the perceived stress (Cohen, Gottlieb & Underwood, 2000). The main effect proposes that social resources have a beneficial effect irregardless of whether the persons are experiencing stress through interactions that are not explicitly intended to exchange help or support (Cohen, Gottlieb & Underwood, 2000). Consistent with the RAM’s concept of cognator processing, the social constructivist perspective of social support proposes that social support directly influences health by promoting self-esteem and self-regulation, regardless of the presence of stress (Lahey & Cohen, 2000, p29). The self and the social world (including the context of social support are linked and the experience of self is largely a reflection of how one is viewed by others (Mead, 1934 as cited by Cohen, Gottlieb & Underwood, 2000).

Main effects findings were illustrated in a study by Hatchett, Friend, Symister and Wadhua (1997) who studied 42 end-stage renal disease patients. Using the Inventory of Socially Supportive Behaviors (ISSB) the exchange of four forms of social support (emotional, instrumental, appraisal, and informational) was measured. Findings included increased perceived social support from family correlated with decreased hopelessness ($r = -.25, p < .05$); and

increased perceived support from medical staff was correlated with increases in optimism ($r = .27, p < .05$). In a study by Younger, Kendall, and Pickler (1997), 31 mothers who delivered premature infants, reports of helpfulness of others in providing emotional, informational, tangible and general support as measured by the Account of Social Resources Inventory were positively correlated with mastery ($r = .35, p < .05$) and negatively correlated with depression ($r = -.35, p < .05$).

The buffering effect has also been supported by several researchers in different populations (Cassel, 1976; Cobb, 1976; Cohen, 1988; Cohen & Wills, 1985). Consequences of social support evident in the literature are personal competence, health maintenance behaviors, perceived control, positive affect, recognition of self-worth, decreased anxiety and depression as well as psychological well-being (Langford, Bowsher, Maloney & Lillis, 1997).

There is an abundance of literature on the effects of social support on health, both physiological and psychological (Cohen, Gottlieb & Underwood, 2000; Sammarco & Konecny, 2010; Warren, 2005). Social support has also been studied in nursing students as desired and obtained from faculty during clinical experiences (O'Reilly-Knapp, 1994). It has been examined as a factor in retention of nursing students in associate degree programs (Jeffries, 2004) and baccalaureate programs for RNs (Bacchus, 1992). There is also an emerging body of literature which suggests that supportive social relationships may influence academic achievement indirectly through motivational and affective mechanisms that relate to the satisfaction of the basic psychological needs for autonomy, competence and relatedness (Ahmed, Minnaert, van der Werf, & Kuyper, 2010; Rees & Freeman, 2009; Wentzel, Battle, Russell & Looney, 2010).

The association of social support, perceived competence and motivation to pursue a baccalaureate degree among associate degree nurses was the subject of this study. The social

constructivist perspective of social support and its main effects process on well being was used in this research. Well-being is conceptualized as adaptive, growth-oriented, and integrative of self and the surrounding larger social structures. There is no current research on social support and motivation to pursue a baccalaureate degree among the population of associate degree nurses.

Motivation

Motivational factors as well as barriers for registered nurses to return to school for a baccalaureate degree have been identified largely from qualitative research as self-reported from nurses who did or did not return to school (Delaney & Piscopo, 2004; Krawczyk, 1997; Lillibridge & Fox, 2005; Megginson, 2008; Ritchie, Evans, MacNeil, & Micsinski, 2005; Warren & Mills, 2009). Motivational factors identified include such things as: financial support from the institutions of employ, convenience of onsite/online classes, flexibility of class/work schedules, forgivable loans, paid sabbaticals, enhanced job and promotion prospects, personal satisfaction. This researcher used the Roy Adaptation Model and Self-Determination Theory to examine motivation and the influence on the decision to pursue a baccalaureate degree among associate degree nurse graduates.

Self-Determination Theory (SDT) as proposed by Deci and Ryan (1985/2000/2008) is an approach to human motivation and personality that highlights the importance of the individual's adaptive inner resources for growth, development and autonomous behavioral self-regulation. Self-Determination theory differentiates motivation as multi-dimensional, with a continuum of types (Deci & Ryan, 1985/2000/2008). The quality and type of motivation is of more importance than the amount for predicting outcomes (Deci & Ryan, 2008).

The continuum ranges from amotivation (no motivation), through four types of extrinsic motivation, to intrinsic motivation (Deci & Ryan, 1985/2000/2008). Amotivation is the lack of intention to act. The four types of extrinsic motivation include: external regulation where behavior is performed to satisfy an external demand such as a threat or a reward; introjected regulation which involves behavior performed to avoid guilt, anxiety or maintain self-worth; identified regulation where behavior reflects a conscious valuing; and integrated regulation where behaviors are assimilated into the self in congruence with one's other values and needs (Ryan & Deci, 2000).

Both external regulation and introjected regulation are considered more controlled types of motivation with an external locus of causality; that is, forces that are external to the self control the regulation of behavior. Whereas, identified and integrated regulation are considered more autonomous and thus aligned with the self, with an internal locus of causality (Ryan & Deci, 2000). Intrinsic motivation is innate motivation that emerges spontaneously from psychological needs and the inherent tendency to explore, exercise capacities and freely engage in interests; it is the most autonomous type of self-regulation (Deci & Ryan, 1985/2000/2008). Motivation varies in type, with the most self-determined or autonomous form leading to the most adaptive outcomes (Vallerand, Pelletier, Koestner, 2008). As an organismic theory, SDT proposes that individuals can take in social values and progressively transform them into personal values that are intrinsic and autonomous (Deci & Ryan, 1985/2000/2008). Organismic assumptions about the nature of people view human development as a process of internalization, adaptation and integration into the inner structures of themselves and their world (Deci & Ryan, 2008, p16). This is consistent with the assumptions of the Roy Adaptation Model (Roy, 1999/2009).

Underlying one's innate intrinsic motivation are the basic psychological needs for autonomy, competence and relatedness (Deci & Ryan, 1985/2000/2008). Satisfaction of these needs is what drives intrinsic or autonomous self-regulation, and social contexts that support these needs can maintain and enhance intrinsic motivation, while those that thwart them diminish autonomous regulation (Ryan & Deci, 2000). More autonomous regulation has been associated with greater conceptual understanding (Grolnick & Ryan, 1987), enhanced persistence at school (Vallerand & Bissonette, 1992), improved glucose control in diabetics (Williams, Freedman & Deci, 1998), greater adherence to medications (Williams, Rodin, Ryan, Grolnick & Deci, 1998); better productivity and less burnout in the work place (Fernet, Guay, & Senecal, 2004).

Internalization of extrinsically motivated behaviors is often prompted because it is of value to significant persons to which an individual wants to feel related or attached (Ryan & Deci, 2008). The need for connectedness to others is centrally important and is more likely when there is a sense of support for relatedness (Ryan & Deci, 2000) – a construct inherent in social support.

Internalization of extrinsically motivated behaviors is also enhanced by perceived competence (Ryan & Deci, 2000). Individuals are more likely to adopt activities that their relevant social support groups value, when they perceive a sense of competence for that activity (Ryan & Deci, 2008). Motivation, then, may be the critical variable in producing maintained change. Examining the relationship of social support, motivation, competence and pursuit of a baccalaureate degree among associate degree nurse graduates may provide insight regarding educational decisions among associate degree nurse graduates.

Summary

The American Nurses Association recommended the baccalaureate degree as the entry level for nursing practice back in 1965 (American Nurses Association [ANA], 1965). Nearly fifty years later, this recommendation has not been realized. Education for entry into practice remains a contentious issue of concern within nursing. Despite increased complexity in the health care arena and calls by nursing organizations that the educational level of nurses should be on par with other members of the health care team in order to better address the care issues, currently, almost 60% of newly graduated nurses received their initial nursing education from associate degree programs (USDHHS, 2010). The rise in enrollments to associate degree nursing programs has correlated with the decline in hospital based diploma school enrollments as well as with the growth of community colleges which offer greater educational opportunities to minorities and first generation college students (Orsolini-Hain, 2009; Viterio & Teich, 2002). Despite tuition funding by employers, onsite advanced degree programs, and landmark studies such as that by Aiken suggesting a relationship between increased RN education level and decreased patient mortality, 80% of Associate Degree nurse graduates do not return to school to pursue a baccalaureate or higher degree (Aiken, Clark, Cheung, Sloane & Silber, 2003; USDHHS, 2010).

Nurses remain the least educated among professional health care providers and the educational gap between nursing and other health professions continues to grow (Nelson, 2002). Disciplines such as occupational therapy and physical therapy allowed certification without a college degree in the 1950's but now require a master's education. Other professions, such as pharmacy and audiology, have raised educational standards to include a clinical doctorate (Joel, 2002). The Institute of Medicine (IOM) reports advocate for collaboration among all health care

professionals to participate as partners on an interdisciplinary team in order to ensure patient safety and quality care (2003). Many nursing and organizational leaders believe that in order for nurses to be respected and participate as full partners on interdisciplinary teams, educational levels must be raised (AACN, 2009; Benner, Sutphen, Leonard & Day, 2009; IOM, 2010; Joel, 2002). Research into factors that influence the educational mobility of nurses is needed. Specifically, research exploring the motivations for pursuit of a baccalaureate degree among associate degree nurse graduates is needed, to develop strategies to promote adaptation to new patterns of nursing education and increase the percentage of nurses educationally prepared to respond to the demands of the 21st century health care.

CHAPTER 3 Method

Overview

This research study proposed to explore the relationship of social support with motivation, perceived competence and the decision to pursue a baccalaureate degree among associate degree nurse graduates. The outcome variable for this study was the pursuit of a baccalaureate degree in nursing. The independent variables were social support, motivation, perceived competence and demographic variables including: age, gender, age at graduation, marital status, children, race/ethnicity, nativity, education levels of mother and father, income, RN work status.

The demographic variables included were similar to those used in regional and national surveys such as the Nurse Graduate Study conducted by CUNY (Ebenstein, Weinberg, Dale & Croke, 2009) as well as those conducted by the Center for Health Workforce Studies in Albany, NY(2011) and the National Sample Survey of Registered Nurses (USDHHS, 2010). In addition, variables to determine the educational level of the respondents' mothers and fathers was included. There is a body of research that reports a positive relationship with the increased educational level of parents and their effects on their children's educational attainment, daughters in particular (Altonji & Dunn, 1996; Flouri, 2006; Lee & Kushner, 2008; Reeder & Conger, 1984; Schlechter & Milevsky, 2010; Wells, Seifert, Padgett, Park & Umbach, 2011). As nursing is a female dominated profession, this researcher included two questions in the survey to assess this potential effect on the likelihood of pursuing a baccalaureate degree among this sample population. Income level was included as several research studies on AD nurse graduates and return to school often cite financial issues as a barrier (Delaney & Piscopo, 2004; Diaconis, 2001; Kalmon, Wells & Gavan, 2009; Krawczyk, 1997; Leonard, 2003; Peters, 2003; Root,

1991; Zuzelo, 2001). Additionally, a question on current work status as an RN was asked, to assess the societal influence of the increased strength of recommendations to increase the level of nursing education.

The participants were recruited from a randomized sample of nurses that graduated from a CUNY nursing program between 1997 and 2007 and participated in a previous study on CUNY Nurse Graduates conducted in 2008-2009. This current research study was a computer adapted telephone survey which was conducted with associate degree nurse graduates that graduated from a CUNY associate degree nursing program between 1997 and 2007. The telephone survey included measures for Social Support, Motivation, Perceived Competence and demographic variables. The telephone survey was administered by trained surveyors from the Cornell Survey Research Institute, the same organization that conducted the original CUNY Nurse Graduate study.

Research Design

This study used a descriptive, comparative, cross-sectional, design. This quantitative, non-experimental research design was appropriate for this research study because the intent of the research was to explore a possible relationship among perceived social support, motivation, perceived competence and the pursuit of a baccalaureate degree in nursing among associate degree nurse graduates (Burns & Grove, 2009; Field, 2006). Logistic regression was used for the main analysis to estimate the presence of an association among social support, type of motivation, perceived competence and pursuit of a baccalaureate degree in nursing among associate degree nurse graduates of a public university in the Northeast United States during the period 1997-2007.

The research questions to be answered include:

1. Is there a relationship between social support and motivation among Associate Degree Nurse Graduates?
2. Is there a relationship between social support and perceived competence among Associate Degree Nurse Graduates?
3. Is there a relationship between social support and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?
4. Is there a relationship among motivation, perceived competence and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?
5. Is there a relationship among social support, motivation, perceived competence and the pursuit of a baccalaureate degree among Associate Degree Nurse Graduates?

Sample

Owing to the nature of non-linearity, calculation of the sample size for logistic regression is complicated, often involving complex formulae (Hsieh, Bloch & Larsen, 1998). Consultation was sought with a faculty scholar, expert in this method, from the Doctor of Public Health, City University of New York (CUNY) Graduate Center and Department of Public Health at Lehman College, CUNY to best determine the sample size needed for this research study. A sample size of 276 individuals was calculated to identify an effect size of 0.15 or a 15% difference in the variables contributing to the prediction of the outcome variable, a power of 0.80 and a 0.05 significance level. It should be noted that observing a relationship between variables would not provide sufficient evidence to conclude relationships are causal. (Burns & Grove, 2009)

The sample for this research study was drawn from the sample of associate degree nurse graduates that participated in the City University of New York (CUNY) Nurse Graduate Study

(Ebenstein, Weinberg, Dale, & Croke, 2009). The CUNY Nurse Graduate Study was completed in 2009 by the Office of the CUNY University Dean with the approval of CUNY-wide Institutional Review Board (IRB), in order to identify patterns and trends in the CUNY Nurse workforce (Ebenstein, Weinberg, Dale, & Croke, 2009). A survey of nurses who graduated from a CUNY Nursing program between 1997 and 2007 was conducted.

The sample for the original CUNY Nurse Graduate Study was drawn from the 8,595 nurses who graduated from one of the nine CUNY community college nursing programs that offer an associate degree, or from one of five CUNY nursing programs offering a baccalaureate degree in nursing (generic or completion) between 1997 and 2007. A completion degree was defined as a baccalaureate degree in nursing for a registered nurse who earned their initial nursing degree at the associate degree or diploma level. A stratified random sample of graduates was selected for this original study. The sample included 4,286 CUNY nurse graduates. Trained surveyors from the Cornell University Survey Research Institute (SRI) administered the computer assisted telephone survey. For the original CUNY Nurse Graduate study, phone numbers and mailing addresses for potential subjects were obtained through the CUNY Office of Institutional Research and Harris Connect. An alert letter was sent out to the sample of 4,286 to notify subjects of the impending study and alert them to a phone call that would be made to the subject and would serve as an invitation to participate. Among the eligible phone numbers a 74.3% contact rate and overall response rate of 65.9% was achieved (calculated using the American Association for Public Opinion Research [AAPOR] contact rate 3 and response rate 4 formulae) There were 1852 completed interviews and 44 partially completed interviews, comprising 22% of the entire population of nurses who graduated from CUNY in the ten year period (Ebenstein, Weinberg, Dale, & Croke, 2009). Participants were asked to provide updated

contact information as well as permission to contact them again for participation in future research.

Data Collection Procedures

From the original study, of the sample of CUNY Nurse Graduates, 1112 received their initial nursing education at the associate degree level, of which 95% gave their permission to allow further contact for additional research. For the current study, application was made to CUNY-Wide IRB for this researcher to pursue follow-up contact with the CUNY nurse graduate study participants who were graduates of an associate degree nursing program. This researcher was granted permission from the Office of the University Dean which conducted the original CUNY Nurse Graduate study, and CUNY-Wide Institutional Research Board (IRB) to access some basic demographic data collected in the CUNY Nurse Graduate Survey to be used in the current research. The CUNY-wide IRB approved the collection of additional data based on survey items for the current study. This additional data was collected by computer assisted telephone survey using the services of the same Cornell University Survey Research Institute (SRI) used in the original CUNY Nurse Graduates study.

A target of 300 respondents was determined to be adequate to achieve the needed sample size of 276 for the current study, to allow for missing data. A randomized sample of 772 subjects was drawn from the 1112 CUNY Nurse Graduates Study participants who earned their initial nursing education at the associate degree level, with the assistance of the Senior Research Associate of the Office of the University Dean for Health and Human Services for CUNY. Based on the response rate of the original CUNY Nurse Graduate Study, this was the number determined to be needed to achieve a similar response rate for the current study. These 772 individuals had completed a CUNY associate degree nursing program as their initial nursing

education, were last interviewed in 2008 for the CUNY Nurse Graduate Study and had agreed to be contacted for follow-up research. The sample list and contact information was provided to Cornell University SRI, who conducted the computer assisted telephone survey using the survey tools selected by this researcher. Lexis-Nexis searches were attempted by Cornell University SRI to locate new phone numbers in cases where the previously obtained phone number was non-working. Attempts to contact the 772 individuals by telephone were conducted between March 23 and April 27, 2011. When the number of completed telephone interviews reached 300, no further attempts to contact non-respondents was made. One additional respondent did contact the Cornell SRI after the target had been reached and completed an interview, bringing the total number of completed interviews to 301. A response rate of 50% was achieved as determined using AAPOR standards (AAPOR response rate is computed as a fraction of the total eligible and available respondents). Consistent with the original CUNY Nurse Graduate Study, participants were offered a \$10 incentive for completion of the telephone survey. A consent script was read to the participant detailing the voluntary nature of participation, confidentiality, \$10 incentive for participation and verbal consent was obtained. (Appendix A).

The surveys for the current research study consisted of some questions on demographic information to determine current status of demographic variables for: age, marital status, number of children/children under six, race/ethnicity, and current work status as an RN (Appendix B). Three surveys for Social Support, Motivation and Perceived Competence, respectively, were also administered. Additional stable demographic variables previously obtained in the original CUNY Nurse Graduate Study that were included in the data analysis were: gender, nativity, 2007 income, education level of mother and father. There were 301 completed interviews using an approved consent script; 150 were with associate degree graduates who had not pursued a

baccalaureate degree in nursing, and 151 were with associate degree graduates who had completed or were currently enrolled for at least one year in a baccalaureate degree program in nursing. While a sample size of 276 had been calculated as needed to achieve an effect size of 0.15, sufficient to detect at least a 15% difference between groups, power of 0.80, and significance of 0.05 using logistic regression; 301 interviews were completed to allow for the potential loss of subjects due to incomplete data.

Instruments

Medical Outcomes Study Social Support Survey

The survey tools used included: The Medical Outcomes Study Social Support Survey (MOS-SSS). This is a 19 item questionnaire created to measure the multi-dimensional characteristics of perceived availability of functional social support as recommended by Cohen & Syme (1985), Cohen & Wills (1985), and House and Kahn (1985). It is based on the conceptual definition derived from House (1981) who suggested that social support is “an interpersonal transaction involving one or more of the following: emotional concern, instrumental aid, information or appraisal” (p 39).

The MOS-SSS was chosen to operationalize perceived social support because it is a robust measure of the elements of perceived social support, has been utilized with a broad sample of English speaking adults with an average of 13 years of education (adults with chronic disease, mothers of premature infants, mothers of children with mental health issues, elder adults) and has been administered as a telephone survey. It was administered in this research study via computer assisted telephone survey.

The MOS-SSS tool was developed as one of several measurement tools for the Medical Outcomes Study (MOS). The Medical Outcomes Study was an observational study of variations

in physician practice styles and patient outcomes in three types of systems in three different cities. The MOS was conducted over a two year period. The MOS-SSS was constructed based on a sample of 2987 patients who had completed an enrollment questionnaire to the MOS at the time the analysis of the MOS-SSS tool was conducted (Sherbourne & Stewart, 1991). The MOS-SSS is available at no charge for non-commercial use as a public document from the Rand Health website (http://www.rand.org/health/surveys_tools/mos/mos_socialsupport.html)

The social support items were designed to be comprehensive in terms of the various dimensions of social support yet short enough to reduce respondent burden (Sherbourne & Stewart, 1991). Derived from the literature on perceived availability of functional support (Cohen & Syme, 1985 ; Cohen & Wills, 1985; House & Kahn, 1985), these functional aspects were labeled: emotional support/informational support, tangible support, positive social interaction and affectionate support as well as an overall functional support index (Sherbourne & Stewart, 1991). Two single item structural indicators (number of close friends and close relatives) were also included.

At the time of development of the MOS-SSS, a pool of 50 possible items was generated guided by an a priori conceptual framework regarding important dimensions of functional support based on support items and dimensions identified in the literature at the time (Sherbourne & Stewart, 1991). Items were restricted to perceptions of availability of different dimensions of perceived functional support and designed to be distinct from related measures of loneliness, mental health, family functioning and social activity limitations (Sherbourne & Stewart, 1991).

Face validity was conducted by six behavioral scientists, then pilot tested, after which, items were reduced to 19 items measuring four functional dimensions (Sherbourne & Stewart,

1991). For each item, patients were asked to indicate how often each kind of support was available to them if they needed it. Response choices were: none of the time, a little of the time, some of the time, most of the time, and all of the time. Internal-consistency reliability exceeded 0.91 for all four scales as well as the overall functional support scale. The Cronbach alpha of each subscale is as follows: emotional support, 0.96; tangible support, 0.92; positive social interaction, 0.94; affection, 0.91; overall support index, 0.97. One year stability measures were all 0.70 or greater. Pearson product moment correlations between social support variables and validity measures were all significant at $p < .001$ (Sherbourne & Stewart, 1991). Convergent validity was high with item scale correlations ranging from 0.72 to 0.90, while discriminant validity correlated higher by two standard errors with the dimension's own scale than other social support scales (Sherbourne & Stewart, 1991).

The participants rated the degree of support from four categories using a Likert scale from a low of 1 to a high of 5. Completion time was estimated to be 10 minutes. Question types included: "People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to You if you need it?" Response statements included: "Someone to help you if you were confined to bed", "Someone you can count on to listen to you when you need to talk", "Someone to give you good advice about a crisis." The MOS-SSS has been administered via paper and pencil, telephone and as an electronic survey. While the original development of the MOS-SSS was for use in evaluating functioning and well-being within adults with chronic disease, the MOS-SSS has been used to evaluate social support in mothers with children in mental health treatment, mothers with premature infants, effects of internet support groups on depression, and computer mediated social support among older adults (Allen, Manuel, Legault, Naughton, Pivor & O'Shea, 2004;

Gjesfjeld, Greeno, Smith, 2007; Houston, Cooper, Ford, 2002; Nahm, Resnick, Gaines, 2004) The consequences of social support evident in the literature are personal competence, health maintenance behaviors, perceived control, positive affect, recognition of self-worth, decreased anxiety and depression and psychological well-being (Langford, Bowsher, Maloney & Lillis, 1997, p99). Other than health maintenance behaviors, these are also variables associated with academic performance and participation (Ahmed, Minnaert, van der Werf, & Kuyper, 2010; Black & Deci, 2000; Eccles, 2007; Eggens, Werf, & Bosker, 2008; Wentzel, Battle, Russel, & Looney 2010). The MOS-SSS was used as developed, and administered as a computer adapted telephone survey.

The Learning Self-Regulation Questionnaire

The Learning Self Regulation Questionnaire (SRQ-L) was developed by the theorists, Deci & Ryan and derived from the Self-Determination Theory (1985/2000/2008). This is a 12-14 item scale designed to measure the constructs of autonomous and controlled motivation as defined in the Theory of Self-Determination (Deci & Ryan, 1985, 2000, 2008). It is based on the conceptualization of motivation (or self-regulation) as a continuum that ranges from extrinsic to intrinsic. The SRQ-L measures motivation as extrinsic (controlled) or intrinsic (autonomous) using a Likert type scale rating from a low of 1 to a high of 7 for “reasons for behavior” statements. The SRQ-L is available from the Self-Determination website (<http://www.selfdeterminationtheory.org/questionnaires>). Permission was granted to this researcher from the authors to use and adapt the SRQ-L for academic research (Appendix C & D). An adapted version of the SRQ-L was used in this study to assess the concept of motivation as defined by the theory of self-determination. Responses to reason statements were rated on a Likert scale of 1 (not at all true) to 7 (very true) responses to: “ I actively participate in the

nursing classes while in the baccalaureate in nursing completion program – Because I feel like it's a good way to improve my skills and my understanding of nursing (autonomous); Because others would think badly of me if I didn't (controlled)” “ I am likely to follow my instructor's suggestions for studying baccalaureate nursing materials – Because I would get a good grade if I do what he/she suggests (controlled); Because it's important to me to do well at this (autonomous)”. The SRQ-L has previously been adapted for use in a variety of populations and works well as a telephone survey. It was administered in this study as a computer adapted telephone survey.

The basis for the SRQ-L is derived from Guttman's (1954 as cited in Ryan & Connell, 1989) radix theory which describes ordered relations between correlated variables. Within a matrix, the variables are ordered by complexity or conceptualization along a diagonal. The largest correlations are closer to the diagonal and taper off the further away from the diagonal. Thus, the integrity of the variable categories is preserved while also demonstrating their intercorrelations (Ryan & Connell, 1989, p 751). Ryan & Connell (1989) proposed a model of perceived locus of control with a continuum of motivation from extrinsic to intrinsic, as opposed to polar extremes. The simplex model provided a mechanism for illustrating the theoretically specified continuum. A 26 item reason for academic performance survey was subsequently developed by interviewing teachers and children to identify categories of behavior (Ryan & Connell, 1989). Four stem questions with a list of reason statements to be rated 1-4 were then tested with a diverse population of 718 children in grades 4-6. The reasons were structured to represent external, introjected, identified or intrinsic categories of reasons for behavior in an academic setting. Internal consistency ranged from .62 to .82 across the samples.

Ryan & Connell (1989) found that intercorrelations for the ratings to reasons for behavior followed the predicted simplex model and congruency testing via squared correlations with an adjacency index produced a coefficient of .79 ($p < .01$). Convergent reality was noted for graded correlations with the subscales of perceived locus of control for motivation (external, introjected, identified or intrinsic) with Harter's (1981) *Intrinsic versus extrinsic orientation in the classroom scale*. Discriminant validity was demonstrated with divergence of competency ratings by father and teacher and the external motivation orientation category ($r = -.14$, $p < .05$; $r = -.20$, $p < .001$).

The SRQ-L was later adapted for use by adults in an academic setting to examine medical students ($N = 181$) internalization of biopsychosocial values (Williams & Deci, 1996). Students responded to three statements with a total fourteen reasons representing two "super categories" of the continuum of motivation: autonomous (intrinsic and identified) and controlled (introjected and external) regulation or motivation, on a Likert scale of agreement with the reason from a low of one to a high of seven. Principal components factor analysis with oblique rotation of these 14 items along with four items assessing perceived competence produced the expected three factors: autonomous (seven items), controlled (seven items), competence (four items). Reliability coefficients were .78, .70 and .80 respectively. All factors loaded at greater than .40 with no cross loadings above .23. Construct and discriminant validity were done with the *General Causality Orientation Scale* (GCOS) developed by Deci and Ryan (1985). Autonomous Reasons on the SRQ-L correlated with the Autonomy subscale of the GCOS ($r = .22$, $p < .001$) and with Perceived Competence ($r = .22$, $p < .001$). Controlled reasons correlated positively with the Controlled subscale of the GCOS ($r = .27$, $p < .001$) and with the Impersonal subscale of the GCOS ($r = .45$, $p < .001$). When Autonomous Reasons and Controlled Reasons

subscales were combined to form a Relative Autonomy Index (RAI), the resulting variable correlated positively with the Autonomy subscale of the GCOS ($r = .18, p < .01$) and negatively with the Impersonal subscale ($r = -.35, p < .001$). Perceived competence correlated positively with the Autonomy subscale of the GCOS ($r = .24, p < .001$).

The SRQ-L was again contextually adapted for adult students in an organic chemistry course ($N = 137$) by Black & Deci (2000). Only twelve items were used, reflecting the Autonomous and Controlled Reasons for motivation. Subscales for reliability were .75 and .67 respectively. Principal components factor analysis was done with varimax rotation yielding a two factor solution accounting for 40.3% of the variance. Four items loaded on autonomous and eight on controlled at .45 or above with no cross loadings above 0.25. Autonomous reasons correlated with the autonomy subscale of the GCOS [$r(136) = 0.44, p < .001$] and Controlled reasons correlated with both the controlled orientation and the impersonal orientation subscales of the GCOS [$r(127) = 0.28$ and 0.34 respectively, both $p < .01$].

The SRQ-L addresses the domain specific individual differences in motivation or regulation of behavior. A variety of SRQ scales have been developed to assess academic, pro-social, learning, treatment, exercise, religion and friendship behaviors. The SRQ-Academic (SRQ-A) was developed for children and concerns school work. The SRQ-Learning (SRQ-L) was developed for adult students and assesses the reasons why adults learn in particular settings such as a college or a medical school course. It poses three statements with 12-14 reasons about why adults engage in learning-related behaviors. The SRQ-L survey was formed with just two subscales: Controlled Regulation reasons and Autonomous Regulation reasons. Thus, the responses that are provided are either categorized as controlled (i.e., external or introjected regulation) or autonomous (identified regulation or integrated motivation). Because the scale

was designed to have just the two “super” categories of regulation: autonomous or controlled, there was no attempt to have the same number of items from each regulatory style of the Self Determination Theory Scale of motivation (e.g., external, introjected, identified, integrated), and thus there was no psychometric work done on the four individual regulatory styles. The validation was done only at the level of the two “super” categories: autonomous (encompassing (identified and integrated or intrinsic) and controlled (encompassing introjected and external). It works well administered as a telephone survey. For this study, it was administered as a computer-adapted telephone survey. Completion time was estimated to be 10 minutes.

Perceived Competence Scale

The Perceived Competence Scale (PCS) is a short, 4-item questionnaire developed from the Self-determination theory. Competence is theorized as one of three basic psychological needs along with autonomy and relatedness in the Self-Determination Theory (Deci & Ryan, 1985/2000/2008). Competence is theorized to facilitate goal attainment and need satisfaction from engagement in an activity at which one feels effective. It is positively correlated with autonomous regulation (motivation). The PCS assesses participants’ feelings of competence about a particular behavior on a Likert scale from a low of 1 (not true at all) to a high of 7 (very true). The Perceived Competence Scale is available from the Self-Determination website (<http://www.selfdeterminationtheory.org/questionnaires>). Permission was granted to this researcher from the authors to use and adapt the Perceived Competence Scale for academic research (Appendix C & D). An adapted version of the PCS used for this research included items such as: “I feel confident in my ability to learn the material in a Baccalaureate Nursing program” “I am capable of learning the material in a Baccalaureate Nursing program”. I am able to achieve my goals in a Baccalaureate Nursing Program”. It was used in this study in conjunction with a

scale to measure autonomous regulation of learning (motivation). The PCS has previously been administered to a variety of populations in conjunction with the SRQ-L. It works well administered as a telephone survey. For this study, it was administered as a computer-adapted telephone survey. Completion time was estimated to be 5 minutes.

Perceived competence has been assessed in various studies (Williams, McGregor, King, Nelson & Glasgow, 2005; Williams, Niemac, Patrick, Ryan, Deci, 2009; Williams, McGregor & Sharp et al, 2006) and used, along with autonomy (i.e., an autonomous regulation motivation style as measured by the SRQ-L scale identified above) to predict maintained behavior change, effective performance, and internalization of ambient values (Williams & Deci, 1996; Williams, Freedman & Deci, 1998). The alpha measure of internal consistency for the perceived competence items has been measured above 0.80 (Williams, Freedman, Deci, 1998; Williams and Deci 1996). Items on the PCS are written to be specific to the relevant behavior or domain being studied (Deci & Ryan, 1996). It was contextually adapted for a study to assess medical students internalization of biopsychosocial values in conjunction with the SRQ-L by Williams & Deci (1996). The reliability coefficient for the Perceived Competence Scale in that study was .80. Principal components analysis was done and four items loaded on one factor at greater than .40. The PCS was also contextually adapted for adult students in an organic chemistry course (N = 137) by Black & Deci (2000) in conjunction with the SRQ-L. Perceived competence reliability was 0.86 for that study and principal components factorization yielded four items all loading on one factor at greater than .40. Construct validity in both of these studies was done with the General Causality Orientation Scale and showed correlation with the autonomy subscale ($r = .22$, $p < .001$).

Adaptations

The SDT theorist, Edward Deci, was consulted regarding adaptation of the SRQ-L and Perceived Competence surveys for the context of nursing education. Nursing education faculty were consulted to ensure the questions accurately reflected the intent. The SRQ-L and Perceived Competence surveys were revised to reflect the context of return to school for a baccalaureate degree in nursing. Recommendation was made to adapt two versions of the SRQ-L and Perceived Competence Surveys: one for those who had completed or were enrolled for at least one year in a baccalaureate in nursing completion program (Learning Self-Regulation Questionnaire for Baccalaureate in Nursing [SRQ-BS] and Perceived Competence Scale for Learning- Baccalaureate Nursing [PCS-BS]) and one for those who had not returned for a baccalaureate degree in nursing (Learning Self-Regulation Questionnaire for no Baccalaureate in Nursing [SRQ-nBS] and Perceived Competence Scale – no Baccalaureate Nursing [PCS-noBS]).

Adapted surveys were reviewed by graduate nursing students for clarity of language and a practice session of the telephone survey was conducted with the Cornell SRI telephone surveyors to hear the telephone delivery of the survey questions as well. Suggestions made to introduce the term “RN to BS baccalaureate completion program” in the first statement of the SRQ-BS and SRQ-noBS and then simplify to “RN to BS program” in subsequent statements were incorporated. The surveys were pilot-tested for clarity of language with a sub-set of ten study participants. No major differences in the responses of the entire sample and the sub-sample were found, therefore the pilot sub-sample was included in the analysis. Question types included: “I will participate actively in the baccalaureate nursing classes”. Responses included: “Because I feel like it's a good way to improve my skills and my understanding of patients.” “Because others would think badly of me if I didn't.” “Because learning to this material well is an important part of nursing.” “Because I would feel bad about myself if I didn't study this approach.”

Respondents were asked to rate their answers on a Likert scale from a low of 1 to a high of 7. The SRQ-BS and SRQ-noBS was administered in this research study as a computer assisted telephone survey. Completion time was estimated to be 10 minutes.

For this study, the Perceived Competence Scale was revised to reflect the concept of return to school for a baccalaureate degree. As recommended by the SDT theorist Edward Deci, and nursing education faculty experts, two versions were adapted: one for those who completed or were enrolled for at least one year in a baccalaureate in nursing completion program (PCS-BS) and one for those associate degree graduates who had not returned for a baccalaureate degree (PCS-noBS). The PCS was administered in this research study as a computer assisted telephone survey. Completion time was estimated to be 5 minutes.

Data Analysis

Data was analyzed using Predictive Analytics for SoftWare (PASW) version 18 and after PASW was acquired by IBM in 2011, IBM SPSS version 19 was used. Descriptive statistics were run for the demographic data, including frequencies for categorical variables and summary statistics for continuous variables. T-tests were conducted for normally distributed continuous variables and chi square analysis was conducted for categorical variables to identify significant differences and associations. Correlations were conducted for the covariates and the outcome, pursuit of a baccalaureate degree in nursing. Logistic regression was employed for the main analysis as it is best used with a dichotomous dependent variable. The predictor (dependent) variable was dichotomized as pursuit of a baccalaureate degree in nursing (1) or no pursuit of a baccalaureate degree in nursing (0). Logistic regression was used to estimate the strength of the association of the independent variables and the predictor outcome of pursuit of a baccalaureate degree in nursing. The outcome variable was defined as enrollment for at least one year or

completion of a baccalaureate in nursing completion program. Logistic regression makes no assumptions about the distributions of the predictor variables or covariates, and they do not need to be normally distributed.

Demographic data was collected at the time of the phone interview for: current employment as an RN, current marital status, children, race, ethnicity and age. In addition, demographic data collected in the original CUNY Nurse Graduate Study was examined for: gender, nativity, education level of mother and father, income level (as of 2007), and age at graduation from AD Nursing Program.

Protection of Human Subjects

Application was made to the CUNY-wide Institutional Review Board (IRB) for approval to conduct this research study as an extension of the original CUNY Nurse Graduate Study completed in 2009. Two amendments were filed with the CUNY wide IRB. The first amendment added this researcher as an additional key personnel in order to have access to the data reported by the participants of the CUNY Nurse Graduate Study for data analysis. The second amendment requested approval to conduct follow-up surveys. Both the original and the current study presented minimal risk to participating subjects.

The Cornell Survey Research Institute was utilized for the original CUNY Nurse Graduate Study as well as for this researcher's study. The Survey Research Institute (SRI) is a full-service survey research facility at Cornell University. SRI began its operations in August, 1996 as a result of a need for state-of-the-art survey services for Cornell researchers. The primary mission of SRI is to conduct surveys and provide survey research services to Cornell University faculty, students, and administration, federal, state, and local government agencies, other nonprofit organizations, and other organizations in need of survey research work. SRI

offers a variety of methods for data collection utilizing our automated system, which is developed by the Computer-Assisted Survey Methods Program of the University of California at Berkeley, and commissioned by the U.S. Census Bureau. This system called CASES (Computer-Assisted Survey Execution System) is the most sophisticated in CATI (Computer-Assisted Telephone Interview) technology used by academic research centers who adhere to the highest scientific and academic standards (Cornell University, 2010).

For this current study, all participants were informed of the nature and purpose of the study, maintenance of study results, City University of New York's IRB approval and contact information for the IRB administrator, as well as this researcher's contact information. Data was stored in a secure password protected and encrypted site. Participants were provided confidentiality which has been protected. The invitational telephone call contained all the elements of informed consent, except for the signature which was not required for this computer adapted telephone survey. The SRI interviewer conveyed information regarding how confidentiality would be maintained, the purpose of the study, and how the results would be used to enhance knowledge of nursing education. Participants were informed that consent would be obtained by verbalizing consent. This was elicited before the interview began.

Summary

This research study proposed to explore the relationship of social support with motivation, perceived competence and the decision to pursue a baccalaureate degree among associate degree nurse graduates. A descriptive, comparative, cross-sectional non-experimental design was used. The outcome variable for this study was the pursuit of a baccalaureate degree in nursing. The independent variables were social support, motivation, perceived competence and

demographic variables including: age, gender, age at graduation, marital status, children, race/ethnicity, nativity, education levels of mother and father, income, RN work status.

The 301 associate degree nurse participants were recruited from a randomized sample of nurses that graduated from a CUNY nursing program between 1997 and 2007 and had previously participated in the CUNY Nurse Graduate Study conducted in 2008-2009. Demographic data as well as responses to the Medical Outcomes Social Support Survey, and adapted versions of the Self-Regulation of Learning Questionnaire and Perceived Competence Questionnaire were obtained by telephone survey. Descriptive analysis as well as logistic regression for the main analysis was employed.

CHAPTER FOUR: Results

Data Collection and Response Rates

A sample size of 300 was determined to be needed for the current study, to allow for missing data. A randomized sample of 772 subjects was drawn from the 1112 CUNY Nurse Graduates Study participants who earned their initial nursing education at the associate degree level. Attempts to contact the 772 individuals by telephone were conducted between March 23 and April 27, 2011. When the number of completed telephone interviews reached 300, additional calls to potential participants were stopped. One additional respondent called back the Cornell SRI in response to an initial phone invitation to participate in the research study and completed an interview, bringing the total of completed interviews to 301. A response rate of 50% was achieved as determined using American Association for Public Opinion Research Standards (AAPOR response rate is computed as a fraction of the total eligible and available respondents). There were 150 associate degree nurse graduates who had not pursued a BS and 151 associate degree graduates who had completed a BS since the original CUNY Nurse Graduate Study I 2008 or were enrolled for at least one year in a baccalaureate degree in nursing completion program. Consistent with the original CUNY Nurse Graduate Study, participants were offered a \$10 incentive for completion of the telephone survey. Of the ADN graduates who did not pursue a BS, 144 accepted the \$10 incentive and six refused it. Of the ADN graduates who did pursue a BS, 145 accepted the \$10 incentive while six refused it. A consent script was read to the participant detailing the voluntary nature of participation, confidentiality, \$10 incentive for participation and verbal consent was obtained. (Table 1).

Table 1 Response Outcomes to phone survey¹

<u>Outcome</u>	<u>N</u>
Completed survey – Pursing/Completed BS in nursing – Accepted \$10	145
Completed survey – Pursing/Completed BS in nursing – Rejected \$10	6
Completed survey – No BS in nursing – Accepted \$10	144
Completed survey – No BS in nursing – Rejected \$10	6
Ineligible – Filled quota (pursuing/completed BS in nursing)	45
Deceased	1
Bad phone number – Unable to locate a working number	126
Refused to participate	5
Pending – Called less than 10 times without resolution	136
Pending – Called 10 or more times without resolution	158
Total	772

¹ These response item categories are mutually exclusive and exhaustive

Research Questions

The purpose of this study was, for a group of associate degree nurse graduates to: a) assess the relationship between social support and motivation, b) assess the relationship between social support and perceived competence, c) assess the relationship between social support and pursuit of a baccalaureate in nursing degree, d) assess the relationship among motivation, perceived competence and the pursuit of a baccalaureate degree, e) assess the relationship among social support, motivation, perceived competence and pursuit of a baccalaureate degree. A total of 301 associate degree nurse graduates completed interviews for this study, 151 had pursued a baccalaureate degree and 150 had not pursued a baccalaureate in nursing degree.

Preliminary Data Analysis

Preliminary descriptive analysis was done using PASW Version 18. Data was reviewed for missing values, outliers, and adequate cell counts. In order to provide an adequate number of cases to meet the requirements for data analysis some variables were collapsed and recoded. Marital status was recoded from 6 categories to 3: never married; married or married-like relationship; no longer with a partner (widowed, divorced, separated). The status of children was combined and recoded to reflect children under six years; children six years and older; no children. Race and ethnicity was recoded from six categories to four: non-Hispanic White; non-Hispanic Black; non-Hispanic Other; Hispanic. Education level of mother and father was recoded from nine categories to three: less than high school; high school graduate or equivalent; college. The two original questions on 2007 income from the CUNY Nurse Graduate Study asked for a specific income amount and for those who did not wish to give a sum, a range was offered. Twenty-five percent of the subjects did not provide a specific amount and only provided a range for income, therefore income was re-categorized into four ranges for this study: \$10,000

to \$75,000 as both part-time and full time salaries were included; \$76,000 to \$103,000; \$104,000 to \$145,000; and greater than \$145,000.

Descriptive analysis was run again. It was determined that 13 subjects were inaccurately categorized as AD only graduates because they reported that they did not pursue a baccalaureate in nursing degree and were administered the SRQ-noBS and PCS-noBS surveys. In reviewing the data responses, it was noted that these 13 had obtained a baccalaureate degree in another discipline, and it was determined that they did not meet the intended classification of no BS in nursing. These 13 subjects had been administered the SRQ-noBS and PCS-noBS surveys, which were adapted for subjects that had not pursued baccalaureate education. Therefore, these 13 cases were deleted.

There were another eight cases that did not report the educational level of their mother and an additional nine cases that did not report the educational level of their father. As these were identified as a potential predictor variables, these 17 cases were also deleted. It was also noted that some cases that omitted the educational level of their fathers also omitted responses to some items for Autonomous Regulation, Perceived Competence and Social Support subscales, providing additional rationale for their removal. Four additional cases with missing data for race/ethnicity, current age and age at graduation were also deleted as these variables were identified as potential predictor variables.

There were no statistically significant differences in age, race/ethnicity, Autonomous Regulation, Perceived Competence, Social Support or any of the social support subscales between the cases removed and the cases that were used. There was a statistically significant difference in Controlled Regulation between cases that omitted the educational level of their fathers and the cases that were utilized. The final sample included 267 cases, 129 were AD nurse

graduates that had not pursued a baccalaureate in nursing and 138 were AD nurse graduates that were enrolled for at least one year or completed a baccalaureate in nursing completion program in the three years since participating in the CUNY Nurse Graduate Survey of 2008.

Original calculations to detect a small difference in effect size (.15) estimated a need for a sample of 276. The sample size needed to detect a moderate difference in effect size (.20) was computed to be 162. The current sample size of 267 is adequate for a power of .80, significance of .05 and effect size of .20. This is adequate to detect a 20% difference in the effect of covariants on the predictor outcome of pursuit of a baccalaureate degree.

Descriptive statistics were computed for demographic variables. Correlational analysis was conducted to assess the relationship among the variables and the outcome of pursuit of a baccalaureate degree in nursing as well as to assess the relationship between Social Support, motivation (as operationalized as Autonomous Regulation and Controlled Regulation) and Perceived Competence. Finally, logistic regression was employed to determine the best model for predictor variables and the outcome of the pursuit of a baccalaureate degree.

Sample Characteristics

Table 2 displays frequency counts, independent t-test results for normally distributed continuous demographic variables and chi square results for categorical demographic variables. The associate degree nurse graduates in this study ranged in age from 25 to 69 with a mean of 41.6 years. The mean age of associate degree nurse graduates with no BS was 43.2, while for associate degree graduates that pursued a BS the mean age was 39.9 years. Age at graduation from an associate degree nursing program between 1997 and 2007 ranged from 20 to 58 with a mean of 34.2 years. The mean age at graduation for associate degree nurse graduates with no BS was 36.0 years, while for associate degree nurse graduates that pursued a BS, the mean age was

32.5 years. Consistent with national and regional data, 88% of the subjects were female and 11% were male. Among associate degree nurse graduates with no BS, 87% were female and 13% were male, while among associate degree graduates that pursued a BS, 91% were female and 9% were male.

Among the total sample, non-Hispanic black was the largest category at 39% with non-Hispanic white at 31%. When examining the information by group, a larger percentage of non-Hispanic black associate degree nurse graduates pursued a BS (51%) than non-Hispanic white (18%). While among AD graduates who did not pursue a BS, 45.0% were white and 26.4% were non-Hispanic black. Two thirds of the sample as a whole (67%) and within each group (72% associate degree graduate with no BS and 63% associate degree graduate with BS pursuit) were married or in a married-like relationship. Nearly 50% of both groups had children six years of age or under. Foreign born status was 61% of the whole sample, while among those associate degree graduates that pursued a BS, 69.6% were foreign born versus 30.4% US born. This contrasts with AD graduates with no BS at 51.9 % foreign born versus 48.1% US born. Income was assessed for the year 2007. Associate degree graduates who pursued a BS were more likely to be in a higher salary category as well as currently working as an RN. A greater percentage of associate degree nurses that pursued a BS (38%) were in the salary range of \$103K- \$145K versus those associate degree graduates that did not pursue a BS (28%). Among the entire sample, 92% were currently working as an RN with 88% of associate degree nurse graduates with no BS working and 96% of associate degree nurse graduates who pursued a BS working as an RN. The most common educational level of the mothers and fathers of all associate degree graduates in the sample was high school or some college.

Table 2 Distribution of selected demographic characteristics of ADN Graduates

<u>Characteristics</u>	<u>AD with no BS N= 129 (%)</u>	<u>AD with BS N=138 (%)</u>	<u>t-test or X²</u>	<u>P- value^b</u>	<u>Total N = 267 (%)</u>
Age	43.2 (SD= 8.89)	39.93 (SD= 8.60)	3.12	.002**	41.55 (SD = 8.88)
Age at graduation	36.04 (SD =8.47)	32.54 (SD = 7.50)	3.58	.000***	34.23 (SD = 8.16)
Gender					
Female	112 (86.8)	125 (90.6)	.94	.34	237 (88.8)
Male	17 (13.2)	13 (9.4)			30 (11.2)
Race/Ethnicity			26.29	.000***	
NH White	58 (45.0)	25(18.1)			83(31.1)
NH Black	34(26.4)	71(51.4)			105(39.3)
NH Other	18(14.0)	19(13.8)			37(13.9)
Hispanic	19(14.7)	23(16.7)			42(15.7)
Marital status			2.65	.27	
Never married	21(16.3)	32(23.2)			53(19.9)
Married/ married-like	93(72.1)	87(63.0)			180(67.4)
No longer married	15(11.6)	19(13.8)			34(12.7)
Children			.31	.86	
Children<6y	35(27.1)	41(29.7)			76(28.5)
Children≥6y	63(48.8)	67(48.6)			130(48.7)
No children	31(24)	30(21.7)			61(22.8)
Nativity			8.71	.003**	
Foreignborn	67(51.9)	96(69.6)			163(61)
US born	62(48.1)	42(30.4)			104(39)
2007 Income			6.35	.10	
\$10K -\$75K	40 (15)	45(16.9)			85(31.8)
\$76K - \$103K	44(16.5)	38(14.2)			82(30.7)
\$104K - \$145K	36(13.5)	88(33.0)			88(33.0)
>\$145K	9(3.4)	3(4.5)			12(4.5)

Table 2. (continued) Distribution of selected demographic characteristics^a of ADN Graduates

Working as RN			4.88	.027*	
No	15(11.6)	6(4.3)			21(7.9)
Yes	114(88.4)	132(95.7)			246(92.1)
Mother's Ed level			.31	.86	
<High School	30(23.3)	36(26.1)			30(11.2)
HS or equiv	62(48.1)	65(47.1)			62(23.2)
College	37(28.7)	37(26.8)			37(13.9)
Father's Ed level			.53	.77	
<High School	29(22.5)	28(20.3)			57(21.3)
HS or equiv	56(43.4)	65(47.8)			122(45.7)
College	44(34.1)	44(31.9)			88(33.0)

^aThe estimates represent n and proportion with the exception of age and age at graduation which represent mean and SD.

^bp-values for t-tests for age and age at graduation and for chi-square statistics for the remaining variables

*p < .05 , **p < .01, ***p < .001

In checking for outliers for the normally distributed variables, boxplots indicated two outliers for age in the group associate degree nurses with no BS. However, a comparison of the mean (32.54) and the 5% trimmed mean (32.25) for this group indicated that these outliers are not very different from the remaining distribution. As well, evaluation of boxplots for age at graduation indicated one outlier in AD nurses with no BS. A comparison of the mean (36.04) and the 5% trimmed mean (35.81) were not very different thus indicating that this outlier is not very different from the remaining distribution. Therefore these three cases were retained.

As the distributions for these two variables on age were continuous and met the conditions for normality, the parametric t-test for independent samples was conducted to determine if the differences between groups for age and age at graduation were statistically significantly different. An independent samples t-test was conducted to compare the mean age of associate degree nurse graduates with no BS with the mean age of associate degree nurse graduates who pursued a BS. Levene's test for equality of variances for age indicated the assumption for equal variances was true, $F(265) = 0.15, p = .07$.

Statistically significant differences were found for age in associate degree nurses with no BS ($M = 43.29, SD = 8.89$) and associate degree nurses who pursued a BS ($M = 39.93, SD = 8.60$); $t(265) = 3.12, p = .002$. The magnitude of the difference in the means (mean difference = 3.36, 95% CI: 1.25 to 5.47) represented a small effect size, $r = .19$ (Cohen, 1988). Since this was a sample whose graduation from an AD nursing program ranged over a 10 year period from 1997 to 2007, age at graduation was also examined. A statistically significant difference was also found for age at graduation for associate degree nurses with no BS ($M = 36.04, SD = 8.47$) and associate degree nurses who pursued a BS ($M = 32.54, SD = 7.50$); $t(265) = 3.58, p = .000$. The

magnitude of the difference in the means (mean difference = 3.50, 95% CI: 1.57 to 5.42) represented a small effect size, $r = .21$ (Cohen, 1988).

Chi-square analysis was conducted for the categorical variables for the two groups: associate degree nurses with no BS and associate degree nurses who pursued a BS. Significant associations were found for the predictor variable of pursuit of a BS with race $X^2(3, N = 267) = 25.29, p < .001$, Cramers $V = .31$; working as an RN $X^2(1, N = 267) = 3.93, p < .05, \phi = -0.06$; and nativity $X^2(1, N = 267) = 8.71, p < .01, \phi = -.18$.

Reliability of Measures

Social Support

Table 3 presents reliability coefficients for the survey scales used in this study. The survey tool used for Social Support was the Medical Outcomes Study -Social Support Scale (MOS-SSS). Cronbach alpha for the 19 item Total Social Support score was measured at .96 with inter-item correlations all greater than .40. The four subscales were measured at .95 with inter-item correlations greater than .55 for the 8-item Emotional Support; Cronbach alpha of .87 with inter-item correlations greater than .56 for the 4-item Tangible Support; Cronbach alpha of .87 with inter-item correlations greater than .65 for the 3-item Affectionate Support; and Cronbach alpha of .89 with inter-item correlations greater than .73 for the 3-item Positive Social Interaction.

**Table 3 Descriptive statistics and reliability coefficients
for Social support, Autonomous Regulation, Controlled Regulation and Perceived Competence (n = 267)**

Scale Measures	k	Range	N ^a	M (Md)	SD	alpha
Total Social Support	19 ^b	22-95	263	84.56 (90)	14.10	.96
Emotional Support	8	8-40	265	35.46(38)	6.44	.95
Tangible Support	4	4-20	266	17.16(19)	3.81	.87
Affectionate Support	3	3-15	265	13.8(15)	2.37	.87
Positive Social Interaction	3	3-15	267	13.42(15)	2.58	.89

^aFrequencies less than 267 due to missing values

^b1 Additional SS item only used for Total Social Support

	k	Range	N ^a	<u>AD nurse no BS (N=129)</u>			N ^c	<u>AD nurse pursued BS (n = 138)</u>		
				M (Md)	SD	alpha		M	SD	alpha
Autonomous Regulation	7	5-35	129	40.53(42)	7.78	.81	138	43.92(45)	5.10	.69
Controlled Regulation 7-factor	7	5-35				.68				.64
Controlled Regulation 5-factor	5	5-35	127	21.10(21)	6.14	.70	136	22.35(22.5)	6.06	.67
Perceived Competence	4	8-28	128	25.87(28)	3.48	.87	138	27(28)	1.84	.82

^aFrequencies less than 129 due to missing values

^cFrequencies less than 138 due to missing values

One additional item is only used for computing the full Total Social Support scale. Four cases had some missing data for some of the responses which did not exceed 5% of the sample; therefore they were retained but excluded pairwise for the analysis of the specific scale.

Motivation

The scales used for measuring motivation or self-regulation were adapted from the Learning Self-Regulated Questionnaires (SRQ-L) first developed by Ryan & Connell, (1989) and later modified for adult use by Williams & Black (1996) and Black & Deci (2000) Two contextual versions were used for the two groups: associate degree nurses with no BS and associate degree nurses who pursued a BS. The SRQ-noBS was used for the former and SRQ-BS was used with the latter to reflect the reality that one group had not pursued a BS in nursing degree and one group had pursued the degree. It is advisable to run reliability tests on each different component of the scale with each sample (Field, 2006). The SRQ-L is structured to assess the two super categories of Autonomous Regulation and Controlled Regulation. As presented in Table 3, Cronbach alphas for the SRQ-noBS were .81 for the seven-item Autonomous Regulation scale; and .64 for the seven-item Controlled Regulation. Cronbach alphas for the SRQ-BS were .69 for the seven item Autonomous Regulation; and .68 for the seven item Controlled Regulation. These reliability scores were consistent with previous studies that utilized these scales.

Due to the radix formation used as the theoretical basis (Guttman, 1954 as cited in Ryan & Connell, 1989) for development of the SRQ scale, the preferred measure for inter-correlation evaluation is the corrected item correlations which were all greater than .30 on all scales except for two items on both versions of the Controlled Regulation scales. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of .6 indicated factor analysis would be appropriate to

yield distinct factors. Bartlett's test for sphericity was significant at $p < .000$ indicating that variables would correlate to some degree, thus suggesting measurement of a similar factor. Principle Components Analysis (PCA) was conducted to examine the factor loadings for the Controlled Regulation components for both versions.

Tables 4 and 5 present the results of PCA for Controlled Regulation. In both versions, PCA extracted a two component model. Five items loaded on Component one at .51 or higher for the SRQ-noBS and at .36 or higher for the SRQ-BS. Two items: "Because I would feel proud of myself if I did well in the program" and "Because I would feel proud if I did continue to improve my nursing knowledge" were found to load at less than the recommended .30 (Field, 2006; Tabachnik & Fidell, 2007) on Component one in both versions. Both items loaded at .83 and .73 respectively on a second component. Varimax or oblique rotation did not improve the models. As components with two items or less are considered unstable (Field, 2006; Tabachnik & Fidell, 2007), the two items were deleted in both versions of the Controlled Regulation scale and principle components factor extraction was again conducted. The best model was a five factor solution that did not use rotation and accounted for 43% and 47% of the variance for Component 1 respectively for the SRQ-noBS and the SRQ-BS version. The KMO increased to .7 in both cases and Bartlett's test of sphericity remained significant. Reliability analysis was again conducted for Controlled Regulation for the SRQ-noBS and the SRQ-BS versions. Cronbach alphas for both improved to .67 and .70 respectively.

Table 4 Principle Components analysis for Controlled Regulation version A

Item	Controlled Regulation		Component
	7 factors	5 factors	
Components:	<u>2</u>		<u>1</u>
A.I actively participate in the nursing classes while in the baccalaureate in nursing completion program: Rate each reason 1-7			
2. Because others would think badly of me if I didn't	657	-.272	.683
4. Because I would feel proud of myself if I did well in the program.	357	.642	deleted
B. I am likely to follow my instructor's suggestions for studying baccalaureate nursing materials: Rate each reason 1-7			
5. Because I would get a good grade if I do what he/she suggests	573	.114	.563
7. Because I want others to think that I am a good nurse.	668	-.308	.703
8. Because it is easier to follow his/her suggestions than come up with my own study strategies	605	-.083	.615
10. Because I would probably feel guilty if I didn't comply with my instructor's suggestions.	779	-.143	.799
C. The reason that I continue to expand my nursing knowledge and skills with baccalaureate nursing classes is: Rate each reason 1-7			
12. Because I would feel proud if I did continue to improve my nursing knowledge.	356	.706	deleted
% variance explained	35%	16%	46%

Table 5 Principle Components analysis controlled Regulation version B

Item	Component			
	Controlled	Regulation	Controlled	Regulation
		7 factors		5 factors
	Components: <u>1</u>	<u>2</u>	<u>1</u>	<u>2</u>
A. If I was enrolled in an RN to BS baccalaureate nursing completion program, I would have actively participated in the nursing classes: Rate each reason 1-7				
2. Because others would think badly of me if I didn't	.513	-.221	.532	.714
4. Because I would feel proud of myself if I did well in the program.	.219	.833	deleted	
B. If I was enrolled in an RN to BS program, I would have been likely to follow my instructor's suggestions for studying baccalaureate nursing materials: Rate each reason 1-7				
5. Because I would get a good grade if I did what he/she suggests	.684	.030	.678	-.444
7. Because I would want others to think that I am a good nurse.	.709	-.244	.734	.349
8. Because it would be easier to follow his/her suggestions than come up with my own study strategies	.679	-.197	.706	-.407
10. Because I would probably feel guilty if I didn't comply with my instructor's suggestions.	.628	-.036	.629	-.076
C. If I had continued to expand my nursing knowledge and skills with baccalaureate nursing classes it would have been: Rate each reason 1-7				
12. Because I would have felt proud if I had continued to improve my nursing knowledge.	.304	.791	deleted	
% variance explained	32%	21%	44%	

Perceived Competence

The scales used for measuring perceived competence were adapted from the Perceived Competence Scale developed by Williams and Deci (1996) for use with medical students in an interviewing course. It has been used in subsequent studies for management of health behaviors and prediction of career choice in medicine (Williams, Saizow, Ross, & Deci, 1997; Williams, Freedman & Deci, 1998; Williams, McGregor, Sharp et al, 2006; Williams, Niemac, Patrick, Ryan & Deci, 2009). The reliability scores in those studies was above .80. As recommended by the SDT theorists, Deci and Ryan, the Perceived Competence scale was contextually adapted for this research study. Two contextual versions of the Perceived Competence scale were used for the two groups: associate degree nurses with no BS and associate degree nurses who pursued a BS. As presented in Table 3, Cronbach alpha for the four- item Perceived Competence scale for associate degree nurse graduates with no BS was .87. Cronbach alpha for the Perceived Competence scale for associate degree nurse graduates who pursued a BS was .82.

Summary of Descriptive Analysis

Between Group Differences

A review of the descriptive statistics was done for the variables: Total Social Support and its four subscales, as well as for Motivation, operationalized as Autonomous Regulation of learning and Controlled Regulation of learning, along with Perceived Competence. Table 6 presents the results of examination of differences in the scores of these variables between groups: associate degree nurses with no BS and associate degree nurses who pursued a BS. Analysis demonstrated that only Controlled Regulation was normally distributed. A t-test could not be used for the non-normally distributed variables as they would not meet the assumptions for normality. In order to determine if there were statistically significant differences in these

variables between associate degree nurses with no BS and associate degree nurses who pursued a BS, a non-parametric test that does not require a normal distribution was used.

Table 6 Between group differences

For Social support, Autonomous Regulation, Controlled Regulation and Perceived competence among Associate Degree nurse graduates (n = 267)

Characteristics	AD with no BS N=129 Md/M (N)	AD with BS N=138 Md/M (N)	t-test	U (Z)	P-value	Total N = 267
Emotional Support	38 (128)	38 (137)		8423 (-.574)	.566	263
Tangible Support	18.5(128)	19(138)		8421.5 (-.683)	.494	266
Affective Support	15(127)	15(138)		8309 (-.876)	.381	265
Positive Social Interaction	15(129)	15(138)		8113.5 (-1.401)	.161	267
Total Social Support	89(126)	91(137)		7963 (-1.098)	.272	263
Autonomous Regulation	42(129)	45(138)		6744.5 (-3.439)	.001***	267
Controlled Regulation	21.1 (127)	22.4 (136)	-1.653		.100	263
Perceived Competence	28(128)	28(138)		7385 (-2.655)	.008**	266

* p < .05, **p < .01, ***p < .001

The Mann Whitney U is appropriate to use for a non-normally distributed continuous variable and a dichotomous variable. Mann-Whitney U tests were conducted with the predictor variable of pursuit of a BS and Total Social Support as well as with the four subscales of Social Support. Results indicated that there were no statistically significant differences in the distribution or the median for Total Social Support Scores or the four Social Support subscales for associate degree nurses with no BS and associate degree nurses who pursued a BS.

There were no significant differences in reported levels of Total Social Support for associate degree nurses with no BS (Md = 89, n = 129) and associate degree nurses with BS pursuit (Md = 91, n = 137), $U = 7963$, $z = -1.089$, $p = .272$, $r = -.07$. The Mann Whitney U was also conducted separately for the four Social Support subscales. There were no significant differences in reported levels of Emotional Support for associate degree nurses with no BS (Md = 38, n = 128) and associate degree nurses with BS pursuit (Md = 38, n = 137), $U = 8423$, $z = -.574$, $p = .566$. There were no significant differences for reported levels of Tangible Support for associate degree nurses with no BS (Md = 18.5, n = 128) and associate degree nurses with BS pursuit (Md = 19, n = 138), $U = 8421.5$, $z = -.683$, $p = .494$. There were no significant differences for reported levels of Affectionate Support for associate degree nurses with no BS (Md = 15, n = 127) and associate degree nurses with BS pursuit (Md = 15, n = 138), $U = 8309$, $z = -.876$, $p = .381$. There were no significant differences for reported levels of Postive Social Interaction Support for associate degree nurses with no BS (Md = 15, n = 129) and associate degree nurses with BS pursuit (Md = 15, n = 138), $U = 8113.5$, $z = -1.401$, $p = .161$.

The non-parametric Mann Whitney U test was also conducted on the variables: Autonomous Regulation and Perceived Competence to determine if there were statistically significant differences for these variables between associate degree nurses with no BS and

associate degree nurses who pursued a BS. Statistically significant differences in Autonomous Regulation were found for associate degree nurses with no BS (Md = 40.53, n = 129) and associate degree nurses who pursued a BS (Md = 43.92, n = 138) $U = 67.44.50$, $z = -3.44$, $p = .001$. The mean rank indicated that within this sample, associate degree nurses who pursued a BS had higher levels of Autonomous Regulation (mean rank = 149.63) than associate degree nurses with no BS (mean rank = 117.28).

Statistically significant differences in Perceived Competence were found for associate degree nurses with no BS (Md = 25.87, n = 128) and associate degree nurses who pursued a BS (Md = 27.00, n = 138), $U = 7385.00$, $z = -2.655$, $p = .008$. The mean rank indicated that within this sample, associate degree nurses who pursued a BS had higher levels of Perceived Competence (mean rank = 143.99) than associate degree nurses with no BS (mean rank = 122.20).

The distribution for Controlled Regulation scores was determined to be normally distributed for associate degree nurses with no BS ($D(127) = .055$, $p = .200$) and associate degree nurses who pursued BS ($D(136) = .053$, $p = .200$); and to meet the assumptions of homogeneity of variance $F(1, 261) = .036$, $p = .850$. Therefore an independent samples t-test was conducted to assess for differences in reported levels of the five item Controlled Regulation for associate degree nurses with no BS and associate degree nurses who pursued BS. It was determined that there were no significant differences in scores for Controlled Regulation for associate degree nurses with no BS ($M = 21.10$, $SD 6.135$) and associate degree nurses who pursued BS ($M = 22.35$, $SD 6.058$), $t(261) = -1.653$, $p = .100$.

Main Analysis

Correlations and Collinearity

Table 7 presents the results of Spearman's rho correlations to determine the significance of correlations between the variables. Spearman's rho correlations are the appropriate choice with variables that provide ordinal data and/or do not meet the assumptions of normality as is the case with all but two of the variables in this research. High inter-correlations were noted for age and age at graduation (.89, $p = .000$). It was therefore determined that age at graduation would be dropped as a variable, as present age was more current. The scale Total Social Support and the four subscales (Emotional Support, Tangible Support, Affectionate Support and Positive Social Interaction) also showed high inter-correlations at .85 or higher. Collinearity diagnostics were conducted to further explore this inter-correlation

In preparation for the main analysis with logistic regression, collinearity diagnostics were conducted as recommended for the predictor outcome of pursuit of a BS in nursing (Field, 2006; Tabachnik & Fidell, 2007). Table 8 presents the results of collinearity diagnostics. The proposed covariates were tested: age, gender, race/ethnicity, marital status, child status, nativity, income, working as RN, educational level of mother, educational level of father, Total Social Support, Emotional Support, Tangible Support, Affectionate Support, Positive Social Interaction Support, Autonomous Regulation, Controlled Regulation, and Perceived Competence. Tolerance levels less than .01 and Variance Inflation Factor (VIF) scores greater than 10 indicate multiple correlation with other variables is high and consideration should be given to whether the variable should be deleted (Field, 2006; Tabachnik & Fidell, 2007). Upon examination of the collinearity

Table 7 Spearman's rank order of correlations

	AGE	age at grad	gender	race	marital	children	US BORN	INC	Work RN	MOM ED	DAD ED	AUTO REG	CONT REG	PC TOT	Emot Supp	Tang Supp	Affec_Supp	Post soc int	TOT SS
AGE	1.000	.885**	-.013	-.006	.164**	.193**	-.096	.034	-.113	-.310**	-.272**	-.014	-.058	.034	-.119	-.084	-.090	-.142*	-.166**
Age at grad		1.000	.059	-.025	.155**	.224**	-.070	.008	-.086	-.290**	-.263**	-.012	-.075	.043	-.107	-.071	-.083	-.119	-.132
gender			1.000	-.002	-.057	.090	.008	.062	.060	-.014	-.037	-.191**	-.006	-.229**	-.040	.054	-.047	.063	.026
race				1.000	-.066	.024	-.279**	-.059	.070	-.126*	-.072	.099	.026	.063	.052	.009	.008	-.064	-.014
marital					1.000	-.148*	-.130*	.096	-.037	-.032	.000	.020	.009	.146*	-.016	.048	-.048	-.023	.019
children						1.000	.047	.073	.000	-.032	-.029	.045	.020	.022	-.058	.019	-.028	.020	-.048
USborn							1.000	.097	.034	.158**	-.030	-.090	-.145*	.003	.116	.108	.160**	.157*	.108
Income								1.000	.034	-.050	-.012	.087	-.068	.090	.070	.131*	.101	.145*	.112
WorkingRN									1.000	-.065	-.092	-.028	.001	.067	.056	.048	.061	.054	.037
MOM ED Level										1.000	.560**	-.127*	-.059	-.053	.094	.073	.041	.079	.080
DAD ED Level											1.000	-.114	-.122*	-.144*	-.020	-.027	-.004	.012	.030
Autonomous Regulation												1.000	.363*	.453**	.195**	.169**	.154*	.156*	.126*
Controlled Regulation													1.000	.130*	.046	.060	.052	.009	.987
Competence														1.000	.200**	.113	.124*	.078	.156*
Emotional Support															1.000	.669**	.698**	.718**	.946**
Tangible Support																1.000	.626**	.654**	.853**
Affectionate Support																	1.000	.688**	.886**
Positive social interaction																		1.000	.893**
Total social Support																			1.000

*p < .05, **p < .01, ***p < .001

Table 8 Collinearity Diagnostics for variables

	Tolerance	VIF
(Constant)		
Age	.199	5.017
Age at graduation	.194	5.142
gender	.858	1.165
Race/ethnicity	.905	1.105
Marital status	.863	1.158
childstatus	.880	1.136
Nativity (USBORN)	.837	1.194
Income level	.912	1.097
WORKING as an RN	.939	1.065
Mother's Education level	.617	1.620
Father's Education level	.614	1.627
Autonomous Regulation	.636	1.573
controlled Regulation	.719	1.390
Perceived Competence	.761	1.314
Emotional Support	.014	69.664
Tangible Support	.050	20.158
Affectionate Support	.085	11.703
Positive social interaction	.085	11.771
Total Social Support	.004	264.398

diagnostics it was noted that there was evidence of multiple correlation with Total Social Support (Tolerance = .004, VIF = 264.368) and the four subscales: Emotional Support (Tolerance = .014, VIF = 69.664), Tangible Support (Tolerance = .05, VIF = 20.158), Affectionate Support (Tolerance = .085, VIF = 11.703), Positive Social Interaction (Tolerance = .085, VIF = 11.771). It was therefore determined that the variable Total Social Support would not be examined in conjunction with the four subscales as there were high inter-correlations greater than .85 between Total Social Support and each of the four subscales. It was decided that Social Support would be explored with either the four subscale scores or the total social support score.

Table 9 presents the point biserial correlations for the predictor outcome pursuit of a baccalaureate in nursing degree and 17 co-variates. Statistically significant findings were noted for age, $r = -.189$, $p = .002$; nativity, $r = -.181$, $p = .003$; race/ethnicity, $r = .148$, $p = .015$; working as an RN $r = .135$, $p = .027$; autonomous regulation, $r = .252$, $p = .000$; and perceived competence, $r = .202$, $p = .001$. All significant correlations were of a small effect (Cohen, 1988).

Table 10 displays the correlations for the selected scales, including the four subscales of Social Support: Emotional Support, Tangible Support, Affective Support, Positive Social Interaction examined separately from Total Social Support; the two components of Self Regulation of learning: Autonomous Regulation and Controlled Regulation; and Perceived Competence. Significant correlations were noted for the four subscales of Social Support and Autonomous Regulation. Significant correlations were also noted for Autonomous Regulation and Perceived Competence ($r = .453$, $p = .000$); and Total Social Support and Perceived Competence ($r = .163$, $p = .008$). When examining the subscales of social support, only Emotional Support ($r = .200$, $p = .001$) and Affectionate Support ($r = .124$, $p = .044$) showed significant correlations with Perceived Competence

Table 9 Point Biserials**for covariates and the outcome pursuit of a baccalaureate among ADN graduates (n = 267)**

Demographic Variables	N	Pearson correlation	Outcome
			P value
Age	267	-.189**	.002
Gender	267	-.059	.333
Race/ethnicity	267	.148*	.015
Marital status	267	-.042	.494
Child status	267	-.034	.579
Nativity(US born)	267	-.181*	.003
Income	267	-.033	.605
Working as RN	267	.135*	.027
Mother's Ed level	267	-.032	.597
Father's Ed level	267	.000	.997
Scale variables			
Autonomous Regulation	267	.252***	.000
Controlled Regulation	263	.102	.100
Perceived Competence	266	.202***	.001
Emotional support	265	.086	.162
Tangible Support	265	.063	.308
Affective Support	265	.050	.308
Positive Social Interaction	267	.080	.191
Total Social Support	263	.066	.287

*p<0.05 level; **p< 0.01; ***p< 0.001

Table 10 correlations for Social Support, Autonomous and Controlled Regulation and Perceived Competence

	1	2	3	4	5	6	7	Total SS
1 Emotional Support	1.000	.669**	.698**	.718**	.195**	.046	.200**	
2 Tangible Support		1.000	.626**	.654**	.169**	.060	.113	
3 Affectionate Support			1.000	.688**	.154*	.052	.124*	
4 Positive Social Interaction				1.000	.156*	.009	.078	
5 Autonomous Regulation					1.000	.363**	.453**	.126*
6 Controlled Regulation						1.000	.130*	.099
7 Perceived Competence							1.000	.156*

Total SS

* Correlation is significant at the 0.05 level (2-tailed).

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

*** Correlation is significant at the 0.001 level (2-tailed).

Logistic Regression

Tables 11- 19 display the results of logistic regression models constructed with potential covariates. The association between and among pursuit of a baccalaureate in nursing degree and Social Support, Autonomous Regulation, Controlled Regulation and Perceived Competence was estimated after controlling for demographic variables. Logistic regression was performed to assess the best model to predict the likelihood that respondents would report they pursued a baccalaureate degree in nursing.

The initial logistic regression was done using the backwards likelihood ratio stepwise method. This method is considered acceptable for exploration of data (Field, 2006; Tabachnick & Fidell, 2007). The best model was statistically significant at $X^2(10, N = 259) = 59.643, p = .000$, indicating that the model was able to distinguish between respondents who reported and did not report pursuit of a baccalaureate degree in nursing. The best model identified age, race, income and autonomous regulation as significant predictors that explained between 20.6% (Cox and Snell R square) and 27.4% (Nagelkerke R squared) of the variance in pursuit of a baccalaureate degree in nursing and correctly classified 69.9% of cases. Additional variables identified as contributing to the model but which did not make individual significant contributions included: nativity, and working as an RN. This was an improvement over the base model of 52.1%. (Table 11).

To assess the independent effect of each scale on the outcome after controlling for all covariates, a series of logistic regression analysis was conducted using the forced entry method by block. To determine the crude, unadjusted association for the study variables for motivation, competence and social support, each of the four scaled variables (Autonomous Regulation, Controlled Regulation, Perceived Competence and Total Social Support) was evaluated individually with the predictor outcome alone and then together (Table 12). In addition,

Autonomous Regulation, Controlled Regulation, and Perceived Competence were assessed for their effect on the outcome variable of pursuit of a baccalaureate degree to address the fourth research question (Table 13). To assess the independent effect of each scale on the outcome while controlling for the demographic co-variates, each scale was examined with the variables age, gender, race/ethnicity entered as a block, then all demographic co-variates entered as a block. To assess the independent effect of each scale on the outcome after controlling for all covariates all co-variates and all remaining scaled variables were entered as a block. Of the scaled variables, only Autonomous Regulation was found to be a significant predictor of the outcome.

When examined alone with the predictor, pursuit of a baccalaureate degree, Autonomous Regulation was the only scaled variable found to be a significant predictor. The model was significant ($X^2(1, N = 259) = 15.66, p = .000$) and had a unique contribution of between 5.9% (Cox & Snell R square) – 7.8% (Nagelkerke R square) of the variance for the prediction of pursuit of a baccalaureate degree. Correct classification of cases improved from 52% to 60.2% with Autonomous Regulation alone. (Table 14). When adjusted for the variables age, gender and race, with Autonomous Regulation the model was significant at $X^2(6, n = 259) = 48.55, p = .000$ (Table 15). Variance explained improved to between 17% (Snell & Cox R square) and 22.8% (Nagelkerke R squared) of the variance and correct case classification improvement to 66.0%. Autonomous Regulation retained significance as a predictor in this model (OR = 1.06, 95% CI: 1.02 – 1.12, $p = .004$). When examined with the remaining demographic co-variates, income was noted to be an significant predictor, along with age, non-Hispanic Black and Hispanic race and Autonomous Regulation (Table 16). The model was significant at: $X^2(19, n = 259) = 62.39, p = .000$. Variance explained improved to between 21.4%

(Cox & Snell R square and 28.6% (Nagelkerke R squared) and correct case classification improved from 52% to 69.1%.

When examined with all covariates including all the scaled variables (Autonomous Regulation, Controlled Regulation, Perceived Competence, Social Support subscales), age, race, and income were significant, but Hispanic race (OR = 3.47, 95% CI: 1.51 – 8.01, $p = .528$) and Autonomous Regulation (OR = 1.05, 95% CI: .99 – 1.11, $p = .097$) were no longer significant (Table 17). The model however was significant at $X^2(22, n = 259) = 64.29, p = .000$. The variance explained improved to between 22.0% (Cox & Snell R square) and 29.3% (Nagelkerke R squared). Correct case classification decreased slightly to 68.7% over the 52% predicted by the constant. Table 18 presents all the demographic covariates, and the scaled variables for Autonompus Regulation, Controlled Regulation, Perceived Competence, and Total Social Support. Only age, race and income are significant, Autonomous Regulation does not retain significance (OR = 1.05, 95% CI: .99 – 1.11, $p = .09$) The model is significant at $X^2(22, n = 259) = 62.80, p = .000$. the variance explained is 21.5% (Cox & Snell R square) to 28.7% (Nagelkerke R squared) and correct case classification is 69.7%. When Perceived Competence is removed from the model, Autonomous Regulation retains significance (OR = 1.06, 95% CI: 1.01 – 1.12, $p = .03$). The model is significant at $X^2(24, n = 259) = 63.95, p = .000$; variance explained is between 21.9% (Cox & Snell R square) and 29.2% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 68.0%

As shown in Table 11, using the backwards likelihood ratio method of logistic regression, only four of the independent variables made a unique statistically significant contribution to the full model (age, race, income and Autonomous Regulation). The strongest predictor for pursuit of a baccalaureate degree among this sample of associate degree nurse graduates was race. Non-

Hispanic blacks were 3.77 times more likely to pursue a baccalaureate degree than non-Hispanic whites (OR = 3.77, 95% CI: 1.72 – 8.23, $p = .001$). The second strongest predictor for pursuit of a baccalaureate degree in nursing was age. For every one year increase in age, the odds of pursuing a baccalaureate degree decreased by a factor of .94 all other factors being equal (OR = .9, 95% CI: .91 - .97, $p = .000$). Respondents in the income category of \$104 - \$145K were 6.3 times more likely to pursue a baccalaureate degree than those in the income level of \$145K or higher (OR = 6.31, 95% CI: 1.27 – 31.47, $p = .025$). The income categories of \$76K - \$103K (OR = 3.86, 95% CI: .772 – 19.25, $p = .100$) and \$10K - \$75K (OR = 4.20, 95%CI: .846 – 20.85, $p = .079$) were not significant predictors. Finally, Autonomous Regulation was also identified as a statistically significant predictor for pursuit of a baccalaureate in nursing degree among this sample of associate degree nurse graduates (OR = 1.07, 95% CI: 1.02 – 1.12, $p = .004$). For every 1 point increase in Autonomous Regulation, respondents were 1.07 times more likely to have pursued a BS degree. This represents a small effect on the outcome prediction. This model explained between 20.6% (Cox & Snell R square) and 27.4% (Nagelkerke R squared) of the variance, and improved correct case classification from 52% to 69.9%. As determined with logistic regression models created with block entry, Autonomous Regulation was found to uniquely contributed 5.9 – 7.5% of the total variance explained(20.6% -27.4%), with the remainder contributed by significant demographic variables for age, race and income.

**Table 11 Logistic regression Backwards Likelihood Ratio
with predictors that best correctly classify cases**

	B	S.E.	Wald	df	p	Odds Ratio (Exp B)	95%C.I. for Odds Ratio (Exp B)	
							Lower	Higher
Age	-.065	.018	13.785	1	.000***	.937	.905	.970
Race/ethnicity –NH white			12.705	3	.005			
Race/ethnicity- NH Black	1.327	.399	11.063	1	.001**	3.768	1.724	8.234
Race/ethnicity- NH Other	.317	.479	.437	1	.508	1.373	.537	3.514
Race/ethnicity- Hispanic	.733	.433	2.867	1	.090	2.080	.891	4.857
Nativity – US born	-.493	.334	2.183	1	.140	.611	.318	1.175
Income – over \$145K			5.988	3	.112			
Income - \$104K - \$145K	1.842	.820	5.049	1	.025*	6.310	1.265	31.469
Income - \$76K - \$103K	1.350	.820	2.706	1	.100	3.856	.772	19.254
Income - \$10-75K	1.435	.818	3.080	1	.079	4.199	.846	20.851
Working as RN	.834	.560	2.222	1	.136	2.303	.769	6.895
Autonomous Regulation	.069	.024	8.389	1	.004**	1.071	1.023	1.123
Constant	-2.871	1.592	3.251	1	.071	.057		

$X^2(10, N = 259) = 59.64, p = .000$; variance explained between 20.6% (Cox & Snell R square) and 27.4% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 69.9%

**Table 12 Logistic regression Block entry with all Scaled variables
likelihood of pursuit of BS from Autonomous Regulation, Controlled Regulation, Perceived Competence and Social Support**

	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)	95% C.I. for Odds Ratio	
							Lower	Upper
Autonomous Regulation	0.059	0.025	5.711	1	0.017*	1.061	1.011	1.113
Controlled Regulation	0.01	0.024	0.165	1	0.684	1.01	0.963	1.058
Perceived Competence	0.099	0.057	3.071	1	0.08	1.105	0.992	1.238
Emotional Support	.010	.039	.061	1	.805	1.010	.936	1.089
Tangible Support	-.002	.055	.001	1	.971	.998	.897	1.111
Affectionate Support	-.069	.107	.414	1	.520	.933	.757	1.151
Positive Social Interaction	.069	.104	.439	1	.508	1.072	.873	1.315
Constant	-5.641	1.626	12.037	1	.001	.004		
$X^2 (7, N = 259) = 20.12$. $p = .005$; variance explained between 7.5% (Cox & Snell R square) and 10.0% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 59.1%								
Total Social Support ^a	0.004	0.009	0.215	1	0.643	1.004	0.986	1.023
Constant	-5.628	1.616	12.132	1	0.004			

^aTotal Social Support was examined separately with the variables: Autonomous Regulation, Controlled Regulation and Perceived Competence
Hosmer and Lemeshow test was significant: $X^2 = (4, N = 259) = 15.99$, $p = .04$ indicating no difference from observed data

**Table 13 Logistic Regression Block Entry with three scaled variables
for likelihood of pursuit of BS from Autonomous Regulation, Controlled Regulation and Perceived Competence**

	B	S.E.	Wald	df	Sig.	Odds Ratio Exp(B)	95% C.I. for Odds Ratio	
							Lower	Upper
Autonomous Regulation	.061	.024	6.188	1	.013*	1.063	1.013	1.115
Controlled Regulation	.004	.024	.028	1	.867	1.004	.959	1.052
Perceived Competence	.107	.056	3.638	1	.056	1.113	.997	1.242
Constant	-5.438	1.511	12.960	1	.000	.004		

$X^2(3, N = 262) = 19.48, p = .000$; variance explained between 7.2% (Cox & Snell R square) and 9.6% (Nagelkerke R square). Model prediction of case classification improved from 52% to 60.3%.

**Table 14 Logistic Regression 1st Block entry
predicting likelihood of pursuit of BS with Autonomous Regulation**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.078	.021	13.968	1	.000	1.081	1.038	1.126
Constant	-3.232	.901	12.862	1	.000	.039		

$X^2(1, N = 259) = 15.66, p = .000$; variance explained between 5.9% (Cox & Snell R square) and 7.8% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 60.2%

Table 15 Logistic Regression 2nd Block Entry**predicting likelihood of pursuit of BS with Autonomous Regulation, age, gender and race**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.059	.023	6.537	1	.011	1.060	1.014	1.109
Age	-.061	.017	13.805	1	.000	.940	.911	.971
Gender	-.141	.439	.104	1	.748	.868	.367	2.053
Race/ethnicity-NH White			20.548	3	.000			
Race/ethnicity-NH Black	1.580	.353	20.062	1	.000	4.853	2.431	9.688
Race/ethnicity-NH Other	.581	.433	1.805	1	.179	1.788	.766	4.174
Race/ethnicity-Hispanic	.915	.415	4.854	1	.028	2.497	1.106	5.635
Constant	-.680	1.155	.347	1	.556	.507		

$X^2(6, N = 259) = 48.55, p = .000$; variance explained between 17.1% (Cox & Snell R square) and 22.8% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 66%

Table 16 Logistic regression 3rd Block Entry**predicting likelihood of pursuit of BS with Autonomous Regulation and selected demographic variables**

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.066	.025	7.031	1	.008	1.068	1.017	1.121
Age	-.068	.020	11.153	1	.001	.934	.898	.972
Gender	-.209	.466	.202	1	.653	.811	.325	2.023
Race/ethnicity-NH White			10.029	3	.018			
Race/ethnicity-NH Black	1.248	.418	8.904	1	.003	3.484	1.535	7.911
Race/ethnicity-NH Other	.298	.486	.375	1	.541	1.347	.519	3.494
Race/ethnicity-Hispanic	.682	.450	2.295	1	.130	1.979	.818	4.784
Marital – Never			.693	2	.707			
Marital – Married/like	-.306	.426	.515	1	.473	.736	.319	1.698
Marital – No Longer	-.028	.547	.003	1	.960	.973	.333	2.841
Children – None			.185	2	.912			
Children – Under 6	.099	.384	.067	1	.796	1.105	.520	2.345
Children – 6 and older	-.075	.440	.029	1	.865	.928	.392	2.198

Table 16 (continued) Logistic Regression 3rd Block entry predicting likelihood of pursuit of BS with Autonomous Regulation and selected demographic variables

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Nativity – US born	-.533	.352	2.288	1	.130	.587	.294	1.171
Income – over \$145K			6.857	3	.077			
Income - \$104K - \$145K	1.964	.839	5.475	1	.019	7.129	1.376	36.944
Income - \$76K - \$103K	1.364	.842	2.624	1	.105	3.912	.751	20.374
Income - \$10-75K	1.453	.838	3.003	1	.083	4.276	.827	22.120
Working as RN	.767	.580	1.749	1	.186	2.154	.691	6.716
MOM_ED - <HS			.449	2	.799			
MOM_ED – HS/GED	-.294	.458	.411	1	.521	.746	.304	1.829
MOM_ED – College	-.308	.521	.350	1	.554	.735	.265	2.039
DAD_ED - < HS			1.376	2	.503			
DAD_ED – HS/GED	.543	.464	1.370	1	.242	1.721	.693	4.273
DAD_ED – College	.404	.513	.620	1	.431	1.498	.548	4.091
Constant	-2.518	1.842	1.868	1	.172	.081		

$\chi^2(19, N = 259) = 62.39, p = .000$; variance explained between 21.4% (Cox & Snell R square) and 28.6% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 69.1%

Table 17 Logistic Regression 4th Block Entry predicting likelihood of pursuit of BS with Autonomous Regulation, selected demographic variables and scaled variables

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.049	.029	2.761	1	.097	1.050	.991	1.112
Age	-.065	.021	9.643	1	.002**	.937	.899	.976
Gender	-.176	.489	.130	1	.718	.838	.322	2.184
Race/ethnicity-NH White			9.476	3	.024			
Race/ethnicity-NH Black	1.245	.427	8.514	1	.004**	3.472	1.505	8.009
Race/ethnicity-NH Other	.310	.491	.399	1	.528	1.363	.521	3.569
Race/ethnicity-Hispanic	.661	.462	2.052	1	.152	1.937	.784	4.789
Marital – Never			1.070	2	.586			
Marital – Married/like	-.457	.455	1.008	1	.315	.633	.259	1.545
Marital – No Longer	-.200	.568	.124	1	.725	.819	.269	2.491
Children – None			.312	2	.855			
Children – Under 6	.026	.401	.004	1	.948	1.026	.468	2.251
Children – 6 and older	-.201	.452	.197	1	.657	.818	.337	1.984
Nativity – US born	-.506	.364	1.938	1	.164	.603	.295	1.230

Table 17 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with Autonomous Regulation, selected demographic variables, and variables for controlled regulation, perceived

competence and social support subscales

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Income – over \$145K			6.893	3	.075			
Income - \$104K - \$145K	2.077	.862	5.801	1	.016*	7.981	1.472	43.266
Income - \$76K - \$103K	1.491	.862	2.990	1	.084	4.440	.820	24.053
Income - \$10-75K	1.644	.861	3.647	1	.056	5.176	.958	27.976
Working as RN	.701	.594	1.394	1	.238	2.017	.629	6.463
MOM_ED - <HS			.624	2	.732			
MOM_ED – HS/GED	-.334	.467	.511	1	.475	.716	.287	1.789
MOM_ED – College	-.396	.530	.557	1	.456	.673	.238	1.904
DAD_ED - < HS			1.493	2	.474			
DAD_ED – HS/GED	.573	.470	1.485	1	.223	1.773	.706	4.456
DAD_ED – College	.499	.531	.882	1	.348	1.646	.582	4.661
Controlled Regulation	.013	.028	.224	1	.636	1.013	.959	1.071
Perceived Competence	.083	.067	1.524	1	.217	1.086	.952	1.239
Emotional social support	-.032	.044	.524	1	.469	.969	.889	1.056
Tangible social support	.049	.064	.584	1	.445	1.050	.927	1.189

Table 17 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with

Autonomous Regulation, selected demographic variables, and variables for controlled regulation, perceived competence and social support subscales

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Affective social support	-.048	.119	.160	1	.689	.953	.755	1.204
Positive social interaction	.086	.121	.507	1	.476	1.090	.860	1.381
Constant	-4.501	2.465	3.333	1	.068	.011		

X^2 (25, N = 259 = 65.594, p = .000; variance explained between 22.4% (Cox & Snell R square) and 29.8% (Nagelkerke R squared).

Model prediction of case classification improved from 52% to 66.8%

Table 18 Logistic Regression Block Entry predicting likelihood of reporting pursuit of BS with Autonomous Regulation, selected demographic variables, and variable for controlled regulation, perceived competence and total social support

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.049	.029	2.876	1	.090	1.050	.992	1.112
Age	-.067	.021	10.223	1	.001**	.936	.898	.975
Gender	-.128	.486	.070	1	.792	.880	.339	2.282
Race/ethnicity-NH White			9.182	3	.027			
Race/ethnicity-NH Black	1.226	.426	8.287	1	.004**	3.407	1.479	7.850
Race/ethnicity-NH Other	.320	.491	.424	1	.515	1.377	.526	3.608
Race/ethnicity-Hispanic	.655	.456	2.071	1	.150	1.926	.789	4.703
Marital – Never			.756	2	.685			
Marital – Married/like	-.362	.438	.685	1	.408	.696	.295	1.642
Marital – No Longer	-.133	.555	.058	1	.810	.875	.295	2.599
Children – None			.259	2	.879			
Children – Under 6	.113	.388	.085	1	.770	1.120	.523	2.397

Table 18 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with Autonomous Regulation, selected demographic variables, and variable for controlled regulation, perceived competence and total social support

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Children – 6 and older	-.096	.442	.047	1	.828	.908	.382	2.161
Nativity – US born	-.496	.362	1.878	1	.171	.609	.300	1.238
Income – over \$145K			6.700	3	.082			
Income - \$104K-\$145K	2.005	.849	5.580	1	.018	7.426	1.407	39.191
Income - \$76K - \$103K	1.425	.849	2.819	1	.093	4.157	.788	21.935
Income - \$10-75K	1.521	.843	3.256	1	.071	4.575	.877	23.863
Working as RN	.729	.588	1.540	1	.215	2.073	.655	6.558
MOM_ED - <HS			.529	2	.767			
MOM_ED – HS/GED	-.305	.463	.434	1	.510	.737	.297	1.828
MOM_ED – College	-.360	.525	.470	1	.493	.698	.249	1.952
DAD_ED - < HS			1.464	2	.481			
DAD_ED – HS/GED	.563	.468	1.448	1	.229	1.756	.702	4.393
DAD_ED – College	.499	.523	.908	1	.341	1.647	.590	4.593
Controlled Regulation	.016	.028	.308	1	.579	1.016	.961	1.073
Perceived Competence	.078	.066	1.379	1	.240	1.081	.949	1.231

Table 18 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with Autonomous Regulation, selected demographic variables, and variable for controlled regulation, perceived competence and total social support

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Total Social Support	.003	.011	.089	1	.765	1.003	.982	1.025
Constant	-4.543	2.442	3.462	1	.063	.011		

$X^2(22, N = 259 = 64.29, p = .000$; variance explained between 22.0% (Cox & Snell R square) and 29.3% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 68.7%

Table 19 Logistic Regression Block Entry without Perceived Competence with Autonomous Regulation, selected demographic variables, Controlled Regulation, and Social Support subscales, without Perceived Competence

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Autonomous Regulation	.060	.028	4.684	1	.030*	1.062	1.006	1.122
Age	-.065	.021	9.741	1	.002**	.937	.900	.976
Gender	-.293	.475	.381	1	.537	.746	.294	1.891
Race/ethnicity-NH White			10.151	3	.017			
Race/ethnicity-NH Black	1.278	.424	9.061	1	.003**	3.588	1.562	8.244
Race/ethnicity-NH Other	.307	.487	.398	1	.528	1.360	.523	3.532
Race/ethnicity-Hispanic	.669	.459	2.123	1	.145	1.953	.794	4.806
Marital – Never			1.146	2	.564			
Marital – Married/like	-.435	.450	.936	1	.333	.647	.268	1.563
Marital – No Longer	-.082	.558	.022	1	.882	.921	.308	2.749
Children – None			.241	2	.887			
Children – Under 6	-.002	.398	.000	1	.996	.998	.457	2.177
Children – 6 and older	-.191	.451	.180	1	.671	.826	.341	1.999

Table 19 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with Autonomous Regulation, selected demographic variables, variables for controlled regulation and social support subscales, without perceived competence

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Nativity – US born	-.532	.362	2.160	1	.142	.587	.289	1.194
Income – over \$145K			7.192	3	.066			
Income - \$104K-\$145K	2.092	.862	5.894	1	.015*	8.104	1.497	43.883
Income - \$76K - \$103K	1.473	.860	2.935	1	.087	4.362	.809	23.519
Income - \$10-75K	1.606	.859	3.498	1	.061	4.985	.926	26.841
Working as RN	.773	.587	1.735	1	.188	2.167	.686	6.850
MOM_ED - <HS			.582	2	.748			
MOM_ED – HS/GED	-.342	.465	.541	1	.462	.710	.285	1.768
MOM_ED – College	-.352	.527	.445	1	.505	.703	.250	1.976
DAD_ED - < HS			1.413	2	.493			
DAD_ED – HS/GED	.554	.468	1.405	1	.236	1.741	.696	4.354
DAD_ED – College	.413	.523	.625	1	.429	1.512	.542	4.213
Controlled Regulation	.010	.028	.128	1	.721	1.010	.956	1.068
Emotional support	-.028	.044	.411	1	.521	.972	.892	1.059
Tangible social support	.053	.063	.705	1	.401	1.055	.931	1.194

Table 19 (continued) Logistic Regression, block entry predicting likelihood of reporting pursuit of a BS with Autonomous Regulation, selected demographic variables, variables for controlled regulation and social support subscales, without perceived competence

	B	S.E.	Wald	df	Sig.	Exp(B)	95% CI for Exp (B)	
							Lower	Higher
Affective social support	-.034	.118	.084	1	.771	.966	.766	1.218
Positive social interaction	.070	.120	.342	1	.559	1.072	.848	1.355
Constant	-2.951	2.090	1.994	1	.158	.052		

X^2 (24, N = 259 = 63.95, p = .000; variance explained between 21.9% (Cox & Snell R square) and 29.2% (Nagelkerke R squared). Model prediction of case classification improved from 52% to 68.0%

Summary of Findings for Research Questions

The first research question asked: Is there a relationship between social support and motivation among associate degree nurse graduates? Total Social Support was examined as four subscales: Emotional Support, Affectionate Support, Tangible Support, Positive Social Interaction. Motivation was measured as Autonomous Regulation and Controlled Regulation. Spearman's *rho* correlations were conducted as the scores were not normally distributed for all but Controlled Regulation. Significant correlations were noted for Emotional Support and Autonomous Regulation ($r = .195, p = .001$); Tangible Support and Autonomous Regulation ($r = .169, p = .006$); Affectionate Support and Autonomous Regulation ($r = .154, p = .012$). Positive Social Interaction and Autonomous Regulation ($r = .156, p = .011$). While the results indicated a relationship exists between the subscales of Social Support and Autonomous Regulation, the shared variance was small: four percent for Emotional Support and Autonomous Regulation; three percent for Tangible Support and Autonomous Regulation; and two percent for both Affectionate Support and Positive Social Interaction with Autonomous Regulation. There was no correlation between any of the four subscales of Social Support and Controlled Motivation. (Table 10)

The second research question asked: Is there a relationship between Social Support and Perceived Competence among associate degree nurse graduates? As for the first question, Total Social Support was examined as four subscales and Perceived Competence was measured with the Perceived Competence Scale. Spearman's *rho* correlations were conducted as the scores were not normally distributed for all but Controlled Regulation. Significant correlations were noted for Emotional Support and Perceived Competence ($r = .200, p = .001$) and Affectionate Support and Perceived Competence ($r = .124, p = .044$). While the results indicated a relationship exists

between the two social support subscales and Perceived Competence, the shared variance was small: four percent and two percent respectively. (Table 10)

The third research question asked: Is there a relationship between Social Support and the pursuit of a baccalaureate degree among associate degree graduates? Social Support was examined as its four subscales. Point biserial correlations with Pearson's r_{pbi} were conducted. It is acceptable to use Pearson's r for correlations when one of the variables is dichotomous. No significant correlations were noted for any of the four social support subscales and the outcome of pursuit of a baccalaureate degree in nursing among this sample of associate degree nurse graduates: Emotional Support and pursuit of BS ($r = .086, p = .162$); Tangible Support and pursuit of BS ($r = .063, p = .308$); Affectionate Support and pursuit of BS ($r = .050, p = .419$); or Positive Social Interaction and pursuit of BS ($r = .080, p = .191$). (Table 9)

The fourth research question asked: Is there a relationship among motivation, perceived competence and pursuit of a baccalaureate degree among associate degree nurse graduates? Logistic regression was used to assess the effect of the variables. Motivation was operationalized as Autonomous Regulation and Controlled Regulation and entered into a logistic regression model with Perceived Competence to explore the effect on the outcome pursuit of a baccalaureate degree among this sample of associate degree nurse graduates. As presented in Table 12, the model with just the scaled variables for Autonomous Regulation, Controlled Regulation and Perceived Competence and the outcome pursuit of a baccalaureate degree was significant at $X^2(3, N = 262) = 19.48, p = .000$, indicating this model was able to distinguish between respondents who reported pursuit of a BS and those who did not. This model explained between 7.2% (Cox and Snell R square) and 9.6% (Nagelkerke R squared) of the variance in pursuit of a BS and correctly classified 60.3% of the cases. This was an improvement over the

52% explained by the base model. Only Autonomous Regulation made a unique significant contributions to the model. The odds ratio for Autonomous Regulation was 1.06 and statistically significant (OR = 1.06, 95% CI: 1.01 – 1.12, $p = .013$). (Table 12)

The fifth research question asked: Is there a relationship among social support, motivation, perceived competence and pursuit of a baccalaureate among associate degree nurse graduates? Logistic regression was employed to assess the effects of the scale variables. Social support was examined as its four subscales as the Hosmer and Lemeshow test when Total Social Support was entered was significant at $X^2(8, n = 259) = 15.99, p = .04$, indicating the model did not differ significantly from the observed data. A model was created with the social support subscales rather than the scale Total Social Support to assess the effect of Emotional Support, Tangible support, Affectionate Support, Positive Social Interaction, Autonomous Regulation, Controlled Regulation, and Perceived Competence on the outcome pursuit of a baccalaureate degree among this group of associate degree nurse graduates (Table 13). The Hosmer and Lemeshow test was not significant when the social support subscales were entered in place of Total Social Support indicating the model would differentiate from the observed data alone. This model was significant at $X^2(7, N = 259) = 20.12, p = .005$, indicating the model was able to distinguish between respondents who reported pursuit of a BS and those who did not. This model explained between 7.5% (Cox and Snell R square) and 10.0% (Nagelkerke R squared) of the variance in pursuit of a BS and correctly classified 59% of the cases. This was an improvement over the 52% explained by the base model. Only Autonomous Regulation made a statistically significant contribution to the model (OR = 1.06, 95% CI: 1.01 – 1.12, $p = .017$). Neither the Social Support subscales, Controlled Motivation or Perceived Competence made unique significant contributions to the prediction of the outcome, however, the variance

explained improved to 75. – 10% from that explained by Autonomous Regulation alone (5.9 – 7.5%) (Table 13).

The full model created with the forced entry by block method of logistic regression which included the outcome, the demographic variables and the variables for Autonomous Regulation, Controlled Regulation, Perceived Competence and Social Support as its four subscales was significant at $X^2(25, N = 259) = 65.59, p = .000$, indicating that the model was able to distinguish between respondents who reported pursuit of a baccalaureate and those who did not. It accounted for between 22.4% (Cox and Snell R square) and 29.8% (Nagelkerke R squared) of the variance for the outcome and correctly classified 66.8% of the cases. However, with this full model developed with the forced entry by block method, Autonomous Regulation was no longer a significant predictor for the outcome (OR = 1.05, 95% CI: .991-1.11, $p = .097$). When Perceived Competence was removed from the model, Autonomous Regulation retained significance (OR = 1.06, 95% CI: 1.01 – 1.12, $p = .03$) (Tables 18 and 19).

Summary

The study's central question was: what are the relationships among social support, motivation, perceived competence and pursuit of a baccalaureate degree among associate degree nurse graduates? The dissertation provided limited evidence to suggest there was a relationship with some of these variables and pursuit of a baccalaureate degree among this population. Motivation as operationalized as Autonomous Regulation was found to contribute a small effect to the outcome of pursuit of a degree. Controlled Regulation of learning, Perceived Competence and Social Support were not significant predictors associated with the outcome of pursuit of a baccalaureate degree in nursing among this sample of associate degree nurse graduates. Younger

age, non-Hispanic Black race and income range between \$104K – \$145K were also noted to be significant predictors.

Although Autonomous motivation was found to make only a small unique contribution to the outcome of pursuit of a baccalaureate degree in this sample of associate degree nurses, it is the one variable which could potentially be influenced. Undoubtedly, motivation is a multi-faceted construct as depicted in the literature and as evidenced by the multiple factors contributing to the outcome for this study. The emerging evidence to support the recommendation for a more highly educated nurse to meet the changing demands of the healthcare system warrant continued research into the motivational factors associated with pursuit of a BS degree for the largest cohort of nurses in the workforce: associate degree nurses. The emergence of associate degree nursing programs successfully transitioned the education of nurses from the original diploma school, hospital based programs to an academic setting. Associate degree programs based largely in community colleges offer a valuable entry point for more diverse students who may not have access to a traditional baccalaureate degree program. Exploring factors that motivate this rich resource can provide evidence to create strategies and policies likely to enhance the education of all nurses and contribute to a healthcare workforce prepared to meet the challenges of care delivery for future years to come.

CHAPTER FIVE: Discussion of Findings

Overview

The literature reports that there is a growing need for a more highly educated nursing workforce at a time when the educational trend to earn an associate degree in nursing for entry into practice is growing. Analysis of data from both state and national surveys of the registered nurse workforce also reports that 80% of AD nurse graduates do not return to school for additional formal education. Nurse leaders, professional nursing organizations and the Institute of Medicine have put forth recommendations to increase the basic educational level of registered nurses in order to address the changing and growing complexity of healthcare delivery. Efforts to meet these recommendations for a more highly educated nursing workforce require an exploration of factors associated with pursuit of baccalaureate degrees among associate degree nurses, the largest component of the nursing workforce.

This research study proposed to explore some of the factors associated with pursuit of a baccalaureate degree in nursing among AD nurse graduates. Demographic variables commonly used in regional and national surveys of registered nurses were used. In addition, variables associated with educational pursuits and derived from educational and psychosocial theory were explored. The Roy Model of Adaptation was used as a guide to design the study, assist with data analysis and interpret the results.

The purpose of this study was, for a group of associate degree nurse graduates to: a) assess the relationship between social support and motivation, b) assess the relationship between social support and perceived competence, c) assess the relationship between social support and pursuit of a baccalaureate in nursing degree, d) assess the relationship among motivation,

perceived competence and the pursuit of a baccalaureate degree, e) assess the relationship among social support, motivation, perceived competence and pursuit of a baccalaureate degree.

Younger age, non-Hispanic black race, income over \$100K, and Autonomous Motivation were found to be significant predictors to the outcome of pursuit of a BS in this sample of AD nurse graduates. Foreign born status and current work status as an RN were also contributors to the outcome. The study's findings provided limited support for a relationship between autonomous motivation and pursuit of a baccalaureate degree among this sample. Predictor demographic variables for younger age and non-Hispanic Black race were consistent with the literature. Those with an income range greater than \$100K were more likely to pursue a BS degree. This is in contrast to the literature which suggests that earning a degree to advance to a higher paying position is an incentive.

Autonomous Regulation was found to be a significant predictor for the outcome, pursuit of a BS degree in this sample of AD nurse graduates. This outcome supports the theory of Self-Determination which proposes that people are motivated to pursue goals and relationships to satisfy basic needs for autonomy, competence and relatedness. Social Support, Controlled Self-Regulation of learning and Perceived Competence were not found to be significant predictors of the outcome, pursuit of a baccalaureate degree. .

Comparisons with the Literature

Consistent with the findings of the National Sample Survey of Registered Nurses (NSSRN) of 2008, the findings of this study support the broader findings that nurses who are younger in age are more likely to be noted in categories of higher levels of formal education (USHHS, 2010). The National League for Nursing (NLN) Annual Data Review for the academic year 2008-2009 reports only 14% of BSN students are over the age of 30 compared to 49% of

ADN students (NLN, 2010). Provasnik and Planty (2008) reported in the *Condition of Education Supplement* that on average 35% of community college students are over the age of 30 compared to 13% at public four year institutions and 21% at private not-for-profit four year institutions. Community college associate degree programs continue to attract their intended target – those students who might not have the means or freedom from responsibilities to enroll in traditional four year baccalaureate programs, whether nursing or other disciplines (Buerhaus, Staiger, Auerbach, 2009; Phillipe & Sullivan, 2005; Orsolini-Hain, 2008). Several studies also noted a relationship between younger age and return to school for a BS degree among AD nurse graduates (Delaney & Piscopo, 2004; Warren & Mills, 2009)

Findings from this research study indicate that race is a factor in the pursuit of a baccalaureate degree among this sample of associate degree nurse graduates. This is consistent with the findings of the 2008 National Sample Survey of Nurses which report that RNs from minority backgrounds are more likely than their white counterparts to pursue baccalaureate and higher degrees in nursing. Data from 2008 show that while 48.4% of white nurses complete nursing degrees beyond the associate degree level, the percentage is significantly higher or equivalent for minority nurses, including African American (52.5%), Hispanic (51.5%), and Asian (75.6%) nurses (USHHS, 2010). This is also consistent with data from the CUNY Nurse Graduate Survey of 2009, which found minority nursing students were more likely to pursue higher education (Ebenstein, Weinberg, Dale & Croke, 2009). This current study found only 18% of the ADN graduates that pursued a BS were non-Hispanic White compared to 51.4% for non-Hispanic Black ADN graduates. (Table 2)

Nativity (US born vs Foreign born) was not identified as a significant predictor but was included in the best model as a contributor to the prediction of pursuit of a baccalaureate degree

among this sample of AD nurse graduates. A greater percentage of those who pursued a BS degree were foreign born (69.6% vs 30.4%). (Table 2). This may be suggestive of the reasons many immigrants come to the US – to seek educational opportunities. It may also be explained by the composition of the population that attends CUNY nursing programs which tend to have a higher percentage of students born outside the US (Ebenstein, Weinberg, Dale & Croke, 2009) than do private universities.

There was a correlation noted between US born status and higher levels of education for mothers ($r = .158, p < .01$). This may suggest greater educational opportunities available for women within the US. Positive correlations were also noted for US born status and Affectionate Support ($r = .160, p < .01$) and Positive Social Interaction ($r = .157, p < .05$). It is not clear why these are associated with US born AD nurse graduates. Neither the education level of mothers nor Social Support was identified as a predictor for the outcome of pursuit of a BS degree among this sample of AD nurse graduates.

Current work status as an RN was not identified as a significant predictor but was identified as contributing to the best model derived. The growing demand for more educated nurses spurred by Aiken's groundbreaking study on the link between patient outcomes and educational level of nurses, along with institutional decisions to pursue Magnet status and recent policy decisions by influential healthcare systems that require newly hired RNs to achieve a BS would have a greater influence on those currently in the workplace. This would be consistent with the Self-Determination Theory which proposes that humans are adaptive organisms inclined to growth and integration of self and the larger social structures of the environment (Ryan & Deci &, 2000). Individuals are inclined to internalize the social values and external motivations of their environment (Deci & Ryan, 2000). Interpreted through the Roy Adaptation Model:

stimuli from the changes in the work environment would be processed by the cognator through the cognitive-emotional processes including: information processing, learning, judgment and emotion (Roy, 2009). These external values if adopted by the work organizations, to enhance RN education with the attainment of additional formal education, would be adopted by the individual and foster adaptation.

Autonomous Regulation was found to be a significant predictor of the outcome pursuit of a BS in this sample of AD nurse graduates. There were no studies that specifically looked at autonomous motivation and pursuit of a baccalaureate degree in nursing. Several qualitative studies identified terms such as achievement of personal growth, goals or satisfaction as motivations to return to school (Delaney & Piscopo, 2004; Diaconis, 2001; Lillibridge & Fox, 2005; Megginson, 2007). These terms are consistent with the underlying theoretical construct of autonomous self-regulation of learning. Within the Self Determination Theory, autonomy is identified as a basic need to be fulfilled which contributes to a greater likelihood in engaging I behaviors that are adaptive and promote well-being and personal intergration (deci & Ryan, 2000). Interpreted through the perspective of the Roy Adaptation Model, autonomous behavior is a manifestation of the self-concept as the individual adapts and grows, seeking personal integrity of self (Roy, 2009). Pursuit of learning is construed as evolution in growth and development of the self.

Perceived Competence was not found to be a significant predictor. However, Perceived Competence was found to be correlated with both Emotional Support ($r = .200, p < .01$) and Affectionate Support ($r = .124, p < .05$). Although the effects were small, it suggests that these aspects of social support are associated with competence. This would be consistent with the literature of Self-Determination Theory and the Roy Adaptation Model, wherein development of

the self-concept and the sense of competence is enhanced by the surrounding social milieu (Deci & Ryan, 2000; Roy, 2009). Perceived Competence is also correlated with Autonomous Regulation ($r = .453, p < .01$). This is also consistent with the Theory of Self-Determination which proposes that autonomous motivation is facilitated by conditions that satisfy the three basic needs for autonomy, competence and relatedness (Deci & Ryan, 2000/2007)

Contrasts with the Literature

Income level was noted to be a significant predictor in this research study. A larger percentage of AD nurse graduates who pursued a BS were in the income range of \$103K to \$145K compared to those who did not (33% versus 13%). Respondents in this category were 6.3 times more likely that those with income levels greater than \$145K to pursue a BS degree. (Table 2). Those with income levels below \$103K were not significantly more likely to pursue a BS degree than those with income levels greater than \$145K. It is interesting to note that it is those in this higher income level that are more likely to pursue a BS. This is in contrast to several studies which have identified pursuit of a BS as a strategy to advance to a higher level position which is potentially associated with higher salaries (Bryant, 1997; Lillibridge & Fox, 2005; Megginson, 2008; Delaney & Piscopo, 2004; Orsolini-Hain, 2009; Warren, 2004). Respondents more likely to pursue a BS were also more likely to already be in a higher income range.

Several studies identify family and childcare responsibilities as a barrier to pursuit of a BS among this population (Delaney & Piscopo, 2004; Diaconis, 2001; Lengacher, 1993). This research study found no differences in marital status or in the number or ages of children between the two groups, nor was marital status or status of children determined to be a predictor.

The educational level of the participants' mother and father was explored as a possible predictor for pursuit of a BS in this sample of AD nurse graduates. There is literature to support a

positive relationship between the higher educational levels of mothers and fathers on the educational attainment goals of their children and in particular their daughters (Altonji & Dunn, 1996; Flouri, 2006; Lee & Kushner, 2008; Reeder & Conger, 1984; Schlechter & Milevsky, 2010; Wells, Seifert, Padgett, Park & Umbach, 2011). This research study found no relationship between educational level of either parent and pursuit of a BS in this sample. There was a noted negative correlation between the educational levels of the participants' fathers and levels of Perceived Competence ($r = -.144, p < .05$). and Controlled Regulation ($r = -.122, p < .05$) One possible explanation for this is that the higher education level of fathers is associated with more positive feedback regarding academic behavior that enhances a sense of competence which in turn decreases motivation engaged in for controlled or external reasons. A sense of competence is enhanced by positive feedback thus promoting autonomous motivation rather than controlled motivation (Deci & Ryan, 2000). This is consistent with research which found father's education level was a significant predictor for educational attainment of daughters (Flouri, 2006; Reeder & Conger, 1984).

There was also a negative correlation with levels of autonomous regulation and mother's level of education ($r = -.127, p < .05$) suggesting that the higher education level of mothers is associated with promotion of development of autonomy. This is also consistent with the literature which found mother's education has a positive influence on degree expectations of women (Altonij & Dunn, 1996; Flouri, 2006; Wells, Seifert, Padgett, Park & Umbach, 2011). The fact that educational levels of mothers and fathers was correlated with different components related to self-determined motivation suggests they influence satisfaction differently for the needs for autonomy, competence and relatedness.

Although Social Support has been identified in several studies as an important factor for those enrolled in school, in this study, it was not a predictor for the outcome of pursuit of a BS within this sample of AD nurse graduates. One possible explanation is that it is more important to the individual once the individual has returned to school. This would align with the theoretical perspective of social support as a buffering effect for the stress of returning to school (Cohen, Underwood & Gottlieb, 2000). Interpreted through the conceptual perspective of Roy's Adaptation Model, this would highlight the importance of coping strategies to foster adaptation.

Social Support did correctly classify 87% of those who did pursue a BS and was significantly correlated with Autonomous Regulation (Emotional support, $r = .195$, $p < .01$; Tangible Support, $r = .169$, $p < .01$; Affectionate Support, $r = .154$, $p < .05$; Positive Social Interaction, $r = .156$, $p < .05$). This would be consistent with the literature of Self-Determination Theory which proposes that the basic need for autonomy can be enhanced by autonomy supportive environments, and fulfilling the need for relatedness – an aspect of social support (Deci & Ryan, 2000/2008).

Summary

Consistent with findings from the CUNY Nurse Graduate Study (Ebenstein, Weinberg, Dale & Croke, 2009), the Healthcare Workforce in NY studies (CHWS, 2011) and the National Sample Survey of Registered Nurses (USDHHS, 2010), this research study found that both younger age and minority race were identified as predictors for pursuit of a BS degree. Older age has been reported as a barrier in studies exploring incentives and barriers for return to school among this population (Delaney & Piscopo, 2004; Warren & Mills, 2009).

One explanation for younger age as a predictor for pursuit of a BS degree may be related to the length of time it takes to secure a higher degree. Although associate degree programs are

identified as two year degree programs, the reality is that for many nursing students in AD programs it may take three or as many as five years to complete the program (Ebenstein & Dale, 2011; IOM, 2010; Orsolin-Hain, 2009). The 2008 NSSRN (USDHHS, 2010) reports that the average length of time it takes for an AD nurse graduate to complete a BS degree is 7.5 years – this would be in addition to the 3-5 years already expended to attain an AD degree. The mean age at graduation from an AD program for this population was 36 for those who did not pursue a BS and 32.5 for those who did pursue a BS. This is consistent with national data that reports a higher percentage of students over the age of 30 age among those who graduate from an AD program (NLN, 2010; Provasnik & Planty, 2008).

Race was a variable associated with pursuit of a BS degree among this sample of AD nurse graduates. Only non-Hispanic Black race was found to be significant when compared to non-Hispanic White race. Non-Hispanic or Hispanic AD nurse graduates did not pursue a BS at significantly different rates than non-Hispanic White AD nurse graduates. This is consistent with national data from the NLN and the NSSRN which report a greater rate of return to school among minority groups (NLN, 2010; USDHHS, 2010). One explanation for this finding in this study may be the higher percentage of minority students that attend CUNY nursing programs (Ebenstein & Dale, 2010; Ebenstein, Weinberg, Dale & Croke, 2009). This is consistent with the mission of CUNY to provide affordable education for all.

In this study, income range was a predictor for pursuit of a BS among AD nurse graduates. The income range most likely to pursue a BS was the category \$104K – \$145K when compared to the income range greater than \$145K. Income ranges below \$104K were not significant. Several studies identify one incentive for return to school to be opportunity for job advancement and higher salary (Delaney & Piscopo, 2004; Graf, 2001; Lillibridge & Fox, 2005;

Orsolini-Hain, 2009; Graf, 2001). While it would not be unusual for an individual in this income category to seek a higher salary by advancing to a position with increased educational requirements, the literature supports the greater likelihood that an individual in a lower level income range would return to school to pursue a position with a higher income. (Altonji & Dunn, 1996; Graf, 2001). One possible explanation for this may be that motivations for pursuit of a BS degree are not driven by the desire for salary enhancement, but for other reasons. Those AD nurse graduates in the income range \$104 - \$145K are presumably in an income category that allows them to meet their personal responsibilities and now have the financial ability to return to school. This would be consistent with more recent studies which suggest that the incentive for higher salaries associated with greater opportunities afforded by a higher degree may not be a driving force in the decision to pursue a BS degree (Spetz, 2002; Warren & Mills, 2009)

Autonomous Regulation was determined to be a significant predictor for pursuit of a BS degree among this sample of AD nurse graduates. This is consistent with Self-Determination theory which proposes that autonomous regulation of learning is associated with autonomous or intrinsic motivation – which emerges from the inherent tendency to explore, exercise capacities and freely engage in interests (Deci & Ryan, 1985/2000/2008). Underlying this intrinsic motivation is the drive to satisfy the need for autonomy, competence and relatedness.

Individuals are motivated to pursue goals and relationships that support satisfaction of these basic needs (Deci & Ryan, 2000). Interpreted through the Roy Adaptation Model, human development is viewed as a process of internalization, adaptation and integration into the inner structure of the self and the individual's world.

Autonomous Regulation was correlated with Perceived Competence ($r = .453, p < .01$). This is consistent with the Theory of Self-Determination which proposes that the more

autonomous the self-regulation of behavior, the more intrinsically motivated and the more integrated is the self-concept. Enhanced self-concept is associated with a sense of perceived competence for an activity (Deci & Ryan, 2000). The findings of this study support the theoretical constructs of the Self-Determination theory – Autonomous Regulation is associated with academic pursuit and persistence.

Some of the findings in this study are consistent with the findings in regional and national surveys. Although Autonomous Regulation was found to contribute a significant but small effect, it is important as a finding because it is a factor that can possibly be influenced, whereas age and race cannot be changed.

CHAPTER SIX: Recommendations

Implications for Future Research

Future research should continue to explore what factors motivate associate degree nurses to return to school. Much of the research on this topic has been done with nurses who have already returned to school. Little research has been conducted with those nurses who have not returned to school. In this study, Autonomous Regulation made only a small unique contribution, however, correlations between Perceived Competence and Autonomous Regulation as well as Emotional Support and Affectionate Support with Autonomous Regulation suggest areas for further exploration. Although not found to be significant predictors, correlations between mothers and fathers level of education with autonomous regulation and perceived competence respectively, also suggest areas for further exploration.

Age and race cannot be changed although targeted strategies could be researched developed that take these factors into consideration. The finding on income suggests an area for further research as well. It is a current prevailing belief that the opportunity for a higher income is a strong motivation for associate degree nurses to return to school. Research by Graf (2006) and Warren & Mills (2009) suggest that the opportunity for higher income may not be as important as reported.

Secondary analysis of this study could be done to examine differences by age cohort, race, and reported scores for each of the scaled variables for Autonomous Regulation, Perceived Competence, and Social Support. The Self-Determination Theory provides a theoretical foundation to explore and research strategies that are autonomy supportive.

Methodological enhancements for this topic would include the use of qualitative studies to further explore why 80% of AD nurse graduates do not return to school. Longitudinal studies

that track AD graduates who have been exposed to an autonomy supportive environment could be implemented. Research on this approach has demonstrated long term results in academic persistence, and internalization of psychosocial values that were then extended to caring for patients (Williams & Deci, 1996). Research with AD nurse graduate subjects from different geographic environments would also add insights.

The focus of this study has been on associate degree nurse graduates and the pursuit of a BS degree. Eighty percent of AD nurse graduates do not return to school. However, it is also the case that 80% of baccalaureate degree nurse do not return to school for additional formal education (USDHHS, 2010). The baccalaureate degree is the precursor to graduate education at the masters and doctoral level. The net effect is fewer nurses who are eligible and likely to continue for the advanced education required to become faculty and advanced practice nurses (Aiken, Cheung & Olds, 2009). Research to explore what motivates this group to return to school would contribute to development of strategies to motivate all levels of nurses to continue their educational mobility and meet the recommendations for the *Future of Nursing* (IOM, 2010).

Implications for Policy Recommendations

Given what was found in this study and what is found in the literature, new paradigms for nursing education are recommended. Associate degree nursing programs currently provide the basic level education for nearly 70% of new graduates in this country and are geographically accessible to students. Nursing programs in baccalaureate granting universities are limited in number and not geographically accessible for many students. Although online programs are increasingly prevalent, they are not appropriate for all students and clinical experiences still need to be organized in an accessible location for students. Many university programs have opted out of providing generic baccalaureate nursing programs, instead addressing their resources toward

graduate nurse education and RN completion programs which are less costly. New partnerships such as that exemplified by the Oregon Consortium, which dually enroll students from eight neighboring community colleges and the five campuses of the Oregon Health and Science University, and utilizes a shared standard competency-based curriculum could be fostered (Tanner, 2008). This innovative and integrative approach to nursing education has increased the progression of associate degree nurses to the baccalaureate degree to 40% from the national norm of 20% (C. Tanner, personal communication, August 13, 2010).

New collaborative partnerships between community college nursing faculty and baccalaureate program faculty could be created. The significant contribution of community college nursing faculty to the educational preparation of the registered nurse workforce should be acknowledged. Associate degree nurse educators are typically clinically immersed with students as well as teaching in the classroom, adding a “hands-on” element to their teaching strategies that is frequently missing in baccalaureate programs that rely on clinical adjunct faculty. Many are doctorally prepared and engaged in research and implementation of evidence based practice. Too often, baccalaureate program faculty minimize the caliber of education provided in associate degree programs rather than embracing an opportunity to jointly build a culture of ongoing learning that values the contributions and opportunities for enhancing the diversity of the nursing workforce through these portals of entry to practice.

Rather than view the associate degree as the terminal degree, AD nursing faculty need to promote the idea that it is the only first step in the ongoing journey of nursing education. Providing an autonomy supportive learning environment that encourages active learning and a spirit of inquiry can foster interest in lifelong learning. Development of opportunities for community college nursing faculty to engage with faculty in baccalaureate degree programs for

interprofessional educational experiences for both faculty and students will go a long way in meeting the recommendations of the IOM's Future of Nursing.

Implications for Practice Recommendations

As the evidence mounts regarding the relationship of nursing's level of education and patient outcomes, along with evidence-based recommendations to increase the educational level of nurses from the Institute of Medicine, the Carnegie Study, and nursing organizations, healthcare institutions need to invest in nursing education. The implications of the educational level of nurses on patient safety and quality of care can not be ignored. The embracement of the value of enhanced education for nurses by institutions can be integrated by the institution's nursing workforce, and provide additional resources for improvement of patient safety and quality. No longer can institution's equate the education of nurses as a cost, but should evaluate it as an investment in the quality and safety agenda of the organization. The innovation of a associate degree nursing education fostered the adaptation of an educational model that differed from the one hundred year tradition of hospital based programs initiated by Nightingale. The time is now for the development of innovative and creative collaborations between healthcare organizations and academic centers to foster adaption of nursing education to a new model for the future of healthcare delivery.

Growing evidence demonstrates a link between education for transition to practice and long term retention of new nurse graduates (Beecroft, Kunzman, & Krozek, 2001; Beecroft, Kunzman, Taylor, Devenis, & Guzek, 2004; Beecroft, Santner, Lacy, Kunzman, & Dorey, 2006; Kovner, Brewer, Fairchild, Poornima, Kim & Djukic, 2007; Ulrich, Krozek, Early, Ashlock, Africa, & Carman, 2011). The quantity of information available for use by healthcare providers is enormous and can no longer be reasonably expected to be known in entirety by individuals.

Nurses, among other healthcare providers, need to learn to be effective partners on the healthcare team, how to manage information and navigate the clinical system. These are experiences that are not traditionally taught in the classroom. A movement toward residency education for nurses has demonstrated decreased new graduate turnover from as high as 35 – 60% in the first year down to 7% with the implementation of an autonomy supportive program that emphasizes the development of competence and self-confidence (Ulrich, Krozek, Early, Ashlock, Africa & Carman, 2011). Registered nurse turnover is costly to organizations in both direct and indirect costs. Replacement costs for each new nurse in 2007 have been calculated on average to be \$82,000 - \$88,000, while every percentage point increase in nurse turnover costs an average hospital \$300,000 annually (Jones, 2008; Price Waterhouse Coopers, 2007). In addition, the indirect cost effects of new nurse turnover included adverse outcomes for patients, lack of continuity of care, loss in productivity, and increased time allocation for staff management (Duffield, Roche, O'Brien-Pallas, & Catling-Pauli, 2009). Turnover rates for Baccalaureate degree nurses were slightly lower than associate degree nurses at 12 months but slightly higher in subsequent years (Ulrich et al, 2011). Organizational investment in nursing education is likely to enhance quality and safety in patient care, decrease turnover in RN staff, promote increased organizational commitment and result in cost savings.

Summary

The recommendations of the IOM report, *The Future of Nursing*, were formed in consideration of the increasing complexity of the healthcare system and the shift of significant responsibilities to nurses for management of complex care as well as the growth in community based care delivery. To address a key recommendation for 80% of nurses to have a baccalaureate degree, research agendas for nursing education should continue to include exploration of factors

that may motivate the 80% of associate degree nurses, the largest component of the nursing workforce, who do not pursue a baccalaureate degree. Healthcare reform, however, will require expansion and enhanced education of the entire future nursing workforce. Research on motivations and barriers for the pursuit of graduate level education is also needed to ensure the development of nursing faculty to educate the future nursing workforce of clinicians, researchers and advanced practitioners. Investment in education will require creative collaborations to be forged with healthcare organizations and academic settings. New approaches to the continuum of nursing education will be needed, along with research on best practices to prepare nurses for the new paradigm of healthcare delivery. A growing body of research suggests this continuum should extend to the transition to practice. Investment in nursing education can provide longterm benefits for the profession of nursing, the capacity of healthcare organizations, patient safety and quality of care.

APPENDIX A: CONSENT SCRIPT

Hi, I'm calling from the Cornell Survey Research Institute. A researcher approved by the University Dean of the City University of New York contracted with us to conduct a follow-up phone survey of people who graduated from Associate Degree CUNY Nursing programs and participated in the Nurse Graduate Survey. I am contacting you because you were a participant in that phone survey which we conducted in 2008. CUNY would like your opinion about factors that may have influenced your decisions about your nursing education. The survey will take approximately 20 minutes to complete. As a small token of our appreciation for your time, we will send you \$10 after you complete the survey.

Participation in this study is voluntary. By participating, you agree that the information you provide may be combined with your previous survey responses. I assure you that your information will be held in strict confidence and will not be revealed to others. The data collected in this study will be aggregated and no data identifying you will be released. Your information will be protected on encrypted computers that are only accessible to authorized personnel.

You are free to stop at any point during the interview and you are under no obligation to answer each question. If you do not know or do not wish to answer a particular question, just let me know.

Would you like to participate in the survey?

[If yes....]

(Screen for AD degree vs BS enrollment or completion)

You have been contacted because you are a graduate of a CUNY Associate Degree Nursing Program. I would like to ask you some follow-up questions about any plans you may or may not have about pursuing further education.

Q1. Since that last survey in 2008, have you completed or are you currently enrolled in a degree program that will lead to a bachelor's degree?

Yes → go to Q2

No → go to Version B (Learning Self-Regulation for Baccalaureate Nursing)

Q2. (If yes to Q1) Will it be a bachelor's degree in nursing?

Yes → go to Version A (Learning Self-Regulation for Baccalaureate Nursing) No → go to Version B (Learning Self-Regulation for Baccalaureate Nursing)

APPENDIX B: DEMOGRAPHIC QUESTIONS

DEMOGRAPHIC QUESTIONS (For both Groups)

We are almost finished with the survey, the remaining questions are to update background information you provided on the last survey.

- Are you currently working as an RN? YES, NO
- What is your current marital status? Are you NEVER MARRIED or SINGLE, MARRIED, IN A MARRIED-LIKE RELATIONSHIP, WIDOWED, DIVORCED, SEPARATED?
- Are there children who live ay home with you? YES, NO
- Are any of these children under the age of six? YES/NO
- Please indicate one race that you primarily consider yourself to be. DO you consider yourself AMERICAN INDIAN OR ALASKAN NATIVE, ASIAN, BLACK OR AFRICAN-AMERICAN, NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER, OR WHITE?
- Are you of Hispanic or Latino origin? YES, NO
- What is your age?

This concludes our interview. Thank you for your participation.

APPENDIX C: PERMISSION TO USE SRQ-L and PERCEIVED COMPETENCE SURVEYS

Re: research

Ed Deci [deci@psych.rochester.edu]

Sent: Monday, November 22, 2010 1:42 PM

To: Reilly, Margaret

On 11/22/10 1:06 AM, "Reilly, Margaret" <MReilly@gc.cuny.edu> wrote:

Dear Dr. Deci,

The weblink for contact on the SDT site is not working. So I am contacting you directly.

****I will ask someone to look into this.

I am a doctoral student in nursing science at the City University of NY Graduate Center. I am interested in using your tool: the Learning Self-Regulation Questionnaire (SRQ-L) to identify tendencies toward intrinsic or extrinsic motivation and the Perceived Competence Scale (PCS) for my dissertation work. I will be doing research on the relationship of social support, motivation and perceived competence and the pursuit of a baccalaureate degree among associate degree nurse graduates. I would like to request permission to use these tools.

****You have our permission to use these questionnaires in your academic research.

In reviewing your website, I was able to find information on reliability and validity for the general causality vignettes but I was unable to find any reference to construct validity for these tools (SRQ-L & PCS).

****These instruments gain their construct validity from the studies in which they were used and found to predict the outcomes that they are theoretically expected to predict. Since there were not specific papers focused on their construct validity, you would gather the info relevant to each from the papers that used them.

The LCQ was used in

Williams, G. C., & Deci, E. L. (1996). Internalization of biopsychosocial values by medical students: A test of self-determination theory. *Journal of Personality and Social Psychology*, *70*, 767-779.

Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education*, *84*, 740-756.

Williams, G. C., Saizow, R., Ross, L., & Deci, E. L. (1997). Motivation underlying career choice for internal medicine and surgery. *Social Science and Medicine*, *45*, 1705-1713.

I am sure it has been used in other studies since then, but I would have to go over the web site in the education section of Publications to try to figure out which ones they might be.

The PCS has been used mostly in health care. I cannot off hand think of an education study where it was used.

Most all of the Williams et al studies listed under the Health Care section used the PCS; Also the Halvari studies, and so on.

Can you refer me to any published literature on this aspect as well as any more recent uses of these tools?

Discussions of the social context influence on internalization of social values is suggestive of the concept of social support. Are there any tools you and your research team utilize for social support?

***Not really. Autonomy support is what we mostly focus on. It is related to social support, but you can have social support that is not autonomy supportive.

Also, we have a measure of relatedness need satisfaction, which is part of the Basic Psychological Need Satisfaction Scale. To feel greater relatedness need satisfaction in a situation suggest there has been social support.

Thank you

Margaret J Reilly

Edward L. Deci

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Gowen Professor in the Social Sciences
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email: deci@psych.rochester.edu
website: <http://selfdeterminationtheory.org>

APPENDIX D: PERMISSION TO ADAPT SRQ-L AND PERCEIVED COMPETENCE SURVEYS

Re: research

Ed Deci [deci@psych.rochester.edu]

Sent: Wednesday, February 02, 2011 12:11 PM
To: Reilly, Margaret
Cc: Geof Williams [edu.rochester.urmc@williams_geoffrey]

See below following each *****

On 2/2/11 11:27 AM, "Reilly, Margaret" <MReilly@gc.cuny.edu> wrote:

Dr Deci and Dr. Williams,

I am a doctoral student at the City University of New York in the US. Guided by the SDT, I will be doing research on the motivation to pursue or not to pursue a baccalaureate degree among associate degree nurses that graduated over a ten year period from the City University of New York nursing programs.

I would like to use an adaptation of the Self Regulated Questionnaire for Learning - however, I would like to adapt it for the nurses that did pursue a baccalaureate degree as well as for those that did not.

I was having difficulty adapting the SRQ-L for the two groups. (A) Associate Degree Nurses who progressed to obtain a Baccalaureate degree and (B) Associate Degree Nurses who did not. Is it acceptable to phrase the questions in the past tense as well as future tense? Can the questions be posed if the group is not participating currently in the activity (i.e. baccalaureate completion program for associate degree nurses)?

*****Yes, you can use the questions in past tense as well as future, and also in terms of why you would have done something.

eg:

A: When I was in the baccalaureate completion program I DID participate actively in the nursing classes

B: If I was enrolled in a baccalaureate completion program I WOULD participate actively in the nursing classes

*****You can certainly do this if it is what you want to find out. This tells why they would be doing it if they had been doing it.

A: When I was in the baccalaureate completion program I WAS LIKELY TO FOLLOW my instructor's suggestions for studying nursing materials

B: If I was enrolled in a baccalaureate completion program I WOULD BE LIKELY TO FOLLOW my instructor's suggestions for studying nursing materials

A: The reason I continued to expand my nursing knowledge and skills with bacclaureate nursing classes is:

B: Not sure how this could be re phrased for the group that did not progress

*****"If I have continued to expand my nursing knowledge and skills with bac. nursing classes it would have been because...."

Other thoughts - To use the General Causality Orientation Scales

***** The GCOS is different from the SRQ. I will see if I can find a copy of the SRQ-JS. That of course gets at something quite different from above because it would be about why the AD nurses did NOT go into the Bacc degree.

In reading your study of 2004 with Vansteenkiste, Lens, DeWitte, DeWitte and Deci on The Why and why not of job search behavior in European Journal of Social Psychology 34, 345–363 (2004); you adapted the SRQ to ask " Why are you searching for a job" as well as "Why are you not searching for a job". I would like to do something similar for the two groups I will be surveying but was unclear if you developed two different surveys or had both types of questions on the same survey tool. I was unable to find your adapted survey on the Self-Determination website. Do you have a sample you would be willing to share?

I have tried to contact with Dr. Vansteenkiste at the we address listed on the SDT website but I have not been able to reach him. Can you assist me in reaching him or in obtaining a copy of the SRQ-JS. I would appreciate any guidance on the use of these scales or the GCOS.

This research will be conducted via telephone.

Many thanks,

Margaret J Reilly
 Doctorate in Nursing Science Student
 City University of New York
 917 881 5014 (cell)
MReilly@gc.cuny.edu

From: Ed Deci [deci@psych.rochester.edu]
Sent: Tuesday, November 23, 2010 11:51 AM
To: Reilly, Margaret
Subject: Re: research

I don't know of any studies that have done phone interviews. But quite a few people are using the various questionnaires on the web and they work fine there. However, I think the GCOS is probably too long for the internet. What I hear from people using the internet is that people have an attention span for online surveys of about 20 minutes. So I think you have to be careful about this.

On 11/23/10 11:43 AM, "Reilly, Margaret" <MReilly@gc.cuny.edu> <<https://wa.gc.cuny.edu/owa/UrlBlockedError.aspx>> > wrote:

Dr. Deci,

The message from the SDT contact link is: **CAPTCHA Failed. Please try again.**

I do not see that any of the tools been used via telephone survey, is it acceptable to use your tools via a trained telephone interviewer or electronic survey as via Monkey Survey?

specifically:

The General Causality Orientations Scale
The Self-Regulated Questionnaire for Learning

I will contact Dr. Williams regarding survey via telephone or electronic form as in survey Monkey for the Perceived Competence Scale and Dr. Gagne regarding the Basic Psychological Needs Satisfaction Scale

thank you,

Margaret Reilly
DNS student CUNY Graduate Center

Edward L. Deci

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Gowen Professor in the Social Sciences
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Rochester, NY 14627
phone: 585-275-2461
fax: 585-273-1100
email: dec@psych.rochester.edu <<https://wa.gc.cuny.edu/owa/UrlBlockedError.aspx>>
<<https://wa.gc.cuny.edu/owa/UrlBlockedError.aspx>>
website: <http://selfdeterminationtheory.org>

**APPENDIX E: AUTHOR PERMISSION FOR CONTINUUM OF MOTIVATION
FIGURE**

Re: research

Ryan, Richard [richard.ryan@ur.rochester.edu]

Sent: Saturday, October 29, 2011 1:12 PM

To: Reilly, Margaret

Cc: Ed [edu.rochester.psych@deci]

Marge

You have our permission to use the figure. Good luck with the defense!

Richard

--

Richard M. Ryan, Ph.D.

Professor of Psychology, Psychiatry and Education

and Director of Clinical Training,

Clinical and Social Sciences in Psychology

University of Rochester

This year:

Visiting Professor and Leverhulme Fellow

Department of Health

University of Bath, UK

<http://www.selfdeterminationtheory.org>

On 10/29/11 6:08 PM, "Reilly, Margaret" <MReilly@gc.cuny.edu> wrote:

Dear Drs. Deci & Ryan,

I am a doctoral student in Nursing Science at the City University of NY. I have completed my dissertation research which utilized the Theory of Self Determination and am preparing to defend my study. I would like permission to use a figure depicting the self-determination continuum as an illustration in my dissertation.

The specific figure I would like to use is

Figure 1: The Self-Determination continuum showing types of motivation with their regulatory styles, loci of causality, and corresponding processes

on p 72 of the following article:

Ryan, R. & Deci, E. (2000). Self-Determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55 (1), 68-78. DOI: 10.1037//0003-066X.55.1.68

See attached

Thank you,

Marge Reilly DNS(c)
CUNY Graduate Center
Nursing Science

APPENDIX F: APA PERMISSION TO USE FIGURE

Title: Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being.

Author: Ryan, Richard M.; Deci, Edward L.

Publication: American Psychologist

Publisher: American Psychological Association

Date: Jan 1, 2000

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